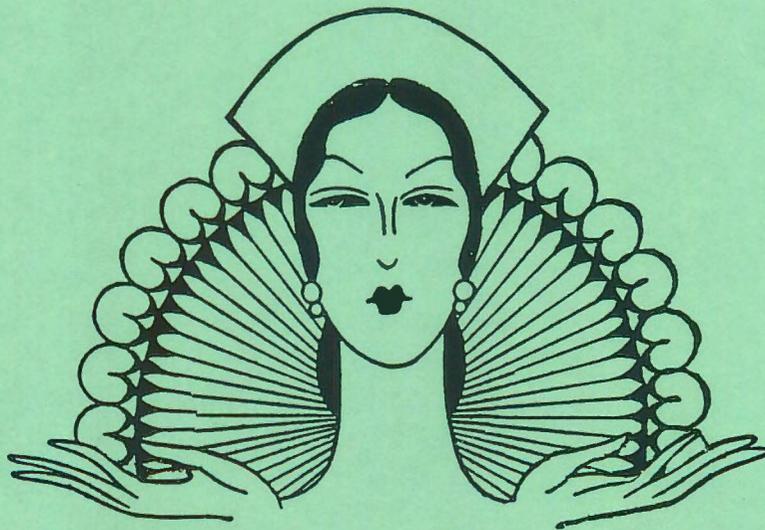


**Survey of
Therapeutic Touch
“Research”**



Front Range Skeptics

Survey of “Research” on Therapeutic Touch

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**Originally Presented as a Report to the
Therapeutic Touch Review Committee,
Health Sciences Center, University of Colorado**

**Presented 21 March 1994
and (revised) 25 April 1994**

**Revised for Publication, March 1996
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Credibility

Therapeutic Touch does have a proven record of being able to help or heal those in need.
—Dolores Krieger, New York University

No one and no thing can heal another human being. All healing is creative emergence, new birth, the manifestation of the powerful inner longing, at every level, to be whole. Yet there is a role for nurses. We can remove barriers to the healing process.... We can, literally, become the healing environment.

—Janet Quinn, University of Colorado Health Sciences Center

The pretense of the healers that they perform scientific therapies is unconscionable. In our struggle to achieve academic recognition as a profession, we simply cannot afford to indulge in this kind of charlatanism. Therapeutic Touch challenges the validity of modern nursing research, teaching and practice. If its practitioners insist on their healing roles, let them honestly call themselves faith healers and stop claiming they are nurses who heal.

—Myra Levine, Nursing Theorist

Preface to 1996 Edition

In January, 1992, the presenter of this Survey went before the Colorado State Board of Nursing to object to the awarding of continuing-education credit to nurses for courses offered in various unproven "alternative-care" techniques (also called "New Age" therapies, health fads, and nurse quackery). She asked that stricter oversight be given by the Board over the content of such materials. She was turned down. This Survey is one end-result of being turned down.

Curiously, the justification made by the Board to turn down the skeptical request before them was that there is a "increasing volume of research and clinical literature" which established the efficacy of a single practice called "Therapeutic Touch" (TT). Immediately all the other practices complained of dropped away and all attention centered upon this one practice. A subsequent request of the Board to document this "research" was answered with a reading list prepared by a University of Colorado nursing professor, Janet Quinn.

An analysis¹ of Quinn's reading list showed so little true research, so much padding, and such sparse academic support, that skeptical attention was turned onto the CU School of Nursing, a tax-supported institution. It was discovered that the place was a hotbed of activity in TT and other alternative "caring" therapies.² Since it was generating academic respectability for these practices (not to mention claims of "volumes of clinical research"), and was doing so with a cloak of scientific respectability, it was decided that some challenge needed to be mounted.

A skeptic's request for a hearing in the summer of 1993, made to CU's Board of Regents, led to the Chancellor of the Health Sciences Center appointing an "Academic Relevance" Committee. The recommendation of that Committee was that another "blue-ribbon" investigation be empaneled to determine the scientific basis of TT. The idea was that, if there was a scientific basis for TT, then it should be continued to be taught at the School of Nursing; if not, then it should no longer be taught. The panel was formed and chaired by Dr. Henry Claman, a Distinguished Professor of immunology at CU.

The analysis made of Quinn's reading list was expanded and re-organized to become a report on the scientific (or pseudo-scientific) findings used to support TT. This report was handed to Dr. Claman's committee in March, 1994. At a public hearing held by him a month later, a revision was presented.

¹ See Annex B.

² A recounting of the entire process in some detail, along with a history of the development of TT, can be found in Rosa (1994c).

In August, 1994, Dr. Claman's committee reported. Among other things, he and his committee found:

To date, there is not a sufficient body of data, both in quality and quantity, to establish TT as a unique and efficacious healing modality...This lack of data and consequently the perceived uncertainties...brings the potential to have a negative effect on the stature and reputation of the School of Nursing. Qualitative judgments and evaluation are not sufficient to document and establish TT as an efficacious therapeutic or healing modality....If an effect is observable, it can be measured. It is not adequate to state that TT involves mechanisms which exist beyond the five senses and which therefore cannot be proven by ordinary methods. Such comments are a disservice to science and the practice of healing and demonstrate a commitment to metaphysics and the mystical view of life rather than to a scientific or rational view of life....It is inappropriate in the context of a health science center to teach and practice TT for another 20 years in the absence of validation of TT as an efficacious healing modality.

Although TT practitioners state that the existence and nature of the [human] energy field is an hypothesis which has not been confirmed in over 20 years, in practice they behave as if the energy field were a perceptible reality. There is virtually no acceptable scientific evidence concerning the existence or nature of these energy fields. There is no ongoing research on this concept at the Center for Human Caring, nor are there any plans for such research, nor even any ideas about how such research might be conducted.

This last insight of the Committee is profound. TT early became inextricably intertwined with the notion of healing energy. When pressed, advocates will deny the necessity for its existence, or for any underlying theory of cause and effect for that matter. But when they work at selling it to the lay public, they are drawn irresistably back to its roots. In the words of TT's founder (long before the bulk of the research reported here had been conceived):

We are literally *throughputs* of energy. A healer's effectiveness doesn't depend on any hokus-pokus. It depends on his or her ability to direct energy.

Listening to the partisans, one becomes convinced that it is more important to them that their underlying beliefs be accepted than that the intervention be truly effective. In other words, a demonstration of the efficaciousness of TT is important only as a validation of their world-view, of which the keystone is the notion of healing energy. TT can be viewed more as a religious tenet, be it a derivative of Theosophy, Taoism, Hinduism, or some New Age amalgam. For a tax-supported institution, this religious aspect raises additional concerns related to constitutional principles on the separation of church and state.

In spite of all this, TT is still being taught at CU. The original recommendation for a scientific standard was scrapped and a test of "academic freedom" was substituted. By this revised standard, it was determined that TT could not be sent off campus.³

³ The Claman committee's finding, in its entirety, can be found in Annex D.

Skeptics, of course, were disappointed in the final result, but have taken some cheer in the scientific findings of the Claman Committee. If nothing else, it has exposed TT to be scientifically baseless in both its theoretical underpinnings and its clinical evidence.

TT practitioners and New Age adherents have trumpeted the Claman decision as a vindication of their practices. They should not. In the scientific sense, TT is baseless and useless. If science is any guide, then ultimately, all connected with TT will be embarrassed and discredited. What is in the pages of this document shows why that will be true. It will be curious to see when the time comes how the medical/nursing establishment explain away their taciturnity. Their lack of challenge has already emboldened Dolores Krieger to declare, "There is validity to Therapeutic Touch. Otherwise we would have been burned as witches long ago." [Jaroff (1994)]

A number of studies published since the initial compilation have been added to this edition. The dates of publication reveal which these are (essentially anything after 1992).

Linda Rosa, RN
Loveland, Colorado
March, 1996

Preface to Original Report

The creation of the present Committee is a direct result of a report of the Academic Relevance Committee reviewing the affairs of the Center for Human Caring (associated with the School of Nursing within the Health Sciences Center of the University of Colorado). That report, submitted to Chancellor Vincent Fulginetti and passed along to (and favorably received by) the Board of Regents of CU, made the following recommendation:

7. Our Committee believes that the following should be done with regard to Therapeutic Touch. The Chancellor and the Dean of the School of Nursing should appoint a special committee of investigators to carefully read the very extensive literature on this subject, to view all the videos and relevant course material, and to witness actual demonstrations of this technique. It should solicit testimony from both critics and advocates. The members of the committee should be investigators well-versed in the scientific method and should come from several disciplines on the Health Sciences Center campus with the exception of the School of Nursing. Nurses should be represented on the committee but it would be appropriate if they came from other nursing schools to avoid the appearance of conflict of interest....Rather than superficially review this most contentious area, we feel that it should be done once and for all in depth, and in a thorough scientific manner. We believe that a focused committee with this single charge could come up with a useful report in a short time frame. If Therapeutic Touch is not recognized as a bonafide activity with academic relevance, then no further course work should be offered under the ægis of the University. [UCHSC (1993)]

This survey is submitted to the Committee as testimony of “critics” of Therapeutic Touch. We have endeavored to survey all scientific, quasi-scientific, and pseudo-scientific literature on the subject. Every piece which has been cited as “research” in discussions, bibliographies, or references to TT has been sought out, abstracted, and critiqued below. We present this in the spirit of a “review...done once and for all in depth, and in a thorough scientific manner.” As critics, we are confident that a fair look at *all* the alleged research in this area will demonstrate to all with an open and inquiring viewpoint on this subject that the case for Therapeutic Touch is completely devoid of scientific credibility or merit. As a result, the Committee should recommend that TT be removed from the curriculum.

Proponents are very fond of citing “study after study” in support of their claims. For example, as recently as just a year ago, Dolores Krieger defended her baby with these words:

At this time, 20 doctoral dissertations have been completed on Therapeutic Touch, and eight more are in progress. Also 10 completed postdoctoral researches on TT have been reported out, with six more at various stages of completion. In addition, several clinical studies and masters theses have been completed. [Krieger (1993a)]

The impression she attempts to make here is that a “growing body of scientific evidence” supports TT. As this survey will show, that impression is wrong.

Each available study is presented herein with an abstract of results, followed by a critique of the work. Nearly all abstracts are the researchers' own (except where noted otherwise). A few are abstracts presented by other researchers. Fewer still are abstracts done by the investigators of this report, usually done either as a praxis of the work or as an extraction of its introduction or conclusion. Except where *unnoted*, the critiques are gleaned from other works and are cited.

It was originally hoped to help the Committee by doing a meta-analysis with the available research. However, *meta-analysis* is a term with a very precise scientific meaning. We found that there are *no* research reports on TT that meet the stringent requirements for a meta-analysis. That is strike one against TT. As the Committee will see from this survey, there is very little scientific credibility at all to the research which has been reported—with their methodological flaws and untestable hypotheses. Those are strikes two and three, respectively, against TT. The proponents have swung and missed—and are out.

The Committee should be cautioned that many proponents have changed their tack on the matter of science. When confronted with the lack of evidence, they attempt to deflect the argument by claiming that absence of a hypothesis is not proof that a phenomenon does not exist. That tautological non-sequitur is true enough. However, they only use this argument long enough to silence their informed critics. They return as quickly as possible to proselytize the public with renewals of their specious claims of scientific evidence, as if no challenge had ever been raised. That is likely to happen to this Committee as well. Acknowledgment may be made before you of sparsity of evidence, but if you permit the imprimatur of the University to continue on this practice, then in time the course material (and its promotion) will return to its claims of scientific support and your work here will for naught.

The report to follow is being made by the Front Range Skeptics and its TT Project. The principal investigators are Linda Rosa, RN, BA (anthropology), BSN, and Larry Sarner, BA (political science), BS (applied mathematics). This version of the report is an update and revision of a preliminary report made to a subset of the Committee (only the CU members) in March, 1994.

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Describing TT

Therapeutic Touch (TT) itself is described by the researchers below in the following terms:

It is a modern version of the laying-on of hands, introduced into nursing by D. Krieger. [Krieger (1975a)] Although derived from laying-on of hands, it differs from it in that TT is not performed within a religious context [Heidt (1979)] and it requires the practitioner to be in a meditative state. It is a “yin” modality [Randolph (1979)]. It does not entail belief in the method or any other precept on the part of its recipients to be effective [Krieger (1979a)]. It may or may not involve contact with the physical body [Quinn (1982)], but contact is said always to be made with the “energy field” of the recipient [Krieger (1975a)]. TT is considered a natural potential which can be developed by anyone. [Krieger (1979a)]

The functional basis of TT lies in the direction of life-energy through the hands of the therapist to the recipient who may then internalize this energy, use it to restore balance, and thereby self-heal. [Boguslawski (1978)] A leading practitioner suggests that it is easier to feel the energy field if the hands are held about 3 to 5 inches from the surface of the skin. [Macrae (1988)]¹ Nursing practice is viewed as knowledgeable, purposive patterning of the patient-environmental energy field process for realization of maximum patient healing and well-being. [Meehan (1993)] Influenced by Eastern views of health, Krieger posits that in health this energy is flowing and abundant, whereas in states of disease,² it is blocked or depleted. [Heidt (1990)]

Centering is the first step in the TT process. The second step of the process is the practitioner *forming the intention* to transduce and transmit the universal healing energies to the one in need. With the intent comes an expansion of the practitioner’s energy field to *synchronize* with that of the one in need. While tuning into the subtle dynamics of the person’s energy field, the palmar surfaces of the hands are used to *assess* where the suffering may be manifested on the surface of the body. Keeping the hands 2 or 3 inches away from the body eliminates the sensations from physical contact and enhances the practitioner’s perception of the disturbances manifested in the field. When an area of disturbance is noted, the hands are used to soothe and *harmonize* the field. [Boguslawski (1980)] Recognizing when to stop is the final step. Stop when there are no longer any cues, when the body is symmetrical and there are no perceptible differences bilaterally. [Mentgen (1989)] With patients who have cancer, the hands are kept in slow continuous movements over the body to avoid the concentration of energy in any one area. [Kunz, cited by Boguslawski (1980)]

TT is reported to have 3 major effects on recipients: elevated hemoglobin levels [Krieger (1973a)], anxiety reduction or a relaxation response [Boguslawski (1980)], and pain relief [Macrae (1980)]. The findings of controlled nursing practice efficacy studies of TT

1 Other suggestions range from two to six inches.

2 Many proponents like to refer to illness as “dis-ease,” another example of the semantic games they love to play.

are at best mixed. [Meehan (1993)]

Most writers have described the use of TT within the context of Eastern philosophy or as an inductively derived intervention. [Meehan (1993)] Nevertheless, TT has come to be based on the philosophy of holism and general systems theory. To be recognized as a realistic and tenable phenomenon, TT must be considered within a holistic context. In particular, it's theoretical basis is Rogers's Theory of Unitary Man.³ According to this theory, all persons are highly complex fields of various forms of life energy. These fields of energy are co-extensive with the universe and in constant interaction and exchange with surrounding energy fields. [Keller & Bzdek (1986)] From this "science," Rogers has derived a theory of paranormal phenomena. She posits that in a pandimensional, unitary world, there is no linear time and no separation of human and environmental fields. This allegedly provides an explanation for clairvoyance, telepathy, and the outcomes of interventions which do not involve physical contact, such as TT. As yet, no valid and reliable method for the objective measurement of human-environmental energy field patterning during the TT process has been identified. [Meehan (1993)]

Rogers's ideas actually make an attempt to call upon (what she believes is) Western scientific research, where the concept of a universal life energy is linked to "field" theory; all living organisms share in a generalized life-energy field.⁴ All living systems are viewed as vibrating fields of energy, sending information to, and receiving information from, the universe that surrounds them.⁵ For Rogers, these living systems interact through the "rhythmical flow of energy waves." [Heidt (1990)]

Meanwhile, nursing is a practical outlet for these theoretical notions. Nurses have permission to touch, use it pervasively in their practice, and they have great access to people with pain and anxiety who are in need of healing. [Krieger (1975a)] TT is, therefore, an appropriate modality for nursing that does not require a physician's order or supervision. [Sandroff (1980a)]

Most nursing models are based primarily on the psychological-humanistic world view espoused in existential philosophy. From this view they allow for touch as a purposive way of reaching out and communicating feelings, such as empathy or compassion, between self-conscious and imaginative human beings....When nursing values, such as nurturance and compassion, are incorporated with the Science of Unitary Human Beings model of human-environmental energy field process, the use of Therapeutic Touch as a nursing intervention can be logically proposed and explained. [Meehan (1990)]

³ M. E. Rogers, *An Introduction to the Theoretical Basis of Nursing* (Philadelphia: Davis, 1970). Later changed to "Unitary Human Beings," when feminism and political-correctness ascended to dogma.

⁴ E. Jansch, *The Self-Organizing Universe: Scientific and Human Implications of the Emerging Paradigm of Evolution* (Oxford: Pergamon, 1980).

⁵ H. Margenau, "Fields in physics and biology," in *Main Currents of Modern Thought*, __, 19 (__):11-12.

State of the Art

The appeal of TT is particularly seductive to modern nurses. There is now among nurses a kind of mystical view of the role bedside-nursing played in the past before the intrusion of vast amounts of new pharmaceuticals and technological hospital care. The view of way-back-when is that nurses were supportive, loving, and helpful persons. Who in medicine would not want to be that way? Patients, too, are often willing to accept TT as an alternative treatment because they are so disillusioned with the excesses of modern medicine that many of them long for an alternative other than chiropractic. It is a visceral reaction to modern health care upon which TT preys. There is also a desire to stress the professional independence of the nurse from the physician in order to define a unique nursing role. [Bullough & Bullough (1993)]

As the quote from Quinn (1992b) prefacing this survey makes clear, promoters of Therapeutic Touch are within a “holistic” tradition of denying the efficacy of scientific medical practices. Often they rely upon a false dichotomy between “healing” and “curing.” The latter is usually stated in pejorative terms derogating modern medicine, such as “techno-cures” and “mechanistic,” while the former is just as usually described in sympathetic terms, such as “caring” and “wholeness.”

The dichotomy is useful in usurping the “feminine” aspects of medicine for nursing (especially for the hand-wavers), and allocating the impersonal “masculine” aspects for the physicians. A contemporary impact of the acceptance of this dichotomy is to place the debate into a gender context and hence make it more of a political contest than a scientific discussion.

We need to claim the therapeutic use of touch [i.e., TT] that is within our professional territory, and incorporate it openly and willingly into our practice so that we may document and share the results with others in the health care field. We can be the teachers for those who have become dominated by machines, for those who may have forgotten that what patients clearly need is a sense of being seen, of being heard, and of being touched. [Thayer (1980)]⁶

Yet, the dichotomy is false, and the controversy over TT is properly decided through scientific research, not political rhetoric. So concerned people should look to the scientific literature for what has been done in the area. As it turns out, the research which has been done—or alleged to be done—on TT has principally pursued just five theses:

1. That there is an human energy field which manifests itself in the human body as metabolic change.

⁶ This author often made use of a semantic shift between TT and actual touch, flipping between the two as if they were equivalent and effective for the same reasons.

2. That personal manipulation of a human energy field through TT results in significant changes in blood chemistry, particularly hemoglobin levels.
3. That manipulation of the field results in noticeable relief from pain.
4. That a patient's reaction to changes in the energy field is a relaxation response, or one with similar, related effects.
5. That the practitioner can experience positive effects, as well as the patient.

Most of these ideas have been researched using at least the form of traditional medical research methodology. However, the results have been largely negative or irreproducible, and with the failure of much of the research on these notions, researchers have begun to explore alternative "research" techniques, such as qualitative research and phenomenology. Also, there has been some abandonment of the "field" theory underpinning TT in favor of a simpler statement that "something" inexplicable is going on. However, even this latest evasion pre-supposes that some quantifiable effects have been observed. So far, no study has documented any reliable observations of any of the alleged effects.

Amazingly, TT proponents often maintain a blind eye toward its failures. In an earlier survey, Professor Janet Quinn detailed eight TT studies, many of which reported negative or barely significant findings and she herself offering many explanations for the difficulties. Nonetheless, she finally concluded:

...one observes an impressive consistency and progression as each study builds upon studies which preceded it. While the theoretical framework for the studies remains consistent, the designs of the studies have become increasingly sophisticated. The methods continue to be refined and adjusted, while keeping the operational definition of the TT intervention essentially the same. [Quinn (1988)]

Neither the eight studies used by Prof. Quinn in that survey, nor any of the other studies before or since, lend any credence to such a conclusion.

Research design is a problem for all researchers of hypothesized TT phenomena. In particular, adequate control for the powerful placebo effect has vexed every one of them. It has been reasonably stated that TT is nothing more than a placebo effect brought about by the presence of a loving and caring person. [Sandroff (1990a)] It might also be that patients can simply relax more if they feel someone is doing something. [Bullough & Bullough (1993)] One researcher described the problem for design quite well:

It is possible that patients in the actual experience of receiving Mimic TT, even if they had not received TT before, could guess whether or not they were receiving the placebo....Nurses who administered MTT reported feeling anxious and guilty because they perceived themselves to be giving an ineffective intervention to patients who were in need of pain relief....It is also possible that to a great extent the placebo effect derives not from subject-related factors but from implicit and explicit expectation and suggestion by, and the characteristics of, the person administering the intervention.... While these factors can be separated from the effects of pharmacological interventions through the use of the classic double-blind protocol, they cannot be separated from a human interac-

tion intervention such as TT....If TT is to be recognized as a nursing intervention in its own right, the placebo effect of the TT nurse-patient interaction must be distinguished from whatever specific effects TT itself may produce. [Meehan (1993)]

The fact is, however, that the generalized TT hypothesis precludes all practical means of achieving the distinctions just mentioned. In short, the hypothesis is non-falsifiable. Researchers can always explain away a negative result, and cannot design a methodology which does not introduce some potentially confounding factor. As a result, it can be concluded that TT is not within scientific investigation, and hence outside science itself. In a word, TT is *pseudoscience*. Says Dolores Krieger, TT's discoverer: "TT is so difficult to explain in words because it such a personal experience....The interaction occurs at the transpersonal level, and it's difficult to describe. It's very easy to experience." [Calvert (1994b)] The untestable nature of TT is underscored by the major premises which underlie its practice:

1. Man is an open system, as all life sciences agree. This assumption of an incessant input, throughput and output of human energies in constant flow obviates a need that some might feel to be compelling to determine the manner by which energy from the healer is "transferred" to the healee.
2. The physical body (and therefore the energy complex from which its matter is derived) is symmetrical.
3. What we in the West call "illness," other cultures would attribute to an imbalance [sic] in the ill person's energies. This and the previous assumption allows us to do an assessment of the ill person by seeking out a sense of "differences" or asymmetries in the person's energy field as a cue to the locus of the aberrant process. The third assumption affirms that the charge then is to rebalance those energies.
4. Finally, we recognize that man is capable of both transformation and transcendence, which in fact constitutes a time-honored tradition of healing itself. [Krieger (1988b)]

One explanation that has been developed to explain away TT's failures in both the clinical and laboratory settings is patently non-falsifiable. Two things can arise within a person to block the effects of TT, claims Krieger:

"One of them is denial and the other is hostility. I had hostility directed at me one time and I had the good sense to get out of the way and ask somebody else to work with that person." She admits this phenomenon has not been studied mainly because these patients don't come back and there's no out-patient services in the TT programs. [Calvert (1994b)]

Trans-Research Claims

Nearly every practitioner and promoter of TT, including its discoverer, Dolores Krieger, makes claims for the practice which have not even been addressed by anything claiming to be research. Many are related as anecdotes or “case studies.” Among those which have more generalized claims *by TT researchers themselves* and have appeared in print:

- There have been no ill effects beyond a very rare occurrence of dizziness. [Randolph (1979), citing Pelletier (1977)]
- There appears to be transfer of energy from healer that helps the patient to repattern his or her energy level to a state that is comparable to that of the healer. This appears to be done physiologically by a kind of electron transfer resonance. [Krieger, Peper & Ancoli (1979)]
- Infants and children are more sensitive to treatment by Therapeutic Touch. [Kramer (1990), citing Macrae (1979)]
- Kirlian photography demonstrates that the corona emanating from the hands of healthy individuals who intend to send their energies to others—as in TT—has a much longer extension than that of tired or unwell individuals. [Boguslawski (1980)]
- Relief from acute pain can come within minutes and usually lasts several hours, depending upon the severity of the condition. [Boguslawski (1980)]
- Effective in providing support and comfort for hospitalized children. [Finnerin (1981)]
- Effective in calming patients undergoing anesthesia. [Jonasen (1981)]
- Effective in providing support and comfort for patients who are dying. [Mueller Jackson (1981)]
- One of the most effective therapeutic modalities for the dying. [Fanslow (1983)]
- Relieves nausea for some patients. [Raucheisen (1984)]
- Effective in calming women in childbirth. [Wolfson (1984)]
- Contrary to expectations, both repeated studies and clinical evidence of a variety of healing methods strongly indicate that there is no significant correlation between the degree of a healee’s faith in getting well and whether that person will in fact be healed. [Krieger (1987a), p. 6]
- Effective in calming hospitalized infants [Leduc (1987)]
- Healing process is accelerated in 99.5% of cases—Dolores Krieger [Pulitzer (1993)]. One of our clearest examples of this is *re*: bone fractures; here we can see good callus formation via x-rays in approximately 2-1/2 weeks rather than the 6 weeks that is the usual rule of thumb. [Kreiger (1988b)]
- Very often it would happen that during the course of treatment the healee would be deeply affected by the nature of the impersonal, yet highly personalized therapeutic in-

teraction that characterizes TT. She/he would look upon the person playing the role of healer as a model and frequently would voice a wish to help others as she/he had been helped. [*ibid.*]

- This manner of self-learning [through TT]...has developed as support groups for persons who have multiple sclerosis, arthritis, Raynaud's disease and cancer. A variation of this has been taken up by elders who visit and do TT to residents of nursing homes. [*ibid.*]
- Introduction of TT concepts into nurses' practice at a major medical center, through an inservice program, has been shown to contribute to a significant decrease in work-related stress and emotional exhaustion and increase in personality hardiness and self-actualization. [Meehan, Mahoney et al. (1990)]
- Nurses using TT claim to feel a sense of well-being, of being more energized and in balance. [Thayer (1990)]
- Using TT has a profound effect on the practitioner's lifestyle, living a more healthful one. [*ibid.*]
- Not only can nurses use this intervention, but they can teach it to parents, thereby promoting bonding as well as healing for infants. [*ibid.*]
- In caring for a patient from a centered perspective [inherent in TT], the nurse is able to perceive the patient as a unitary whole...Thus, the nurse is better attuned to the patient... Patients often seem to recognize this, and it is probable that this kind of attuning is, in itself, therapeutic. [Meehan (1990)]
- Centering [the first step in the TT process] also helps nurses protect themselves against burnout. [*ibid.*]
- Learning the relatively simple form of centering meditation will promote a process of self-healing in the nurse. [Meehan (1992)]
- During the practice of TT, the meditative perspective brings about an attitude of non-attached compassion and enables the nurse to perceive the inherent beauty of the patient as a unitary whole, aside from whatever the ordinary circumstances of the interaction might be. [*ibid.*]
- No longer merely conjecture, the interconnectedness of all of life seems clear. [Quinn (1992b)]
- TT seems to increase positive affect, including feelings of joy, contentment, vigor, and affection. [Quinn (1992c)]
- TT may strengthen the immune systems of both practitioners and recipients through the suppression of suppressing. [*ibid.*]
- Anecdotal evidence suggests TT can decrease inflammatory response. [*ibid.*]
- Anecdotal evidence suggests TT can increase the rate of bone healing. [*ibid.*]
- Anecdotal evidence suggests TT can increase the rate of muscle healing. [*ibid.*]
- Anecdotal evidence suggests TT can increase the rate of healing from infections. [*ibid.*]

- The practice of TT should be stimulating to the practitioner's immune system. [*ibid.*]
- TT can be safely conducted by lay people. [Krieger (1993a)]
- Both its feasibility and safety was demonstrated by Krieger's research in 1984. [Krieger (1993d)]
- It has been shown to alleviate psychosomatic illness. [*ibid.*]
- It has been used to relieve side effects of AIDS. [*ibid.*]
- It stimulates the circulatory and lymphatic systems. [*ibid.*]
- It can relieve autonomic nervous system dysfunctions. [*ibid.*]
- Some forms of arthritis are "sensitive" to TT, but it is *not* helpful in lupus. [*ibid.*]
- It is useful with thyroid imbalances. [*ibid.*]
- The adrenals have been reported "sensitive" to TT, but the pancreas and pituitary have not. [*ibid.*]
- It shows little impact on diabetes. [*ibid.*]
- TT "works best" on muscular-skeletal problems—Dolores Krieger. [Pulitzer (1993)]
- TT practitioners claim that they are sick less often and that when they do become ill they consistently recover more quickly than others or themselves prior to becoming TT practitioners. [Quinn (1993)]
- Clinically, TT is more effective with the aged than with other populations. [*ibid.*]
- Excellent results when used to relieve swelling in edematous legs and arthritic joints. [*ibid.*]
- Amazing results when used to promote healing of decubitus ulcers. [*ibid.*]
- Its greatest potential is in inducing an almost instantaneous calm. [*ibid.*]
- "I never realized, for instance, that it literally could touch things like cancer. We've been able to work with many different kinds of cancer."—Dolores Krieger [Calvert (1994b)]
- TT had a statistically significant effect in reducing some of the disruptive behavior of Alzheimer's patients. [unpublished research of L. Woods, cited by Breckenridge (1994a)]
- Husbands who perform TT on pregnant wives have a deeper sensitivity to and awareness of mother and child, which results in a greater and more satisfying family bond.—Dolores Krieger [Putnam (1995b)]
- "TT has become a very novel, very innovative means of social communication."—Dolores Krieger [*ibid.*]
- TT has been found "useful" in the family setting in special instances such as working with autistic children.—Dolores Krieger [*ibid.*]

- TT has been found “useful” with people suffering from strokes who are unable to speak.—Dolores Krieger [*ibid.*]
- TT has been used for coma patients who, once out of their comas, often are aware that TT has been performed on them and by whom.—Dolores Krieger [*ibid.*]
- “...the most profound healing generally involved a psychological as well as a physical change.”—Janet Macrae [*ibid.*]

Claims by Practitioners

Although of an entirely different status than those of researchers, the published claims of TT practitioners for their chosen path are remarkable nonetheless. They demonstrate clearly how far committed partisans will go to promote their cause. If they were accepted at face value, one could be utterly convinced that TT is the long-sought panacea of medicine. The following is just a sampling of their generalized claims (as opposed to case reports):

- The possibilities are absolutely unlimited. [M. Frost in Read (1993)]
- “I’ve seen a fever break on several occasions.” [B. Dahl in Satir (1994)]
- It stops the pain for burn patients. [*ibid.*]
- Migraine headache sufferers get relief. [D. Moore in *ibid.*]
- It helps a lot with PMS symptoms. [*ibid.*]
- It relieves tension. [*ibid.*]
- If TT is done poorly, universal life energy can build to unhealthy levels. [D. Fimbel-Coppa in Emery (1994)]
- It’s important to avoid manipulating the field for too long. The limit is 30 minutes for adults, a minute or two for babies and somewhere in between for the elderly. Older patients can get light-headed. [A. Banks in *ibid.*]
- Has been used to treat measles in children. [K. Dean-Haidet in Fiely (1995a)]
- Babies and children respond quickly. [*ibid.*]
- “Babies love it....It calms them down.” [Glazer (1995a)]
- Bystanders use it to help calm accident victims until paramedics arrive. [Putnam (1995a)]
- Parents have used it to relieve colicky babies. [*ibid.*]
- Parents have used it to relieve children with asthma. [*ibid.*]
- Family members soothe tension headaches for one another. [*ibid.*]
- Nurses have helped the skin grafts of burn victims to seed. [*ibid.*]

- Hospice workers use it to smooth a person's transition from this life. [*ibid.*]
- Responses to it are involuntary and many can be monitored objectively, e.g., blood pressure normalization, muscular relaxation, decrease in swelling, and accelerated development of premature babies. [*ibid.*]
- An acute problem tends to respond more quickly than a chronic one. [*ibid.*]
- It is "often" used to help evaluate medical situations, *i.e.*, to isolate areas of medical difficulty. [*ibid.*]

Historical Survey

A history of TT reveals much about both the technique and its practitioners.

The chief proponent has, of course, been Dolores Krieger, RN, PhD. She became acquainted with the idea of healing through touch while studying Hungarian healer Oskar Estabany (a colonel in the Hungarian cavalry who claimed to have discovered by accident an ability to heal animals and people through the laying-on of hands) with Dora Kunz, a professed “fifth-generation sensitive” (i.e., spirit medium or channeler) and clairvoyant. While Krieger’s academic background is in neurophysiology, her belief in TT originates from studies of yoga, Ayurvedic (Hindu) medicine, and traditional Chinese medicine.⁷ Initially, she even used the Hindu name for this “healing energy”—*prana*.

Before her retirement, Krieger taught a course at New York University (NYU) entitled “Frontiers in Nursing: The Actualization of Potential for Therapeutic Human Field Interaction.” Workshops, continuing education courses, and even videotapes have followed, training tens of thousands in the technique. Krieger begins by telling the student that she can learn to heal, and before long she has the student developing psychic communication, drawing mandalas, and practicing an ancient form of fortune-telling. The healing method and religious message are inseparable, particularly recognizable by Christian critics. [Reisser, Reisser & Weldon (1986)]

The world at large was informed of TT through the pages of the tabloid, *National Inquirer*. Their headline said it all: “America’s Largest School of Nursing Teaches Psychic Healing.” Embarrassed by it at the time (March, 1974), Krieger complained that the headline and the article was misleading. Twenty years of self-promotion later, Krieger is now more comfortable, and can admit there is a high occult factor or an element of the paranormal in how TT works, though she is quick to point out her belief that this type of healing may well be the wave of the future. [Calvert (1994b)]

Some years after the TT course began at NYU, a cult following began to form. “One day I came to class, and there was a little package on my desk,” explains Krieger, “It was a T-shirt, and I turned around and as I showed it to the class they all took their top coats off and they all had this T-shirt on, Krieger’s Krazies. So that’s how it happened...And it’s carried on. The course is still taught by one of those original Krieger’s Krazies, who now has a PhD of her own.” [Calvert (1994b)]

⁷ A recent book by Krieger adds “Egyptian healing” to this list. [Krieger (1993)]

The “Research”

The remainder of this report is a study-by-study survey of all relevant research material found in the literature. As indicated before, the studies can be collected into seven categories:

- Metabolic change — 21 papers reported.
- Hematology — 7 papers reported.
- Analgesia — 13 papers reported.
- Relaxation — 46 papers reported.
- Other Mental States — 6 papers reported.
- Effect on Practitioners — 11 papers reported.
- Qualitative Research — 9 papers reported.
- Miscellany — 18 papers reported.

That’s 131 in all. Of these, 10 were preliminary to the advent of the theory, or on related but separate theses (one is not even on TT at all, though it is cited as such). With 121 papers since 1972, the investigations have resulted in an average of 5 research reports per year. It is remarkable that even with this small ongoing effort (though still over a hundred reports), there is still so little that is accepted—or even acceptable—work.

Several pronouncements about the entire body of research have been in recent months. It started with CU’s TT Committee when it pronounced, “To date, there is not a sufficient body of data, both in quality and quantity, to establish TT as a unique and efficacious healing modality.” This has apparently led a few advocate-researchers to start hedging their bets by holistically renouncing the existing body of research:

- “There’s no Western scientific evidence at this point for the existence of an energy field.” [Janet Quinn, quoted in Glazer (1995a)].
- “The anecdotes are very good beginning data, but we don’t have that next step with real measurable phenomenon.” [Melodie Olson, quoted in *ibid.*]
- “If we can successfully complete this study, this will be the *first* real scientific evidence there is for Therapeutic Touch.” [Joan Turner, quoted in Butgereit (1994), emphasis supplied]
- “What current research about TT tells us, according to Popper’s principles of refutation and verification, is that there is no convincing

evidence that TT promotes relaxation and decreases anxiety beyond a placebo response, that the effects of TT on pain are unclear and replication studies are needed before any conclusions can be drawn. Other claims about outcomes are, in fact, speculation.” [Meehan (1995a)]

One thing leaps out in surveying these papers. The more rigorous the research design, the more detailed the statistical analysis, the less evidence there is that there is any observed—or observable—phenomenon here. This happened in every category. The skeptic’s first question is always: where’s the evidence? In the case of TT, it’s not here and—it’s been conceded—not anywhere!

Metabolic Change

Grad, Cadoret & Paul (1961). An unorthodox method of treatment on wound healing in mice.

Abstract: Examined possible psychokinetic effects with study subject selected from a living system not amenable to suggestion, i.e., mice. Utilizing a famous healer of the time, Oskar Estabany, the study showed an increase in the rate of wound healing (in a murine model) in mice. Hypothesizes that enzyme action is underway during the process of laying-on of hands.

There was one experimental group and 2 control groups. The subjects for this study were 300 standardized mice on whose back equivalent skin wounds were made, and equally divided between the 3 groups. The experimental group, encased in a small-animal container, was simply held in Mr. Estabany's hands twice a day for 15-minute periods for 5½ weeks until the wounds healed. One control group, in a similar container, was treated in a similar manner as the group held by Mr. Estabany, but by medical students who did not claim they were able to heal. A second control group, put in similar containers for equivalent time periods, was left untreated. At 14 days after healing sessions began for all groups, the rate of healing of the mice treated by Mr. Estabany was significantly faster than that of the other 2 groups ($p < .001$).

Critique: The negative results of a later germinating corn-seed study suggests that this experiment must be replicated with better controls before being accepted. [Wallack (1983)] Failed to control for electromagnetic field flux, and when such controls were adopted in a related study, the effect disappeared. [Bush & Geist (1992)] Estabany was the subject for Krieger's initial hemoglobin experiments [Krieger (1973)] and Grad's later barley-seed experiment [Grad (1964)]. The study showed significantly smaller wound sizes for the healer-treated mice on the 15th and 16th days, but on subsequent days there was no significant differences. The experiment was well controlled, but the findings are of a transient nature, i.e., all mice in all groups achieved a similar degree of healing by the end of the study. [Clark & Clark (1984)] The initially significant findings seem offset by the insignificant findings at the study's conclusion and raise the issue of the role that chance alone may play in this. [Fish (1993)]

Grad (1963). A telekinetic effect on plant growth.

Abstract: Examined possible psychokinetic effects with study subject selected from a living system not amenable to suggestion, i.e., barley seeds grown in peat pots. A method of "psychically" treating an open beaker (350 ml) of saline solution (1% aqueous NaCl) was accomplished by extending the hands of a "healer" (Oskar Estabany) over the beaker for 15 mins. Speculation that heat from the healer's hands would influence the growth of experimental plants is eliminated by the use of a treated watering solution. A second group of plants was watered with an untreated solution. The maintenance of double-blind conditions was simplified as the healer was not aware of which group of plants had been treated at the time he measured them. The dependent variables were the number of plants per pot, the average height of plants per pot, and plant yield per pot.

Data analysis by means of a t test indicated that, on one day only, the experimental group contained a significantly greater number of plants. In addition, the experimental

plants were reported as significantly taller and to have had a significantly greater yield for a period of 5 days. [Clark & Clark (1964)]

Critique: Use of the healer to prepare all pots and seeds and to measure all plants might have contributed to some bias in the study. The reported results of this study seem more stable over time and, therefore, may be considered somewhat more convincing than those of the previous study. A replication by the same researcher using stoppered bottles yielded favorable results. [Grad (1964)] An attempted replication in 1977 produced equivocal results. [Clark & Clark (1964)] Failed to control for electromagnetic field flux, and when such controls were adopted, the effect disappeared. [Bush & Geist (1992)]

Grad (1964). A telekinetic effect on plant growth: Experiments involving treatment of saline in stoppered bottles.

Abstract: A series of 4 experiments is described in which a 0.9% or 1% solution of NaCl in a tightly stoppered reagent bottle held between the hands of a man (Oskar Estabany) for 30 minutes had a favorable effect, when compared with that of a control saline solution, on the growth of barley seeds watered with these solutions. There were 2 control groups: the first was watered by tap water, the second by water from flasks held by disinterested persons. In 3 of the 4 experiments the stimulating effect of the treated saline was statistically significant; in the first and third experiments the significant differences were apparent in the height of the plants, while in the second experiment they were apparent in the mean number of seedlings appearing above the surface of the soil and in the mean yield of plant material. Significant results were found with a 1% NaCl solution, but not with a 2% NaCl solution.

The significant differences observed in growth between the control and treated plants were not explicable on the basis of differences in sodium concentration or pH between the control and treated saline solutions used to water them, inasmuch as tests revealed no real or meaningful differences in this regard. Furthermore, spectrophotometric determinations of the control and treated solutions showed no detectable differences in percent transmission or absorbance between around 2800 and 204 millimicrons on the Beckman DK-2 spectrophotometer, but inasmuch as this region is outside the specifications of their instrument, the determinations should be repeated on an instrument more specifically designed for studies in the 3000 or 2800 millimicron region.

The experiments described in this paper are a continuation of studies described earlier in which details were provided on how a technique for investigating a telekinetic effect on the growth of barley seeds was developed. In the earlier report the target saline was held in open vessels in contrast to the present series in which the saline solutions were treated while in tightly stoppered bottles.

Critique: Estabany was the same subject in earlier experiment on mice [Grad (1961)] and on barley seeds [Grad (1963)], and also in Krieger's later hemoglobin studies [Krieger (1973a)]. Failure to control for heat made it possible that the heat of the "healer's" hands may have increased the micro-biological cultures within the saline solution and led to favorable plant growth. A subsequent study that eliminated this flaw yielded negative results, for both 1% and 2% solutions. [Wallack (1983)] Failed to control for electromagnetic field flux, and when such controls were adopted, the effect disappeared. [Bush & Geist (1992)] Possibility that investigator bias existed, *i.e.*, same person both prepared plants and measured the results. The sample size was small. [Clark & Clark (1984)] No chlorophyll measurements were reported in relation to any of the plants, limiting the value of this study as a paradigm for measurements of human hemoglobin. [Fish (1993)]

Grad (1965b). A telekinetic effect on yeast activity.

Abstract: These studies attempted to broaden and simplify the basis of the telekinetic studies reported so far by the author. Eighteen bottles of sterile, vacuum-sealed 5% dextrose and normal saline were arranged in 6 sets of 3 per set. Five sets consisted of one bottle "treated" by a man, another by a woman and the third untreated. The sixth set, the "control," consisted of 3 untreated bottles. Treatment involved holding the bottles between the hands for 30 minutes. Each set was investigated as a separate experiment on a different day. A multiple-blind system was devised which not only kept the experimenters ignorant of which bottles were treated and which were control, but also in 5 out of 6 sets, they were ignorant of which sets were treated and which were control. In each experiment 20 ml from each bottle was placed in each of 16 randomly selected fermentation tubes to which 5 ml of 20% yeast in 5% dextrose and 20 ml saline was added, and the rate of CO₂ production was measured 8 times over the next 5.5-6 hours. Statistically significant differences were observed in 4 out of 5 sets, 3 of these being significant to the level of $p < 0.0005$. In 2 cases, the differences were produced by female-treated solutions, and the third by male. In the latter, 12 days elapsed between the time of treatment of the solution and its testing; in the other 2 cases, 5 and 23 days. The smallest difference in CO₂ production between the 3 bottles of any one set was observed in the control set.

Critique: The negative results of a later germinating corn-seed study suggests that this experiment must be replicated with better controls before being accepted. [Wallack (1983)] Failed to control for electromagnetic field flux, and when such controls were adopted, the effect disappeared. [Bush & Geist (1992)]

Grad (1967). The "laying on of hands": Implications for psychotherapy, gentling, and the placebo effect.

Abstract: An experiment is described in which 3 persons (one psychiatrically normal, J.B., and 2 suffering from depression, R.H. and H.R.) held in their hands for 30 minutes sealed bottles containing sterile, normal saline under vacuum. A fourth group was represented by an identical bottle of saline on which no hands were laid. The saline was then used only in the initial watering of barley seeds buried in soil peat pots. Following this, the pots were watered only with tap water. The first seedlings appeared above the soil 8 days after the initial watering of the pots and the experimental period lasted 16 days. The experiment was conducted under strict multiple blind conditions.

The results showed that throughout the entire observation period the tallest plants belonged to the group watered by saline handled by the normal person, while the next tallest belonged to R.H., followed by those of the untreated control, with the shortest belonging to H.R. Significant differences due to treatment were observed on days 12 and 15 and were due to differences between the normal person's plants on the one hand and the remaining 3 groups on the other. The normal person's pots also had the greatest number of seedlings and the greatest yield of plant material through the entire observation period, but here the treatment effect was non-significant in both instances. Differences between the remaining groups were not statistically significant.

Funded by the Parapsychology Foundation.

Critique: Number, height and plant size increases were dependent variables measured with only occasionally significant results reported or no differences at all between groups. [Clark & Clark (1984)]

Smith (1968). Paranormal effect on enzyme activity.

Abstract: Utilizing a famous healer of the time, Oskar Estabany, the study showed an increase in activity of trypsin in vitro. The basic underlying assumption was that enzyme failure is the fundamental biochemical cause of disease and, therefore, any therapeutic change should be detectable at that level in the enzyme activity. The formal general hypothesis states that any healing force channeled through, or activated by, the hands of a paranormal healer must affect enzyme activity if healing is to take place. To test this proposal, a research design was developed to test the effects upon the enzyme trypsin under 2 conditions by Estabany; thirdly, by exposure to a magnetic field, since the author's previous studies had led her to theorize that the characteristics of the magnetic field and x-factor at the base of Estabany's ability had many similarities; and, fourthly, by a group which was an untreated control.

One fraction of the enzyme was treated by Estabany by putting his hands around the stoppered glass flask of enzyme solution for 75 minutes. After 15, 30, 45, and 60 minutes, 3 ml portions of the treated solution was pipetted out for sampling. The second portion of the trypsin solution was exposed to an ultraviolet light of 2537Å, the wavelength most damaging to the protein of which the enzyme is made, for a time sufficient to reduce the activity of the trypsin 68-80%. After this exposure, the radiated sample, which was now considered "sick," was then treated by Estabany in the same manner as noted above. The third aliquot of the enzyme was exposed to a high magnetic field to which increments were made hourly for 3 hours so that the magnetic field strength rose from 8,000 gauss to 13,000 gauss. Activity measurements were made periodically on these samples, and the untreated control sample noted above by spectrophotometric measures.

After 5 days, the graphs of the activity measurements of the trypsin samples indicated that the qualitative effects of a high magnetic field and that of the healer were the same; that is, the slope of the coordinates of the groups were of a similar configuration. Quantitatively, the samples were similar up to one-hour exposure. [abstract by Krieger]

Critique: Krieger regarded this study as important, since hemoglobin synthesis (the basis of her own study) is particularly rich in enzymes. [Krieger (1973a)]. The negative results of a later germinating corn-seed study suggests that this experiment must be replicated with better controls before being accepted. [Wallack (1983)]. A replication later in the year failed. Further tests of other local healers on trypsin failed to give significant results, although at times some of the healers affected the enzyme in the expected direction. [Edge (1979)] In this experiment and in replications, means and standard deviations are reported but no tests of significance. Very few details with respect to any of the replications are discussed. In 2 of the 3 replications there is no enzyme activity. The initial results may have been due to chance. [Clark & Clark (1984)]

Smith (1972). Paranormal effects on enzyme activity through laying on of hands.

Abstract: A report of a double-blind study in which 4 aliquots of the enzyme trypsin were divided into the following treatments: (1) "wounding" by high ultraviolet rays followed by 75 minutes per day of laying-on-of-hands by a gifted healer, Oskar Estabany; (2) laying-on-of-hands by Estabany; (3) exposure to a high magnetic field (which is known to increase enzyme activity level); and (4) no treatment. Conditions 2 and 3 showed similar patterns of increased enzyme activity levels, while Condition 1 showed smaller increases in the daily activity level. Working with the enzymes nicotinamide-adenine dinucleotide (NA) and amylase-amylase, significant decreases were noted in the first enzyme and no change in the second after laying-on-of-hands; both results were pre-

dicted as being beneficial to their functions in the human body

Critique: Negative results of a later germinating corn-seed study suggests that this experiment must be replicated with better controls before being accepted. [Wallack (1983)]

Haraldsson & Thorsteinsson (1973). Psychokinetic effects on yeast: An exploratory experiment.

Abstract: The procedure used in this experiment was as follows: a small amount of yeast (0.25 gr.) was put into 300 ml of a nutritive solution and shaken until homogeneous. This solution was poured into 20 test tubes, each containing 10 ml, which were randomly divided into 2 groups of 10 test tubes each: one experimental, one control. The experimental test tubes were closed and then were all simultaneously placed in front of a subject who was instructed to try for 10 minutes to increase the growth of the yeast in the solution by psychokinesis. The subject was not allowed to touch the test tubes. Then all 20 tubes were stored in the same place for 24 hours, after which the growth of the yeast was measured in each of the tubes by a light-absorbance colorimeter. An assistant who did not know which of the tubes were experimental and which control made the measurements. Seven subjects participated in a total of 12 sessions; 5 subjects had 2 sessions, 2 had only one. Each session was conducted as described above, so that there were a total of 240 test tubes used in the experiment, 120 of which were experimental and 120 control. For purposes of analysis, each experimental tube was paired with a control tube used in the same session, and the yeast growth in both tubes was compared.

The results indicated a psychokinetic effect: in the 120 pairs of test tubes there was more growth in 58 of the experimental tubes than in the corresponding control tubes; in 33 there was less growth; and in 29 pairs the growth was equal. Each session was evaluated by the Wilcoxon Signed-Ranked Test. A transformation into z-scores gave for the combined 12 sessions a z of 2.39 ($p < .02$, two-tailed). Three of the subjects were engaged in healing, 2 as mental healers and 1 as a physician. The bulk of the positive scoring was done by these subjects ($z = 3.80$; $p = .00014$, two-tailed), whereas the "non-healers" gave chance results ($z = -.08$).

Critique: Negative results in a later germinating corn-seed study suggests that this experiment must be replicated with better controls before being accepted. [Wallack (1983)]

Edge (1979). The effects of laying on of hands on an enzyme: An attempted replication.

Abstract: An attempted replication of Smith (1968). In this experiment, Anne Gehman, a medium well known in Orlando, Florida, acted as healer. The door was kept locked whenever possible, but there were occasional interruptions, and once a class was in progress during the experiment. The temperature bath was modified so that the water circulated around the aliquot in which trypsin was contained, as it was around the control. The experimenters felt this assured a greater equality and consistency of temperature. The water bath was kept at 27°C. T8253 Trypsin Type III: 2x Crystallized (Bovine Pancreas) was mixed in the chromogenic substrate in a phosphate buffer. A spectrophotometer took readings every 30 seconds for a total of 6 minutes.

After Gehman was comfortable, she was given a large test tube. Inside the tube was an aliquot of the trypsin to be healed. The experiment began by pipetting the control solution. The spectrophotometer was such that measurements for the control sample had to

be made first and then measurements for the experimental (healed) sample immediately afterward. For each measurement in both control and experimental, 2 cuvettes were used. One was the reference, which contained 0.3 ml of substrate, plus water, HCL and buffer. The second cuvette had the same solution plus trypsin. For the control, the assistant took the trypsin that was being temperature controlled from the water bath. It took about 6 minutes to measure solutions for both cuvettes, and they were brought to me in a small room off the lab. The cuvettes were put in the spectrophotometer, and I made recordings every 30 sec. for 6 min. During this time, the assistant was mixing new solutions for 2 other cuvettes, which would be used to measure the activity level of the healed trypsin. He put in trypsin from the sample being healed and the cuvettes were brought to Grad for recording. This sample was designated as the experimental. Grad again made recording. This procedure continued until there were 5 measurements of the healed trypsin and their corresponding controls.

Because of the equipment, the 3 experimental conditions could not be run simultaneously, as in the original experiment. Five experiments were run under Condition #1, which used undamaged native trypsin as the solution to be healed. Condition #2 followed, which used trypsin damaged in ultraviolet light as the solution to be healed and as the control. Condition #3, which used native trypsin in a magnetic field of 1,300 gauss was run on different nights. Condition #3 did not require the presence of the healer.

The difference between the first and last measurements on each test was calculated. In Condition #1, only 1 daily experiment was significant at the .05 level. However, when all the data from the 5 experiments under Condition #1 are totaled, a significance level of $p < .01$ is reached, thus indicating some paranormal effect on the activity level of the trypsin. The effect seems to be slight, however, and generally not great enough to be seen in individual experiments. Not even this conservative conclusion can be made about Condition #2, as no effect is found either in individual or totaled experiments. In Condition #3, the results are somewhat better, as 3 of the 6 experiments reach a level of significance.

Critique: The results fail to confirm Smith's initial experiments. However, these results lend support to her hypothesis that both the laying on of hands and a magnetic field affect the activity level of trypsin. [Edge (1979)] The negative results of a later germinating corn-seed study suggests that this experiment must be replicated with better controls before being accepted. [Wallack (1983)] Failed to control for electromagnetic field flux, and when such controls were adopted, all effects disappeared. [Bush & Geist (1992)]

Dean (1981). The relationship between Therapeutic Touch, cardiac dysrhythmias and heart rates in selected critical care patients.

Abstract:

Critique:

Wallack (1983). Testing for psychokinetic effect on plants: Effect of a "laying on" of hands in germinating corn seeds.

Abstract: A possible psychokinetic effect on plants from the "laying on" of hands of a self-claimed "psychic healer" was studied in 3 procedures. The "healer" treated a sealed petrie dish containing germinating root growth-retarded corn seeds. In Procedure #1, randomly drawn corn seeds were pre-soaked for 12 hours in a 2% NaCl solution. Seeds

were then randomly assigned to 3 prepared petrie dishes: healing, control, and a control for the temperature of the healer's hands. Root growth was measured after 96 hours. Procedure #2 tested for a possible transitory healing effect following the same procedures as Procedure #1, but measuring the roots after 48 hours. In Procedure #3, the pre-soaking period of the corn seeds was reduced to 8 hours to test the possibility that the 12-hour pre-soaking period was too severe to allow a "healing effect" to be manifest. Kruskal-Wallis (non-parametric) one-way analyses of variance yielded non-significant effects in all 3 experiments. Additional studies are needed to avoid a Type II error, i.e., to rule out the possibility of a psychokinetic effect on plants by the "laying on" of hands.

Critique: The results of this test were negative, directly challenging the positive results of all of the foregoing. It implemented heat controls which were lacking in Grad (1964). Such controls are correct, since change in peripheral vasculature and peripheral blood flow is a basic homeothermic mechanism, more variable at the periphery than at the core. However, this study failed to control for electromagnetic field flux, and naturally occurring human direct current fields follow much the same pattern as peripheral skin temperature. Even when such controls were adopted, still no TT effects could be observed. [Bush & Geist (1992)]

Salem (1987). The effect of Therapeutic Touch on length of labor.

Abstract:

Critique:

Fassetta (1989). The effects of Therapeutic Touch on peripheral circulation.

Abstract:

Critique:

Wirth (1990). The effect of non-contact Therapeutic Touch on the healing rate of full thickness dermal wounds.

Abstract: The effect of Noncontact Therapeutic Touch (NCTT) on the rate of surgical wound healing was examined in a double-blind study. Full-thickness dermal wounds were incised on the lateral deltoid region using a skin punch biopsy instrument, on healthy subjects randomly assigned to treatment or control groups. Subjects were blinded both to group assignment and to the true nature of the active treatment modality in order to control placebo and expectation effects. Incisions were dressed with gas-permeable dressings, and wound surface areas were measured on Days 0, 8, and 16 using a direct tracing method and digitization system. Active and control treatments were comprised of daily sessions of 5 minutes of exposure to a hidden TT practitioner or to sham exposure.

Results showed that treated subjects experienced a significant acceleration in the rate of wound healing as compared to non-treated subjects at day 8 (Mann-Whitney U; $z = -5.675$; $n = 44$; $p < .001$; 2 tailed), and at day 16 ($\chi^2 = 16.847$, $df = 1$; $p < .001$). Statistical comparisons are dominated by the complete healing of 13 of 23 treated subjects vs. 0 of 21 control subjects by day 16. Placebo effects and the possible influences of suggestion and expectation of healing were eliminated by isolating the subjects from the TT practitioner, by blinding them to the nature of the therapy during the study, and by the use of

an independent experimenter who was blinded to the nature of the therapy. The findings of this study demonstrate, at least, the potential for NCTT in the healing of full-thickness human dermal wounds.

Critique: It clearly is not TT that is being tested since TT involves the entire energy field; it is not the independent variable. [Meehan (1995a)] The researcher has disappeared and attempts to clarify protocols have been resultantly unsatisfied. [Beyerstein (1994b)] Supposedly replicated by same researcher 3 years later. [Booth (1993)] No report is made of the depth of each wound so as to determine whether there was any non-random assignment of wounds by depth. The wounds should have been inflicted before the subjects' assignment to the treatment or control groups. Since all subjects in each group were wounded and treated on separate days, it is possible that the manner of inflicting the wounds introduced a bias into the study. The "journal" where the study was ultimately reported is scientifically suspect, and may no longer be published. The study was filmed for a documentary, and subjects may have been able to infer in some manner from the attention given in which group they might fall, thereby introducing some placebo effect; this also calls into question the double-blind protocol. [Rosa] It should be viewed with great skepticism because of its astounding hypothesis. Should not be accepted unless replicated by qualified experts. [NCAHF (1992d)]

DeGraff (1991). Effects of Therapeutic Touch on skin temperature, nonverbal behavioral response, and perception of touch in the elderly.

Abstract:

Critique:

Schulte (1991). Self-care activating support: Therapeutic Touch and chronic skin disease.

Abstract: [unable to obtain article; may not be a research report]

Critique:

Bush & Geist (1992). Testing electromagnetic explanations for a possible psychokinetic effect of Therapeutic Touch in germinating corn seed.

Abstract: Designs used to test claims for psychic healing of living systems not amenable to suggestion may produce artefacts in the results when there is failure to control for other possible explanations. Some experimental methods in psychokinesis may produce electromagnetic field flux which could lead to erroneous conclusions. This study adds electrical and magnetic controls to assess their effect, leading to the conclusion that Therapeutically Touched corn seeds did not recover from saline injury significantly better than untreated controls. It is possible, however, that the polarity and small voltage exhibited by the Therapeutic Toucher were inadequate to overcome the restriction of a closed seed container. Different results might be obtained in subsequent experiments if the healer is permitted to contact the injured seeds physically.

Critique: Results discard the entire set of studies which were cited by Krieger as the initial bases for her TT theories and pilot studies.

Wirth & Cram (1993). Multi-site electromyographic analysis of non-contact Therapeutic Touch.

Abstract: This study utilized a randomized ABAC methodological design to investigate the effect of TT without contact (NCTT) upon autonomic and CNS parameters. Subjects were blinded to the true nature of the experimental protocol as well as the fact that a healing study was being conducted to control for placebo and expectation effects.

The impact of NCTT was assessed by multi-site surface EMG recordings located at the Frontalis, Cervical 4 paraspinals, Thoracic 6 paraspinals, and Lumbosacral 3 paraspinals. Autonomic indicators of physiological activity were also monitored and included hand and head temperature, heart rate, and end tidal CO₂ levels. The results demonstrated that all of the autonomic indicators showed a general trend towards lower levels of arousal over time. The data also showed that 3 of the 4 muscle regions monitored—C4, T6, and L3 paraspinals—indicated a significant reduction in energy during and following the NCTT treatment sessions for a majority of the subjects. For example, the C4 EMG showed a significant NCTT treatment effect ($f=10.31$; $df=11$; $p<.009$ level), while the T6 EMG ($f=13.49$; $df=1$; $p<.004$) and L3 EMG ($f=4.74$; $df=1$; $p<.05$) also demonstrated significance.

In addition to the habituation effects seen in the autonomic variables, the implications of neutralization of postural homeostasis and lowering of emotional arousal are discussed along with consideration of the Eastern concept of “nadis.”

Critique:

Wirth, Richardson & Eidelman (1993). Full thickness dermal wounds treated with Therapeutic Touch: A replication and extension.

Abstract: The effect of non-contact Therapeutic Touch (NCTT) therapy on the healing rate of full thickness human dermal wounds was examined in a double-blind, placebo controlled study. Punch biopsies were performed on the lateral deltoid in 24 healthy subjects who were randomly assigned to treatment and control groups. Active and control treatments were comprised of daily sessions of 5 min. of exposure to a hidden NCTT practitioner or control exposure. Placebo effects and the possible influences of suggestion and expectation of healing were eliminated by isolating the subjects from the NCTT practitioner with the use of a specially modified door equipped with a one-way mirror, and by utilizing subjects and an independent experimenter who were blinded to both group assignment and to the fact that a healing study was being conducted. Four independent physicians assessed the wounds for the rate of re-epithelialization at day 5 and day 10. The results of all 4 physicians showed that the related group subjects experienced a significant acceleration in the rate of wound healing as compared to the control group subjects at both day 5 and day 10.

Critique: Replication of Wirth (1990), by the same investigator, with further safeguards built in to protect against placebo effects and possible influences. [Booth (1993)] Due to the fact that the study was well-controlled and eliminated the influence of suggestion, expectation, and the placebo effect, the results suggest that NCTT therapy has the potential to be an effective non-invasive treatment modality for full-thickness human dermal wounds. [Wirth, Richardson & Eidelman (1993)] It clearly is not TT that is being tested since TT involves the entire energy field; it is not the independent variable. [Meehan (1995a)] Should not be accepted unless replicated by experts. [NCAHF (1992d)]

Wirth, Barrett & Eidelman (1994). Non-contact Therapeutic Touch and wound re-epithelialization: An extension of previous research.

Abstract:

Critique: It clearly is not TT that is being tested since TT involves the entire energy field; it is not the independent variable. [Meehan (1995a)] Should not be accepted unless replicated by qualified experts. [NCAHF (1992d)]

Kenosian (1995). Wound healing with noncontact Therapeutic Touch used as an adjunct therapy.

Abstract: [unable to obtain article; may not be research]

Critique:

Hematology

This was the premier area of study for TT and it is frequently touted by proponents. It starts with Krieger in 1972, with a follow-up study in 1973, and a concluding work in 1975. The literature shows no one but Krieger having positive results (the latest, in 1992, is negative). Yet Krieger often claims, as she did in 1988, that “To this day, in multiple repeated studies, hemoglobin of persons treated by the laying-on of hands, and in later studies on TT, have remained consistently within normal range, although they have increased from the initial values.” [Krieger (1988b)] And 5 years later she is more blunt:

Twenty years ago, we did not have the deep understanding of research designs and methodologies that would thoroughly control a method such as Therapeutic Touch, in which most of the significant healing work is done in the patient’s human-energy field...Nevertheless, the validity and reliability of this study has been confirmed by the several replications of it done both in this country and abroad in the intervening 20 years. [Krieger (1993a)]

None of those “multiple, repeated studies” or “several replications,” if they exist, have been found in the literature.

Krieger’s studies have been repeatedly attacked and discounted. Yet when she writes and speaks—at least at those times when she has no expectation of refutation—she declares unconditionally that her studies were conclusive and accepted [Krieger (1988b), for example]. But when challenged directly, she disassembles and shows a certain humility (“At that time, I did the best I could with the knowledge available.”) [Krieger (1993a)]

From the beginning, Krieger was supremely confident that she knew why all of this was valid: it was because of the metaphysical chemistry of *prana*. “It is felt that prana derives from the sun, and the literature appears to indicate that prana is intrinsic in what we in the West call the oxygen molecule; however, whatever its state of matter is, it is in an energy-rich form in health.” [Krieger (1975e)]

Krieger (1972). The response of in-vivo human hemoglobin to an active healing therapy by direct laying on of hands.

Abstract: Utilizing a famous healer of the time, Oskar Estabany, the study showed an elevation of serum hemoglobin in humans. This was a pilot study conducted during the summer of 1971 on an experimental group of 19 subjects and a control group of 9 subjects in a before-after research design. Ages and sexes of both groups were comparable. Substantive hypotheses were that the mean hemoglobin values of the experimental group after treatment by the laying-on of hands would exceed their before-treatment hemoglobin values, and that the mean hemoglobin values of the control group at comparable times would show no significant difference. The hypotheses were confirmed, the former at the .01 level of confidence.

Critique: The sample sizes were very small, and the study was published in a questionable place. Unequal numbers between the groups is unexplained and unjustified. [Walike *et al* (1975)] Choosing hemoglobin as a measure of "oxygen uptake" and comparing it to chlorophyll is inexplicable; questionable methodology and statistical tools [Clark & Clark (1984)] A *t* test is not a generally accepted measure of pre-treatment homogeneity or variance. [Clark (1984)]

Krieger (1973a). The relationship of touch, with intent to help or to heal, to subjects' in-vivo hemoglobin values: A study in personalized interaction.

Abstract: This study is offered as post-doctoral research on one facet of common nursing practice, that of touch of another person coupled with a strong intent to help or to heal that person. This act is not restricted to nurses; indeed, it is a common practice among persons of diverse skills and abilities and is found in different and widely separated cultures throughout the world. Because of its universality, it may be considered a fundamental characteristic of man which lies potential or latent in some people and is actualized in others. This act has various names in different parts of the world: in the western civilizations it has been known for many centuries as the practice of laying-on of hands.

The present study, done during the summer of 1972, was based on Krieger (1972). The process studied consisted of neither unusual movements of the hands or other parts of the body, nor was there need for the subjects to believe in the efficacy of the process: that is, this was not an act of faith healing. The only basis for including persons in the experimental sample was the healer's feeling that he could help the ill person's condition. The method used was for the healer to gently place his hands over the area he felt was affected and to leave the hands in place for a variable length of time, which, in the healer's opinion, was sufficient to treat the problem. The criterion measured for the effect was subjects' hemoglobin values showing oxygen uptake as a measure of vitality, the rationale for which is given in the body of the report. The research design was based on a before-after paradigm, and included both an experimental group (n=43) and a control group (n=33).

The experimental group was made up of 43 persons who volunteered to participate. They were suffering from diverse types of illnesses. They were subjected to laying on of hands by a single healer (Col. Oskar Estabany) who had the intent to heal. One further selection factor determined who could be included in the experimental group. Although it was stated that no attempt was made to select particular persons for either group, in fact they were included if they possessed conditions the healer believed he could help.

The control group was as near to a random group as one can get. The author did not know them beforehand, they simply arrived and were accepted for study. They were a random group of people who considered themselves well, but were not perfect specimens of humanity.

All of the data support the hypotheses underlying the development of this study. No significant differences were found between the experimental group and the control group as far as the pre-test hemoglobin values and 2 factors, age and sex, that are known to have differential effects on hemoglobin values, are concerned. These findings can be cautiously interpreted on the basis of null hypothesis as support for the essential random homogeneity of the experimental group and the control group on these factors before the experiment began. However, after the experiments began their course, the terminal data clearly indicate that there was considerable difference between the pre-test and post-test means of the experimental group ($p < .01$), while the mean hemoglobin values of the post-test control group were not significantly different from their pre-test means. Moreover, although there was no significant difference between the pre-test means of the experi-

mental group and the pre-test means of the control group before the experimental variable was introduced, there was considerable significance between the post-test means of the experimental group and the post-test means of the control group ($p < .01$).

Critique: With an assumption that there is a transfer of “prana” from healthy to ill persons, it is necessary to show that hemoglobin level is a competent indicator of one’s state of well-being, that oxygen uptake is a concomitant of the interchange of vitality; but the tests and results show no such thing. The selection criteria for the experimental group favored a significant outcome for the healer, and the experimental treatments were not uniform, but tailored to each individual. The factor of time over which treatments were given was considered not to be an important variable. All subjects were given the option to meditate (which all but one took), and this potentially is a confounding factor for which no control was made. No determination was made as to whether increases in hemoglobin levels were maintained after treatment. The control group members were related to the experimental group, but no data was available to determine if they were comparable in regard to their illnesses. No mention of the proportion of males and females, or to any sexual differentiation in their hemoglobin levels. In sum, the investigation employed an experimental-control, 2-group design with before-after and between group t-test comparisons of a single criterion variable. The experimental group was purposefully selected; the control group was fortuitously selected. The experimental variable was not carefully controlled. Krieger appears to have jumped to the “prana flow” conclusion without first searching for more plausible, scientific explanations for the findings reported. [Schlotfeldt (1973)]

Krieger later claims that she controlled for meditation, breathing exercises, biorhythm changes, smoking, diet, and medications. [Krieger (1975a)] Yet, none of that is reflected in the report, and clearly contradicts her contemporaneous claims about the control group.

Hemoglobin is not a measure of oxygen uptake, but a measure of oxygen capacity; an appropriate measure would have been oxygen saturation of the blood. [Clark & Clark (1984)] Unequal numbers between the groups is unexplained and unjustified. [Walike et al (1975)] No report of the manner in which subjects for the experimental and control groups were selected. A *t* test is not a generally accepted measure of pre-treatment homogeneity or variance; a stronger method would have been random assignment. Meditation is a rival hypothesis. Control for extraneous variables is much better research methodology than the use of a chi-square to rule out any possible effects of meditation. A more suitable method of analysis than multiple t tests would have been an analysis of covariance, provided the underlying assumptions could be met; hemoglobin value of the control group also increased. [Clark & Clark (1984)]

Krieger (1975a). Therapeutic Touch: The imprimatur of nursing.

Abstract: The study confirms that TT elevates serum hemoglobin in humans. The nurse experimental group consisted of 16 registered nurses who included treatment by TT while caring for their patients; the control group included 16 registered nurses who gave nursing care to their patients without using TT. Each nurse worked on 2 patients, for total of 64 patients in the study.

The hypotheses were that following treatment by TT, the mean hemoglobin values of the patients in the experimental group would change significantly from their pre-test value and that would be no significant difference between the pre- and post-test hemoglobin values of the patients in the control group. These hypotheses were supported by statistical analysis (Fisher’s t-Test for the Difference Between Correlated Means) at the .001 lev-

el of significance. For the control group, the difference between the pre- and post-test means was not statistically significant.

Critique: This study embellishes a totally unscientific process with the aura of science by describing the myelination of nerve fibers during development, by comparing the biochemical structures of chlorophyll and hemoglobin, and by presenting Kirlian photography to objectify the healing process. Hemoglobin as a dependent variable is enigmatic: no indication is made of the subjects' initial levels, or that changing them is the aim of TT. The literature review is pseudoscientific. Renowned healers never claim more than a 30% cure rate, but doing nothing usually gets an 80% cure rate—so healers *reduce* the cure rate by 50%. No acknowledgment of intervening variables, such as treatment for depressed hemoglobin, dietary changes, menstrual cycle, transfusions, or other interventions. How were the participants selected from 75 volunteers and how were the patients selected. No indication is made of the variability of hemoglobin in the study nor of the range for the groups or subjects. No discussion of alternative explanations or limitations. [Walike et al (1975)] Absence of operational definitions, random assignment to groups and control for placebo and Hawthorne effects demanded that caution be exercised in the interpretation of this study. While it is clear that no causal connection between the TT treatment and the apparent change in hemoglobin could be made, the study indicated a clear direction for future research. [Quinn (1988)]

Krieger's defense of this paper is that it was not intended as a "formal research paper" [which should eliminate it from further citation, but has not]. On her lack of non-randomization, she states that the Table of Random Numbers was first developed for use in experiments on fertilizers, not human beings! "As any nurse knows, human beings are of a very different order of things." [Krieger (1975b)]

Methodological problems preclude scientific support for an increase in hemoglobin values. Subsequent studies have found no significant relationship between TT and increased hemoglobin values or transcutaneous oxygen blood gas pressure. [Meehan (1992)]

Krieger (1976). Healing by the laying-on of hands as a facilitator of bio-energetic change: The response of in-vivo human hemoglobin.

Abstract: The "laying-on" of hands is an ancient practice of healing which is common to a variety of cultures throughout the world. Subjective results of this practice of TT on humans have been inconclusive. However, double-blind studies have demonstrated that plant seedlings irrigated with bottled water which had been so treated develop sprouts containing significantly increased chlorophyll levels, and that enzymes in test tubes are also sensitive to the "laying-on" of hands. Since human hemoglobin is stereochemically similar to chlorophyll and several enzyme systems are crucial to both its biosynthesis and its functioning, pre-test and post-test hemoglobin values were studied to test the hypothesis that the hemoglobin values of ill person (n=46) who were treated by the "laying-on" of hands would change, whereas there would be no significant change in the hemoglobin levels of a comparable control group (n=29). The hypothesis was confirmed at a statistically significant level.

Critique: Others claim the study shows there was no correlation between faith and the degree of response to TT. [Keller & Bzdek (1986)] The journal is suspect as a scientific publication. [Levine (1979)] The negative results of a later germinating corn-seed study suggests that this experiment must be replicated with better controls before being accepted. [Wallack (1983)] Failed to control for electromagnetic field flux, and when such

controls were adopted in a similar study, the effect disappeared. [Bush & Geist (1992)]
It is not clear at all that hemoglobin levels in humans are not amenable to suggestion.

Corless (1986). The impact of psychophysiological interventions on recovery of three hematological disease populations.

Abstract: [unable to obtain dissertation or abstract; possibly not on point]

Critique:

Wetzel (1989). Reiki healing: A physiologic perspective.

Abstract: Healing therapies which employ touch and are based on the premise of a human energy field are gaining in popularity and support. Reiki, a Tibetan healing art, is one such modality. But Reiki has not yet been submitted to close scientific scrutiny. Using Krieger's protocol for hemoglobin studies within the context of TT, 48 adults participating in First Degree Reiki Training were tested. Findings revealed a statistically significant change in the hemoglobin and hematocrit levels of the participants at the $p=.01$ level. A comparable control group, not experiencing the training, demonstrated no change within an identical time frame. Further research is necessary to clarify the physiologic effects of touch healing.

Critique:

Straneva (1992). Therapeutic Touch and in vitro erythropoiesis.

Abstract: The purpose of this study was to explore Therapeutic Touch (TT) and erythropoiesis under rigorously controlled, in vitro conditions. The research was designed to test the theorem of accelerated differentiation as evidenced by enhanced hemoglobinization, cellular maturity, and numbers of colonies in erythroid cultures receiving TT compared to cultures receiving simulated TT or a no-treatment control. The theorem was derived from Rogers's Science of Unitary Human Beings.

An experimental, factorial design was used and measurements taken from 8 burst-forming units-erythroid (BFU-E) and 8 colony-forming units-erythroid (CFU-E) culture systems. Data from each normal donor were treated as a separate experiment in accordance with standard hematological procedure. Twice daily interventions were performed by 3 practitioners and one simulator. Calculations of the amount of hemoglobin in BFU-E derived cells were based on the optical densities of their colored reaction products as measured by spectrophotometry. Numbers and types of erythroid precursors in the BFU-E cultures were confirmed through differential cell counts. The CFU-E derived colonies were enumerated by a hematologist using standard morphological criteria.

Differences in mean erythroid numbers and amount of hemoglobinization were detected through a priori contrasts using separate variance estimates of the F statistic. The chi-square test of homogeneity was used to determine differences in cellular maturity. Support for hypotheses was based on significance and sufficient numbers of successfully replicated experiments.

Significantly reduced hemoglobin levels in only 3 of the 8 cultures receiving TT were in exact opposition to the elevated levels expected. Five of the 8 experiments showed significant differences in maturation between the TT group and other 2 conditions, but only $\frac{1}{2}$ occurred in the direction hypothesized. The prediction of greater numbers of

CFU-E derived colonies in the TT group was replicated no more than 3 times at any concentration of erythropoietin. Thus, none of the 3 hypotheses was supported. However, TT reduced hemoglobinization and erythroid proliferation, while enhancing cellular maturation in approximately 75% of the BFU-E and CFU-E cultures. This unexpected trend, when compared to in vivo results, merits further investigation.

Critique: In this appropriately controlled study, TT effects fail to appear. In fact, the results are exactly the opposite of what would be expected.

Analgesia

Practitioners have long asserted that TT relieves suffering by a reduction in pain, but evidence from only one study supports the notion. Even before this aspect was studied, however, theories were being advanced as to how it worked on pain. "Kunz suggests that the reduction of local edema, and its resultant decrease in pressure on nerve endings, may offer a possible explanation for the relief of pain." [Boguslawski (1980)] Meehan makes the following pronouncements on all of the pain studies to date (including her own): "the effects of TT on pain are unclear and replications studies are needed before any conclusions can be drawn." [Meehan (1995)]

Ayers (1983). The effect of Therapeutic Touch on the relief of pain as reported by cancer patients receiving narcotic agents.

Abstract:

Critique:

Keller (1983). The effects of Therapeutic Touch on tension headache pain.

Abstract: Study suggests that TT can decrease subjective measures of tension headache pain.

Critique: Apparently the same study as that reported by Keller & Bzdek (1986). See the critique there for applicable comments.

Sullivan (1983). A comparison of the effects of Therapeutic Touch and massage touch as comfort interventions for patients with end-stage cancer.

Abstract:

Critique:

Meehan (1985). The effect of Therapeutic Touch on the experience of acute pain in postoperative patients.

Abstract: The purpose of this study was to investigate the effect of TT on the experience of acute pain in postoperative patients. Pain was viewed as a subjective experience and a function of interrelated physiological and psychological events. Studies demonstrate that TT has the potential to significantly decrease anxiety and facilitate relaxation. Studies demonstrate that treatments which facilitate relaxation have the potential to significantly decrease acute pain. It was hypothesized that there would be a greater decrease in post-test acute pain scores in subjects treated by TT than subjects treated by Mimic Treatment. To set an internal standard by which the effectiveness of the study treatments could be judged, the difference in post-test acute pain scores between subjects treated by TT and subjects treated by Standard Treatment was determined. TT was

viewed as a nursing treatment. The theoretical rationale was provided by the Rogerian nursing conceptual model and supported by contemporary scientific literature.

A pretest-posttest parallel control group design was used. The sample consisted of 109 male and female patients who had undergone elective abdominal and pelvic surgery. When requesting pain relief, at least 24 hours after recovery from anesthesia and at least 3 hours after receiving analgesic medication, subjects were randomly assigned to an experimental group receiving TT, a single-blind placebo control group receiving Mimic Treatment, and a standard control group receiving Standard Treatment. Pain intensity was measured prior to treatment and one hour following treatment by a Visual Analogue Scale. Testing was done by multiple regression analysis and the Tukey HSD comparison technique.

Although a decrease was found in post-test acute pain scores of subjects treated by TT compared with subjects treated by Mimic Treatment, it was not great enough to be significant at the .05 level. The hypothesis, therefore, was not supported. Standard Treatment set a sensitive internal standard, but was significantly more effective than TT. Findings are discussed in light of the very narrow margin of failure to support the hypothesis and ancillary analyses which suggest short and longer term effectiveness of the study treatments.

Critique: The form of TT mimicry used here has been called into question as an adequate placebo control. [Meehan (1993)] Length of treatment time was perhaps not enough time for an analgesic effect. [Quinn (1988)] The weak results have been replicated by the same researcher. [Meehan, Mersmann, Wiseman, Wolff & Malgady (1988)] Though this dissertation was chaired by Krieger, the results were still miserable for TT. Not only did it not show a significant improvement over placebo, but it was significantly *worse* than standard treatment. This devastates the pain-relief claim. Quinn's explanation of insufficient treatment time is unpersuasive since the TT hypothesis rests on a completion of "balancing" or "smoothing" (it either is or isn't) and says nothing of the length of time to accomplish same.

Hogg (1985). The effects of acupressure on the psychological and physiological rehabilitation of the stroke patient.

Abstract: This preliminary study contrasted the effects of acupressure and TT on physiological, psychological and rehabilitation therapy parameters of a small group of stroke patients over a 4-week period. Single case studies, non-parametric and parametric statistics, were used to evaluate the 8 hospital rehabilitation inpatients. The sample included 5 males and 3 females, ranging in age from 54 to 82, with mean age of 63.

Subjects were divided equally into 2 groups, Acupressure and TT. Psychological ratings were obtained on Depression, Anxiety, Health Locus of Control, Social Desirability, and subjective ratings by patients of pain and relaxation in the last 48 hours, and before and after each treatment session. Rehabilitation pre- and post-therapy measures included Transfers from Wheelchair to Bed, Upper Extremity Dressing, and Bed Mobility, as monitored by Occupational Therapy, Transfers from Wheelchair to Mat, Voluntary Control at the Hip, and Range of Motion monitored by Physical Therapy, and Disability Ratios by nurses. Patient requests for pain and sleep medications also were recorded.

Using 12 45-minute sessions per patient in each of the treatments, acupressure was found to be significantly more effective than touch only in the reduction of anxiety and tension and the increase in Upper Extremity Dressing. These findings were not impressive; however, overall effect was significant across time on Upper Extremity Dressing,

Transfers from Wheelchair to Mat, Transfers from Wheelchair to Bed, Bed Mobility, Voluntary Control at the Hip, and Disability Rating.

It was suggested that further research include a no-touch control to determine whether the change was caused by rehabilitation alone or a combined effort with the treatments. It also appears that interaction with a sympathetic therapist and either acupressure or TT may have an ameliorative effect on perceived pain. Suggestions for refinement include larger sample size, non-treatment controls, and research using physical and occupational therapists as acupressurists. In addition, family training in acupressure techniques might be used prior to the patients' entering rehabilitation; this intervention measure may assist in the prevention of contractures and/or spasticity that impede the rehabilitation process.

Critique: There were no control groups and the sample size was small. Even so, in the words of the researchers, the results were "not impressive" for TT.

Keller & Bzdek (1986). Effects of Therapeutic Touch on tension headache pain.

Abstract: Therapeutic Touch (TT) is a modern derivative of the laying on of hands that involves touching with the intent to help or heal. This study investigated the effects of TT on tension headache pain in comparison with a placebo simulation of TT (the same procedure designed by Quinn, 1982). The simulation was indistinguishable from TT in terms of physical motions. Sixty volunteer subjects with tension headaches were randomly divided into treatment and placebo groups. The McGill-Melzack Pain Questionnaire was used to measure headache pain levels before each intervention, immediately afterward, and 4 hours later. A Wilcoxon signed rank test for differences indicated that 90% of the subjects exposed to TT experienced a sustained reduction in headache pain, $p < .0001$. An average 70% pain reduction was sustained over the 4 hours following TT, which was twice the average pain reduction following the placebo touch. Using a Wilcoxon rank sum test, this was statistically significant, $p < .01$. Study results indicated that TT may have potential beyond a placebo effect in the treatment of tension headache pain.

Funded by Kellogg Foundation.

Critique: The report is in a prestigious, refereed nursing journal. [Bullough & Bullough (1993)]. This is the only study where the efficacy of TT as an analgesic been reported. However, the investigators administered the interventions. [Meehan (1993)] The results of this study should be replicated in different areas and on different populations before their validity can be substantiated and their generalizability expanded beyond current limits. [Keller & Bzdek] Indeed, another study found results in considerable contrast to those found here. The form of TT mimicry used here has been called into question as an adequate placebo control. [Meehan (1993)] Whether doing an exercise that required considerable concentration is a placebo comparable to period of relaxation and waving of hands apparently was never questioned by the referees. [Bullough & Bullough (1993)] There was an unexplained high ratio of female test subjects. Selection of a 4-hour time interval between intervention and post-test was unjustified. Half of the placebo group who took pain medication during that time were removed from the data analysis, yielding a statistical significance not present when they were included. No indication was made of post-test intensity of pain. [Clark & Clark (1984)] Study is likely an example of fallacious *post hoc ergo propter hoc* (doctrine of false cause) reasoning. [Bandman & Bandman (1995)]

Meehan, Mersmann, Wiseman, Wolff & Malgady (1988). Therapeutic Touch and surgical patients' stress reactions.

Abstract: The purpose of this study was to investigate the effect of TT on postoperative pain in 159 patients who underwent major elective abdominal or pelvic surgery. A randomized blocking procedure was used to assign subjects to one of 3 treatment groups: an experimental group receiving TT, a single-blind control group receiving Mimic TT, or standard control group receiving standard care (no study treatment).

Subjects received the assigned treatment the evening before surgery and 7 times during the postoperative period. The number of doses and amount of analgesic medication received over the postoperative period was calculated. Pain was measured before and at 4 intervals following one treatment administered in conjunction with p.r.n. analgesic on the first postoperative day using a Visual Analog Scale, and the time lapse until receiving the next analgesic medication calculated.

Subjects who received TT in conjunction with a p.r.n. narcotic analgesic waited a significantly longer time before requesting further analgesic medication ($p < .01$). No significant difference was found in pain intensity scores over the initial 3-hour post-treatment period. Subjects who received TT requested fewer doses of analgesic and received less analgesic medication over the entire postoperative period than the control groups but this decrease was not significant at the .05 level. The analgesic effect associated with TT was significantly greater in women than men.

Conclusion: TT given in conjunction with narcotic analgesic medication can reduce the need for further analgesic medication. This finding replicated an earlier study finding [Meehan (1985)]; suggesting that TT may have potential beyond the placebo effect in the treatment of postoperative pain.

Funded by NIH National Center for Nursing Research grant #NRO1676-01A1.

Critique: This study gives at most tenuous support for TT and hasn't been replicated. The last conclusion is worth repeating with emphasis: *suggesting TT may have potential beyond the placebo effect.* A researcher cannot have a weaker statement without concluding that the hypothesis is rejected.

Mueller Hinze (1988). The effects of Therapeutic Touch and acupressure on experimentally-induced pain.

Abstract: The purpose of this study was to examine the physiological and psychological effects of TT and acupressure on experimentally-induced ischemic pain. A 2-way factorial 4 x 3 (treatment by time) repeated measures design was used. There were 4 treatment groups: (1) TT, (2) acupressure, (3) placebo-attention (mock TENS), and (4) no-treatment control, and 3 time periods: (1) baseline, (2) pain, and (3) recovery. The sample consisted of 48 healthy volunteer female subjects who met selected criteria. Pain was induced by using a tourniquet test applied to the non-dominant upper arm.

Descriptive data were assessed at the beginning of the study. Anxiety was measured by the State-Trait Anxiety Inventory (STAI) before and after the study. Seven dependent variables were measured repeatedly at 2-minute intervals throughout the time periods: oxygen consumption, heart rate, respiratory rate, systolic blood pressure, diastolic blood pressure, pain sensation, and pain distress. Physiological measurements were recorded by using a Grass model 70 polygraph and a Waters Oxygen Consumption Computer. Pain sensation and distress were rated on a 0-10 scale.

A repeated measures multivariate analysis of variance was used to analyze the data.

The MANOVA revealed significant time effects for all variables. A significant treatment by time effect was noted for oxygen consumption. Post hoc analyses using Least Significant Differences indicated a significant difference (decrease) in the oxygen consumption usage of the placebo-attention group when compared to the no-treatment control, TT, and acupressure groups. There was also a significant difference (decrease) in the oxygen consumption usage of the acupressure group when compared to the no-treatment control group. An analysis of covariance revealed no differences in the pre- and post-anxiety levels among the groups. Although the pain distress ratings were not statistically different among the groups, the TT and acupressure groups reported higher perception of effectiveness scores and a greater willingness to receive future treatment than did the placebo-attention group.

Critique: Once again, TT comes up short. Quite apparently recipients *want* it to work, but cannot demonstrate any effects of it working.

Barrington (1993). A naturalistic inquiry of post-operative pain after Therapeutic Touch.

Abstract:

Critique:

Meehan (1993). Therapeutic Touch and postoperative pain: A Rogerian research study.

Abstract: This article details a research study concerning the conceptualization of TT within Rogers's Science of Unitary Human Beings and an investigation of the effects of TT on pain experience in postoperative patients. Using a single trial, single-blind, 3-group design, 108 postoperative patients were randomly assigned to receive one of the following: TT, a placebo control intervention which mimicked TT, or the standard intervention of a narcotic analgesic. Using a visual analogue scale, pain was measured before and one hour following intervention. The hypothesis, that TT would significantly decrease postoperative pain compared to the placebo control intervention, was not supported. Secondary analyses suggest that TT may decrease patients' need for analgesic medication. Implications for further research and practice are suggested.

Funded by national award from Sigma Theta Tau, and a Martha E. Rogers Scholarship Award for Doctoral Students from its Upsilon Chapter.

Critique: This is undoubtedly an update of the study found in the author's dissertation, placing it into a Rogerian context, as suggested by Quinn (1989b). The results of the primary data analysis did not support the hypothesis. The results do not support the use of TT alone as an intervention to decrease post-operative pain. This is in considerable contrast to Keller & Bzdek (1986), and calls the form of TT mimicry used here into question as an adequate placebo control. [Meehan (1993)] The secondary analysis permitted her to salvage a "decreased need" for analgesics, but otherwise the evidence *against* TT held up.

Dollar (1993). Effects of Therapeutic Touch on perception of pain and physiological measurements from tension headache in adults: A pilot study.

Abstract: The effects of TT on the perception of pain and physiologic measurements from tension headache in adults were examined in a one-group non-randomized study of quasi-experimental and descriptive design. Seven adults were treated with TT. The theoretical framework was derived from Rogers's Science of Unitary Human Beings. A Visual Analog Scale, tape recorded interview, and physiologic measurements of pulse, respiratory rate, and blood pressure were taken pre-, immediately post-, and 1-hour post-intervention.

Subjects experienced a highly significant reduction ($p=0.0006$) in tension headache pain and a significant reduction ($p=0.017$) in respiratory rate between pre- and immediately post-intervention scores as determined by a one-way analysis of variance. A Fisher's LSD multiple comparison test showed pre-test scores were significantly higher than immediately post-, and 1-hour post-test scores which showed no significant difference. Interview data revealed patterns of decreased pain and increased relaxation.

Critique:

Misra (1993). The effects of Therapeutic Touch on menstruation.

Abstract: The purpose of this study was to determine the effect of TT on women's menstruation experience. Participants of this study were 31 female subjects ages 18 to 41 years, currently on the first days of their menstrual cycle. A treatment and control group were selected to receive either a TT intervention or a placebo treatment of rest. The Short Form-McGill Pain Questionnaire was used to assess subjective pain before and after treatments. The Wilcoxon test results indicated a significant difference in 2 of the 2 dependent variables. Implications are made for TT as a science-based intervention, and recommendations for future research are developed.

Critique:

Oliver (1993). Therapeutic Touch: An adjunct intervention for chronic pain.

Abstract: [unable to obtain thesis; may be a survey rather than research]

Critique:

Ledwith (1995). Therapeutic Touch and mastectomy: A case study.

Abstract: A case study was presented to describe how TT was applied to lessen the pain related to mastectomy. The processes involved in the TT sessions are centering, energy field assessment, natural energy flow restoration, transfer of the free energy to the patient and smoothing out the energy field. The TT practitioner also evaluated the history, size and strength of the energy blockage. The patient reported that her operation went relatively well as a result of the TT sessions.

Critique:

Relaxation

This is a particularly challenging area of research, since TT highly resembles meditation, if not in the healee, then in the healer. The research hypotheses would have to distinguish between the two, which is difficult as both are claimed to be altered states of consciousness. This is further complicated by the fact that there is no acceptable description or explanation of consciousness, and attempts to explain mystical states of consciousness in neurophysiological terms have been well refuted. [Brown *et al.* (1977)].

Brown, Fischer, Wagman, Horrom & Marks (1977). The EEG in meditation and Therapeutic Touch healing.

Abstract: Five subjects, 2 men and 3 women who actively practice TT healing were physiologically monitored during conditions of Rest-Eyes Closed, Meditation, Mental Arithmetic, and TT Healing on 2 occasions, one week apart. The EEG from Right and Left vertex-occipital locations was analyzed by Fast Fourier methods to produce a power density spectrum in 5 bands (Δ , θ , α , β_1 , β_2 , β_3) on each occasion.

Analysis of variance and discriminant function procedures were employed in the analysis of the data. None of the data from the left-sided EEG locations significantly differentiated the conditions (states). Beta activity (13-30 Hz) mainly, and α and θ energy additionally provided a significant marker that indicated a loose association for Healing-Mental Arithmetic, and a distinct differentiation from the closely associated conditions of Relaxed-Meditation.

Critique: This apparently shows only that TT practitioners concentrate on what they're doing, but it says nothing at all about the validity of TT.

Boguslawski, M. (1978). The use of Therapeutic Touch in nursing.

Abstract: Infants and children are more sensitive to treatment by TT. [Kramer (1990)]

Critique: This is actually *not* a report of research. Nonetheless, it is cited as such (by Kramer, 1990).

Heidt (1979). An investigation of the effects of Therapeutic Touch on anxiety of hospitalized patients.

Abstract: The purpose of this investigation was to examine the effect of TT on the anxiety of hospitalized patients. A review of literature indicated that purposeful relaxation therapies produce a "relaxation response" opposite to the "fight or flight" response characteristic of anxiety, and that TT is an intervention which has the potential for eliciting in patients a state of physiological relaxation. TT, as defined by Krieger (1973a), is a derivative of laying-on of hands in that it uses the hands to direct excess body energies from a person in the role of healer to another for the purpose of helping or healing that individual. Although derived from laying-on of hands, it differs in that it does not have a religious context. The person in the role of healer does the act of TT while in a meditative state and is motivated by an interest in the needs of the patient.

The sample consisted of 90 volunteer male and female subjects, between ages 21 and 65, hospitalized on an inpatient cardiovascular unit of a large medical center in New York City. The dependent variable, state anxiety, was defined as a transitory emotional state of the individual at a particular point and was measured by the Self-Evaluation Questionnaire X-1, as developed by Spielberger, Gorsuch & Lushene in 1970. Each subject was administered this tool pre- and post-intervention.

Three matched intervention groups were formed with each subject receiving an individual 5-minute period of intervention by either TT, Casual Touch, or No Touch. Intervention by Casual Touch consisted of the nurse sequentially touching the subject on 4 parts of the body by taking the apical and radial pulse rate (left wrist) and the pedal pulse in both feet. For No Touch intervention, the nurse sat beside the subject and talked with him/her without any body contact during this time.

The first hypothesis stating that subjects receiving intervention by TT would experience a reduction in state anxiety was confirmed. A comparison of pre-/post-test means on A-State anxiety using a correlated t ratio revealed a highly significant difference ($p < .001$). The second and third hypotheses respectively state that there would be a greater reduction in post-test anxiety scores in subjects receiving intervention by TT than in either subjects receiving intervention by Casual Touch or in subjects receiving intervention by No Touch. Both hypotheses were confirmed at the .01 level of confidence.

Implications for further research indicate a need for exploring the relationship between TT and physiological indices of anxiety in hospitalized patients. The effect of TT on sleep patterns, degree of rest and relaxation in hospitalized patients are other areas of possible exploration. The effects of TT on anxiety of subjects was not correlated with such variables as age, sex, religious background or degree of pre-test anxiety. An explanation of the personal meaning of TT to both healer and healee may offer an understanding of the symbols characterizing the universal language of TT.

Critique: Both TT and casual touch were administered by the primary investigator. [Meehan (1993)] No random assignment of subjects was made. During casual touch, the intervener continued to make comments which could be perceived as negative. Apical, radial and pedal pulse-taking can be experienced as invasive. The self-evaluation questionnaire alone to measure anxiety state is also problematic. [Clark & Clark (1984)] An attempted replication by Quinn (1982)—see *infra*—used fewer subjects (60), and replaced casual touch (pulse-taking) with placebo touch, which was a simulation of TT movements without energy transfer. [Keller & Bzdek (1986)]

Kersten (1980). Correlations between Therapeutic Touch and trust.

Abstract:

Critique:

Randolph (1980). The differences in physiological response of female college students exposed to stressful stimulus when simultaneously treated by Therapeutic Touch or Casual Touch.

Abstract: Recent studies have documented a profoundly relaxed and meditative condition termed the Relaxation Response. Eliciting this response has been found effective in mitigating stress reactivity. TT, a derivative of laying-on-of-hands, and utilizing meditative skills, has been observed to produce deep relaxation with a decrease in muscular

tension, flushing of the skin (vasodilatation), and a subjective experience of peacefulness. In addition, research has documented an Alpha wave predominance in the encephalographic recording of the TT recipient. Alpha patterns are a correlate of meditation.

Sixty subjects were divided into control and treatment groups. All subjects viewed a stress-inducing movie. During the film the experimental group was treated by practitioners trained in TT. The control group received Casual Touch, which consisted of identical hand placement as the TT practitioners used, but the Casual Touch nurse did not employ the meditative skill of TT.

The 2 groups were compared by analysis of covariance for skin conductance and electromyographic levels, and peripheral skin temperature. The main hypothesis being tested: subjects exposed to stressful stimulus, when treated with TT, would exhibit a lower physiological response than individuals experiencing Casual Touch. The 3 hypotheses were not supported.

However, a number of factors contributing to the lack of TT effect are discussed. A substantial deviation in the administration of TT occurred. The treatment was given without the benefit of an assessment. Randolph utilized healthy college students and one would expect to see very little change in such subjects.

Critique: Though methodologically sound, the study's primary weakness is in its discussion of the findings. The study was the first to expose 2 groups to the same procedure (except for the hypothesized difference). The research design and statistical analysis were appropriate to the question. [Clark & Clark (1984)] One should probably not expect that treatment with TT would suppress appropriate responses to external stressors. [Quinn (1988)] Randolph used a modified TT procedure. [Meehan (1992)]

Heidt (1981b). Assessing the effects of Therapeutic Touch through creative imagery techniques.

Abstract: Image Disease/Discomfort is a diagnostic tool which uses patients' drawings and discussions as a basis for exploring their attitudes toward being ill. As modeled after Image-Ca, a tape-recording is used to assist the patient to relax each body part and to take a "mental journey" through the body. Following this, the patient is instructed to draw (1) what they imagined about their disease/discomfort, (2) how their body is getting rid of it, and (3) how their treatment is assisting them to get well again. Then the therapist and patient explore together the above components of the drawing in order to get a more clear and accurate description of the patient's imagery.

Image Disease/Discomfort was used to assess 3 patients' attitudes toward their illness while receiving intervention by Therapeutic Touch. There was no attempt to obtain an imagery score as is done with Image-Ca. Observations of patients' drawings and excerpted interview data do indicate that changes took place between the first and second interviews. All 3 patients receiving Therapeutic Touch responded to this intervention in their own unique way, and generalizations cannot be made from this small sample. However, some commonalities emerged and may prove of interest for future research in the area of Therapeutic Touch.

Critique: Other studies using hospitalized patients as subjects found no decrease in anxiety. In a study of preoperative patients, the same mean decrease in anxiety was found, but this decrease was not significantly greater than in a mimic control group. [Meehan (1992)]

Ewing (1982). The relationship between Therapeutic Touch and state anxiety of healthy subjects.

Abstract:

Critique:

Macrae (1982). A comparison between meditating subjects and non-meditating subjects on time experience and human field motion.

Abstract: The purpose of this study was to test the relationship between meditation and 2 human behaviors, time experience and human field motion, within the Conceptual Framework of Unitary Man. Within this system, the experiences of timelessness and greater motion are postulated to be correlates of human development. If meditation is associated with human development, meditating subjects would be expected to report these experiences.

The hypotheses were as follows. (1) Meditating subjects will have lower scores on the Time Metaphor Test than non-meditating subjects. In this study, low scores are interpreted as indicating a sense of timelessness. (2) Meditating subjects will have higher scores on the Human Field Motion Test than non-meditating subjects. Higher scores indicate greater human field motion.

In this study, the sample was composed of 90 subjects, 45 experienced meditators and 45 non-meditators. The 2 groups were matched for age and were similar in regard to sex, marital status, education and occupation.

Subjects were asked to first fill out a demographic data questionnaire. The meditators were then asked to perform a 20-minute meditative exercise and the non-meditators were asked to perform a 20-minute unfocused aware relaxation exercise. All subjects were next asked to describe their experiences on a separate sheet and immediately afterwards to complete the Time Metaphor Test and the Human Field Motion Test with respect to their experiences.

The descriptions of all the subjects were validated by 2 judges; these were individuals with extensive knowledge and experience in the area of meditation. They classified the meditative experiences into 3 categories: Deeper, Shallower, and Borderline.

The results were as follows. The mean score of the meditating subjects on the Time Metaphor Test was lower than the mean score of the non-meditators ($t = 4.75$, $df = 62$, $p < .001$). The mean score of the meditating subjects on the Human Field Motion Test was higher than the mean score of the non-meditators; the differences approached a significant level ($t = 1.95$, $df = 88$, $p < .054$). When the mean Human Field Motion score of the subjects having the deeper meditative experiences was compared with the mean score of the non-meditators, the difference was significant ($t = 2.71$, $df = 62$, $p < .009$).

Critique: The investigator had to resort to sub-group comparisons in order to come up with consistent and significant results. The use of "judges" to subjectively categorize respondents' experiences is questionable. The usefulness, relevance, and validity of the 2 Tests are unjustified. Even so, we are talking about a field only peripherally related to TT (at best by theory), so the results are of little interest here.

Quinn (1982). An investigation of the effects of Therapeutic Touch done without physical contact on state anxiety of hospitalized cardiovascular patients.

Abstract: The focus of this study was the explication of the means by which the nursing intervention of TT is effective. Specifically, this research was designed to test the theorem that TT without physical contact would have the same effect as TT with physical contact. This theorem was derived from the broader conceptual system developed by Rogers which suggests that the effects of TT are outcomes of an energy exchange between 2 human energy fields. Since the effect of TT with physical contact on state anxiety is known, state anxiety was utilized as a measure of the efficacy of TT without physical contact.

A sample of 60 male and female subjects, between the ages of 36 and 81, hospitalized on a cardiovascular unit of a metropolitan medical center, were randomly assigned to the Experimental group, receiving Non-Contact TT, of the Control group receiving Non-Contact. Each subject completed the A-State Self-Evaluation Questionnaire before and after the assigned intervention. It was hypothesized that subjects receiving Non-Contact TT would have a greater decrease in post-test state anxiety scores than subjects receiving the Control intervention of Non-Contact. This hypothesis was supported at the .0005 level of significance.

In addition to the main hypothesis, 2 ancillary research questions were explored. There were no differences among the effects on subjects' state anxiety obtained by 4 different nurses administering Non-Contact TT. Further, there were no significant relationships between subjects' ethnicity, religion, medical diagnosis, presence or absence of surgery, number of previous hospitalizations, position during treatment, number of days after surgery and subjects' response to treatment by Non-Contact TT.

Implications for nursing practice and research were identified.

Critique: This is the premier study which established TT as a hand-waving exercising instead of the quasi-religious laying-on-of-hands. Questionnaire was the sole measure. [Clark & Clark (1984)] Heidt (1980) and this study are both about the effects of TT on state anxiety levels of hospitalized cardiovascular patients. One of the differences in their methodology was that Quinn used nonphysical contact. The results were very similar to those of Heidt's, even though the latter used physical contact. [Keller & Bzdek (1986), Heidt (1990)] Because this state of awareness is so important, Quinn devised a "mimic" treatment for the control group of patients in her research. Volunteer nurses were taught to mimic TT treatment while their actual focus of concentration was on a series of numbers, counting back from 100 by 7s. Patients who received TT from nurses whose consciousness was described as "centered" or "meditative" had a significant decrease in state anxiety, in contrast to patients who received a "mimic" treatment. [Heidt (1990)] However, this form of mimicry has been called into question as an adequate placebo control. It is possible that patients in the actual experience of receiving mimicry, even if they had not received TT before, could guess whether or not they were receiving a placebo. [Meehan (1993)]

Bremner (1983). The effects of Therapeutic Touch on anxiety and physiological measures.

Abstract:

Critique:

Collins (1983). The effect of non-contact Therapeutic Touch on the relaxation response.

Abstract:

Critique:

Braun (1984). The effect of Therapeutic Touch upon quality of sleep experienced by institutional elderly.

Abstract:

Critique:

Fedoruk (1984). Transfer of the relaxation response: Therapeutic Touch as a method for reduction of stress in premature neonates.

Abstract: This study investigated Therapeutic Touch b (TTb) as a method for stress reduction in premature neonates. Research has offered scientific evidence that purposeful relaxation therapies elicit a "relaxation response" that counterbalances stress and promotes the body's own restorative processes. Research on Therapeutic Touch (TT) indicates that practitioners can reduce anxiety and elicit a state of physiological relaxation in the recipient.

TT is defined as a therapeutic method in which the practitioner enters into a meditative state and while in that state assesses the physiological and psychological condition of the recipient and simultaneously, with the intention of helping, concentrates on transferring energy to the recipient. TT is a derivative of laying on of hands that takes place outside of a religious context. Rogerian Nursing Theory, Relativity Theory, Quantum Field Theory, and Systems Theory provide the theoretical framework of TT. There are presently 2 forms of administering TT: TTa in which actual physical contact takes place between the practitioner and the recipient, and TTb in which it does not. TTb is the form examined in this study.

The sample consisted of 17 infants in intermediate and intensive care. The dependent variable, stress, was measured during the routine nursing procedure of taking vital signs. Stress was measured behaviorally by the state of the infant as measured by the Assessment of Premature Infant Behavior (APIB) and physiologically by a fall in transcutaneous oxygen pressure (tcPO₂).

The study employed a repeated measures analysis of covariance design in which the infants served as their own controls. All infants in the study were treated by TTb twice and received 2 controls called Mock Therapeutic Touch b (MTTb) and No Therapeutic Touch (NTT) twice.

The findings indicated that TTb was an effective method for reducing the behavioral stress of premature infants and an ineffective method for reducing their physiological stress. An unexpected finding was that behavioral stress increased during MTTb.

An explanation for the findings and discrepancies between this study's findings and previous findings was given. Some reasons include the presence of the nurse, the way in which the Mock treatment appears to have influenced the infants, length of exposure for the different treatments, and the potential inappropriateness of tcPO₂ as a dependent measure due to the normality of the infants tcPO₂ measures throughout the observation period. The author identified limits on the design: small sample size, physiologic insta-

bility of the premature infant, crisis nature of the environment, and the number of endogenous and exogenous events which occurred during the course of observation and between observations. Implications for theory, clinical practice and future research were discussed.

Critique: The length of intervention times varied. [Meehan (1992)] From the data presented it is not possible to determine if the reported difference in infant state scores among the 3 treatments is due to the effectiveness of TTb in reducing arousal or the fact that MTT appears to have increased arousal. Interpreting the findings of this analysis as supporting the hypothesis that "infants treated with TTb will demonstrate greater changes from higher or more aroused states to lower or more relaxed states during the course of the observation time than infants receiving MTTb or NTT" is thus somewhat risky. Some additional limitations are that the investigator and her assistant, who were not blind to the treatment being performed, served as the data collectors and raters of infant state; there is no report of the interrater reliability of the raters or of the skill in the use of the measurement instruments. Relaxation is seen as the equivalent of suppressing reactivity to real stressors in the external environment. [Quinn (1988)] The highly mixed results would be consistent with randomness. Given that neonates are less aware of their surroundings, not even the placebo effect can be considered at work here.

No significant relationship was found between TT and transcutaneous oxygen blood gas pressure. [Meehan (1992)]

Krieger (1984b). Therapeutic Touch during childbirth preparation by the Lamaze Method and its relation to marital satisfaction and state anxiety of the married couple.

Abstract: This study seeks to validate the use of TT as an adjunct to childbirth preparation by the Lamaze Method in enhancing marital satisfaction and by decreasing state anxiety. Fathers with this skill are able to offer their wives another source of comfort during the pregnancy. By reducing anxiety, it is conceivable that TT could have beneficial effects on the physiological function of newborns, on the maternal use of analgesics, and on the husband's attitudes toward his involvement in the birthing process. In contributing to an increase in marital satisfaction, the practice of TT could contribute to deeper bonding of the married couple with each other and with their child and provide a model for caring and concern for others within their sphere of influence; possibly it could also elicit other positive nonverbal behavior between spouses and within the family.

The study was to test 2 hypotheses. (1) Controlling for differences in level of marital satisfaction at antepartum, couples who engage in TT and prepared childbirth will demonstrate greater marital satisfaction at post-partum than couples who only used prepared childbirth. (2) Controlling for differences in state anxiety at antepartum, couples who engage in TT and prepared childbirth will demonstrate a decreased level of state anxiety at postpartum when compared to couples who use only prepared childbirth.

Thirty couples were required for both the experimental and control groups, for a total of 60 married couples in the study. Only couples who had non-complicated vaginal deliveries and a normal newborn were retained for data analysis. All couples were primiparous, as anxiety is decreased in a second experience with childbirth.

In summary, Hypothesis 1 was statistically supported, whereas the data did not support Hypothesis 2. The research findings relative to TT and the State-Trait Anxiety Inventory were not similar or supportive of the Heidt (1979) or Quinn (1982) findings; however, in retrospect, the reason calls itself to attention. Both Heidt's and Quinn's samples, were composed of sick people. In contrast, the sample in the present study con-

sisted of normal married couples concerned with a normal, healthy act; pregnancy is not a disease.

Funded by PHS Nursing Research Emphasis Grant for Doctoral Programs.

Critique: Krieger's effort to explain away the negative result on anxiety does not ring true. A thesis of TT is that only the practitioner's intentionality counts; the patient does not figure in. Attempting to explain away the results as a difference between sick and healthy recipients is specious.

Moore (1984). An investigation of the differences in behavior of hyperactive children before and after Therapeutic Touch.

Abstract:

Critique:

Quinn (1984a). Therapeutic Touch as energy exchange: Testing the theory.

Abstract: Previous investigators have suggested that the effects of TT are the result of an exchange between the client and the nurse. In this investigation, the theory of energy exchange is viewed as part of the broader conceptual system proposed by Rogers. The theorem that the effects of TT do not depend on actual physical contact is derived, tested, and supported via an experimental pretest-posttest design. Subjects treated with non-contact TT demonstrated a significantly greater decrease in state anxiety than subjects treated with a mimic control intervention. Implications for further theory development are presented. This develops the practice of TT as done today.

Critique: This could not be replicated by the author in a later study [Quinn (1989b)]. The findings of this study lend support to the assumption that a transfer or exchange of energy takes place between 2 human fields, the nurse and the subject, but they cannot be interpreted as "proof" of the assumption. The reality of an energy exchange during TT remains untested. [Quinn (1984a)] Practitioners of TT often combine both physical and nonphysical contact during the course of treatment.

Other studies using hospitalized patients as subjects found no decrease in anxiety. In a study of preoperative patients, the same mean decrease in anxiety was found, but this decrease was not significantly greater than in a mimic control group. [Meehan (1992)]

Quinn (1984c). An investigation of the effects of Therapeutic Touch on anxiety of preoperative open heart surgery patients.

Abstract: [unable to obtain report]

Funded by NIH National Center for Nursing Research grant #R23NU01067.

Critique:

Randolph (1984). Therapeutic and physical touch: Physiological response to stressful stimuli.

Abstract: Sixty female college students were exposed to a stressful stimulus and treated

by Therapeutic or physical touch. Groups were compared on levels of physiological response through electromyographic, skin conductance, and peripheral skin temperature measures. The hypotheses predicted that the TT group would remain more relaxed than the physical touch group. None of the hypotheses were confirmed using a one-way analysis of covariance.

Critique: Clearly a rewrite of the author's dissertation [Randolph (1980), *supra*]. See critique there for appropriate comments.

Guerrero (1985). The effects of Therapeutic Touch on state-trait anxiety level of oncology patients.

Abstract: The purpose of this study was to determine the effects of TT on state-trait anxiety levels of oncology clients, utilizing trait anxiety levels as baseline.

The study was an experimental field study. The sample selection consisted of 30 subjects from a 300-bed hospital in southwest Texas, admitted to an oncology unit for chemotherapy. Subjects were randomly assigned to one of 3 groups using a table of random numbers. Group I received intervention by TT, Group II received casual touch (pulses were taken), and Group III received no touch (i.e., just talk).

The state-trait self-evaluation questionnaire was administered on the first day. On the second day after interventions (TT, casual touch or no touch), subjects were re-tested using the A-state self-evaluation questionnaire.

The Kruskal-Wallis a non-parametric statistical test, was used to test the null hypothesis of this study at $p \leq .05$. Findings for this study indicate that TT significantly lowered the state level of anxiety as measured by differences in state anxiety scores prior to and following intervention.

Critique: Group I received more "attention" than Group II, who received more than Group III. It is well within a prediction based on the placebo effect that Group I (receiving TT) would show the greatest anxiety reduction.

Parkes (1985). Therapeutic Touch as an intervention to reduce anxiety in elderly hospitalized patients.

Abstract: The effect of TT on the anxiety level of 60 volunteer male and female elderly subjects between the ages of 65 and 93, hospitalized in a large private hospital in the Midwest, was examined. The dependent variable, state anxiety, was defined as a transitory emotional state of persons that varies in intensity over time and was measured by the Y-2 form of the Self-Evaluation Questionnaire, developed by Spielberger. Subjects were administered this tool pre- and post-intervention. Twenty subjects were randomly assigned to each of 3 groups. Each subject received a 5-minute intervention of TT or 1 of 2 simulated conditions. In the first simulated condition, the nurse mimicked an assessment and held her open hands over the solar plexus with no intent to transfer energy. In the second simulated condition, another nurse held her close hands over the shoulder of the subject with no intent to transfer energy.

There were no statistically significant differences among the groups in regard to demographic characteristics such as ethnicity, age, sex, numbers of previous hospitalizations, religious preference, diagnosis, and practice of meditation. Results of the analysis of covariance statistical test, using pre-test scores as the covariant, failed to reject the null hypothesis of no difference among the 3 groups. The mean scores of the post-test sug-

gested a slight *increase* in anxiety in all 3 groups.

Implications for nursing include the need to extend the time of the intervention and/or to use multiple treatments, and to modify procedures in order to encourage participation of the elderly. Future research should concentrate on testing the energy exchange and the assumption that hospitalization increases anxiety in elderly subjects. Lack of significant findings may be related to expertise of the TT practitioner, who had 2 years of experience.

Critique: The elderly subjects had difficulty completing the questionnaire. No significant decrease in anxiety in hospitalized patients could be associated with TT. The form of TT mimicry used here has been called into question as an adequate placebo control. [Meehan (1993)] The lack-of-expertise explanation of failure seems to beg the question, since TT is often touted as an innate ability for all people and the length of experience has never been raised as a factor before the failure.

Smith (1985). The effects of back massage, Therapeutic Touch, and intentionality on state anxiety in elderly women.

Abstract:

Partially funded by PHS grants NU00250-06 & NU00250-07.

Critique:

Braun, Layton & Braun (1986). Therapeutic Touch improves residents' sleep.

Abstract: TT reported effective in promoting sleep. [Meehan (1992)]

Critique: Possible rewrite of Braun (1984).

Hale (1986). A study of the relationship between Therapeutic Touch and the anxiety levels of hospitalized adults.

Abstract: The purpose of this study was to examine the intervention of TT on the anxiety levels of hospitalized adults. The study was carried out during a 2-month period at a 278-bed general hospital in the Southwest. The convenience sample consisted of 48 consenting subjects who met selected criteria.

A 3-group before-after experimental design was used. Subjects were randomly assigned to one of 3 groups. The treatment group received Krieger's TT, the placebo group received a simulation of the hand movements of TT without other components defined by Krieger as essential, and the control group received only routine care.

Anxiety was measured by the State-Trait Anxiety Inventory (STAI). The STAI was completed by subjects before and after interventions of TT or placebo touch. Subjects in the control group completed the form at corresponding times. Physiological responses to anxiety were measured by systolic and diastolic blood pressure and pulse rate. Two measurements of each variable were made before and after treatment of TT or placebo touch. Measurements were made on control group subjects at corresponding times.

Research hypotheses predicted that the TT group would have post-test decreased levels of state anxiety, systolic and diastolic blood pressure, and pulse rate as compared to the placebo and control groups. Data were analyzed by a 2-way ANOVA for repeated measures. No significant differences were found between groups for any of the variables

measured. A significant difference was found within the groups on the variables of systolic blood pressure and the STAI. A post hoc test was made and a significant difference was found in before and after measurements of the control group. This decrease in anxiety was attributed to regression toward the mean. Although none of the main hypotheses were supported, recommendations were made for replications of the study with a population which has more variable levels of anxiety.

Critique: The sample size was small. The investigator administered the interventions. No significant decrease in anxiety in hospitalized patients could be associated with TT. The form of TT mimicry used here has been called into question as an adequate placebo control. [Meehan (1993)]

Donahue (1987). The effects of Therapeutic Touch on state-anxiety in hospitalized surgical candidates.

Abstract:

Critique:

Nodine (1987). The effects of Therapeutic Touch on anxiety and well-being in third trimester pregnant women.

Abstract: This study was conducted to determine whether or not a significant difference exists in pregnant women among those receiving TT, mock TT, or no touch on measurements of anxiety and well-being. Thirty third-trimester primagravida subjects were tested pre- and post-intervention using the State-Anxiety Inventory and a Well-Being Visual Analog; heart and respiratory rates were monitored before, during, and after the treatment. No significant differences were found using analysis of covariance with the pre-test scores as the covariant. The findings indicate that TT may not be useful in reducing state anxiety or enhancing subject well-being in pregnancy.

Critique: Study limitations include a small sample size, use of an instrument without established reliability and validity, and a study environment that may have increased anxiety. [Nodine (1987)] The sample size was very small. The investigator administered the study intervention. [Meehan (1992)] Good points; too bad some other authors don't acknowledge them for their own studies. Anyway, the evidence accumulates against TT.

Pomerhn (1987). The effect of Therapeutic Touch on nursing students' perceptions of stress during clinical experiences.

Abstract: This thesis questioned if interventions of TT, when given by clinical faculty to their students during one regularly scheduled clinical class, would alter students' perceptions of stress.

This quasi-experimental study tested the effect of an independent variable (TT) on a dependent variable (group scores on a stress/satisfaction tool). Using the t-Test and the ANOVA test, 4 null hypotheses were tested on a sample of 40 female nursing students who were divided into experimental and control groups. Twelve nursing faculty volunteers, from the 3-year hospital diploma program where the students matriculated, administered or withheld the experimental intervention.

Null Hypothesis IV was not rejected, indicating that there was a significant difference

in the control group's recordings of perceived level of stress from pre-test to post-test. In contrast, no significant differences was found between pre- and post-test scores for the experimental group, suggesting that the intervention of TT may have been a factor that enhanced its stress management abilities.

Critique: No control for the placebo effect, the sample size was small, only a weak correlation was found, and the whole thing calls itself "quasi-experimental." Nothing establishes that *perceived* reductions in stress correlate with *actual* reductions.

Quinn & Strelkauskas (1987). Psychophysiologic correlates of hands-on healing in practitioners and recipients.

Abstract: Expert practitioners of TT were shown to have almost ½ the percentage of suppressor T cells as the people they were treating. Further, the recipients all demonstrated decreased percentages of suppressor T cells following a course of 7 TT treatments over 10 days.

Funded by grant from Institute of Noetic Sciences.

Critique: No definitive conclusions can be reached based on these pilot data. [Quinn (1992c)] Apparently repeated by Quinn & Strelkauskas (1993).

Hooks (1988). A comparison of progressive relaxation technique to Therapeutic Touch in reducing state anxiety in hospitalized cardiovascular patients.

Abstract:

Critique:

Kampmann, J. S. (1988). The effects of Therapeutic Touch on anxiety in AIDS patients.

Abstract:

Critique:

Terfler (1988). A pilot study on the effects of Therapeutic Touch on the anxiety level of healthy subjects.

Abstract:

Critique:

Newshan (1989). Therapeutic Touch for symptom control in persons with AIDS.

Abstract: It is asserted, without evidence, that TT can assist to relieve discomfort resulting from sundry afflictions associated with AIDS. Conditions related to the respiratory system, gastrointestinal system, fever, anxiety, and pain caused by peripheral neuropathy, cryptococcal meningitis, Kaposi's sarcoma, and esophagitis. However, if a client still has pain after a TT treatment, there is a danger that the practitioner may feel resentful

that “nothing has happened” because of an over-attachment to the treatment’s outcome. If a nurse is attached to the outcome or resentful when nothing happens, healing energy will not be transmitted.

A case study was presented where an AIDS patient was treated with TT over several days. The patient had refused pain-killers to maintain a clear sensorium, but consented to TT sessions. After each daily treatment, the patient reported feeling calmer, but had no related symptomatic relief. Two hours after the last treatment (while comatose), he died.

Critique: This article hardly counts as research. A single case study yields little in the way of evidence, and showed little value for TT in any event. Further, the particulars suggest very little effect, certainly not lasting in any sense. This is anecdotal evidence, nothing more. The attempt to explain away failure is self-serving and circular.

Quinn (1989b). Therapeutic Touch as energy exchange: Replication and extension.

Abstract: This study replicated and extended previous published research which suggests that TT involves an energy exchange. The theorem that eye and facial contact between TT practitioners and subjects should not be necessary to produce the effect of anxiety reduction was deduced from the Rogerian conceptual system and tested. This theorem was not supported. Numerous explanations for the failure of the hypotheses to be supported are posited, among them the impact of the research design, effects related to the investigator as practitioner, and medication. The influence of medication in particular is so pervasive in the sample that it would seem to be the most reasonable explanation.

Research funded by the National Center for Nursing Research, NIH.

Critique: Significant effects are reported for hypertension, not predicted in the study’s design. [Benor (1991a)] This was an unsuccessful attempt to replicate the results of Quinn (1984a). [Meehan (1993)] The researcher’s placing blame on the influence of medication is belied by the careful attention given to random assignment that should have ensured equivalency. [Fish (1993)] Findings were confounded by effects of tranquilizing medications. The investigator administered the study intervention. [Meehan (1992)]

No negative result seems to dissuade this particular researcher. She does admit, however, “...that while there is increasing support for the Rogerian premise of a human energy field, there have still been no reports of investigations to date, within or outside of nursing, which measure interaction between such individual human fields. The reality of such interaction therefore remains axiomatic.” An even more reasonable explanation for the failure than that given above by the researcher is that the entire TT hypothesis is invalid.

Stradley (1989). A comparison of the effectiveness of Therapeutic Touch and causal touch in stress reduction of hospitalized children.

Abstract:

Critique:

Kramer (1990). Comparison of Therapeutic Touch and Casual Touch in stress reduction of hospitalized children.

Abstract: The purpose of the study was to compare the effectiveness of TT and casual touch for stress reduction of hospitalized children aged 2 weeks to 2 years old. Stress reduction was measured by pulse, peripheral skin temperature, and galvanic skin response as observed on the GSR-II biofeedback instrument. An ANOVA measured effectiveness of the interventions of casual touch and TT at 3- and 6-minute intervals. The results demonstrated a significant difference with the critical value of $F=4.18$ (1, 19), $p<.05$. The computed value of $F=26.98$ at 3 minutes and $F=26.94$ at 6 minutes. TT reduced time needed to calm children after stressful experiences.

Critique: While no doubt conducted with sincere intent, this study contains so many flaws in its design and analysis that it would be soundly trounced by a class of undergraduates engaged in their first research critique. [Meehan (1995b)] There was no control group, and the sample was small (total of 30). Both the casual touch and the TT situation was performed by the researcher in the role of observer-participant. Intervention was applied on patients when a parent was not present. The age of the patients is a confounding factor.

Wood (1991). The effect of Therapeutic Touch on the blood pressure of well women.

Abstract:

Critique:

Heidt (1991b). Helping patients to rest: Clinical studies in Therapeutic Touch.

Abstract: This article focuses on 2 clinical studies of patients (*i.e.*, 2 case studies) receiving treatment by TT. Each patient sought help for the relief of pain and anxiety associated with a physiological disorder. The discussion reveals those factors that facilitate a state of rest in patients, as well as the experiences of the nurse while giving treatment. The purpose of this clinical material is to stimulate further descriptive data on patient care so that research and practice will go hand in hand in furthering the understanding of TT.

Critique:

Bowers (1992). The effects of Therapeutic Touch on state anxiety and physiological measurements in preoperative clients.

Abstract: This quasi-experimental pre-test/post-test design study examined the effects of TT and a mimic control treatment on measurements of blood pressure, heart rate, respiratory rate, peripheral skin temperature, and perceived feelings of anxiety in clients having surgery performed within 1 hour of hospital admission. The purpose of this study was to quantify the effects of TT as a relaxation intervention. The STAI-Y State Anxiety questionnaire was used with 12 experimental group clients and 8 control group clients. Both groups experienced significant ($p<.05$) positive changes in physiologic measure-

ments and state anxiety indicative of relaxation. The hypotheses, however, were not supported. The degree of relaxation responses were not significantly greater in the experimental group. Results of the TT Practitioner Self-Inventory showed a positive correlation ($p < .01$) in the experimental group between clients' peripheral skin temperatures and the practitioner's perceived bonding with clients.

Critique: The form of TT mimicry used here has been called into question as an adequate placebo control. [Meehan (1993)] Who's to know that the practitioner was actually "perceiving" a bond (whatever that is) with each client. Most importantly, this is one more example that TT shows no correlation with anxiety reduction. Calling this "quasi-experimental" is quaint, and perhaps the most honest description found among TT researchers.

Olson, Sneed, Bonadonna, Ratliff & Dias (1992). Therapeutic Touch and post-Hurricane Hugo stress.

Abstract: This repeated-session design sought to answer questions about the effectiveness of TT in reduction of stress for 23 individuals following a natural disaster. In addition, methodological issues related to the average length of time for a TT treatment and a method of documenting the non-verbal interaction between subject and toucher were investigated. Findings indicate that stressed people report themselves to be less stressed following TT ($p = .05$). Time of TT intervention varied significantly between the touchers, with a range of 6.8 to 20 minutes. Qualitative data examining the interaction of toucher and subject raised a number of questions that require further study.

Critique: As with Pomerhn (1987), nothing establishes that *perceived* reductions in stress correlate with *actual* reductions. A number of problems appear here, starting with the fact that it was perhaps really a qualitative study. With the small, self-selecting sample, the apparent lack of a control, and the subjective nature of measurement, the results appear to be meaningless.

Mersmann, C. A. (1993). Therapeutic Touch and milk letdown in mothers of non-nursing preterm infants.

Abstract: In 1989, UNICEF and WHO launched a world-wide initiative to protect, promote and support breastfeeding. Although the mother of a preterm infant is capable of adequate milk production, she often experiences problems with milk letdown. It was proposed that TT can facilitate letdown since TT has been associated with an immediate relaxation and decrease in stress. The effects of TT were compared to 2 control treatments: Mimic Therapeutic Touch (MTT) and Non-Treatment (NT). The Science of Unitary Human Beings provided the theoretical foundation.

It was hypothesized that letdown would be greater, both in volume and fat content of expressed milk, following TT than following MTT or NT.

The sample consisted of 18 Caucasian, Hispanic and black mothers ($M = 31$ years) expressing breast milk for their preterm infants ($M = 3.7$ lbs.). Using a crossover design, the sample size of 18 provided the power of .80 to detect a medium-sized effect, with an alpha of .05.

Mothers completed a breastfeeding diary and demographic pre-study questionnaires. Their perceptions of their infants' status was recorded prior to each treatment by a visual analogue scale. Mothers received, in a randomly assigned order, TT, MTT and NT im-

mediately prior to expressing breast milk. A different treatment was received on 3 of 5 consecutive days. The length of TT was unprescribed (M=11 min.). The length of MTT (M=10.7 min.) was matched with the length of the previously administered TT.

The hypothesis was analyzed using a repeated measures, MANOVA, with 2 dependent measures of letdown. Letdown was measured in the quantity of expressed milk and the fat content of the hindmilk sample (creamocrit method). There was no significant difference among the treatments in letdown ($p>.05$).

In supplementary analyses, however, mothers expressed significantly more milk after TT than MTT or NT ($p<.05$). More mothers experience leaking of breast milk during TT than during MTT or NT ($p<.05$). There was no significant difference among the treatments on the fat content of the hindmilk sample. Treatment order did not effect treatment outcome ($p>.05$).

Critique: The sample is small. The subjects were unorthodoxically placed into all 3 groups (experimental and 2 controls). The threshold of significance is quite high (5%), yet by MANOVA, no significant difference could be found. The resort to supplementary analysis, in order to find significance in milk expression and leakage, is unjustified. One of the hypotheses (fat content) was unconfirmed, even in supplementary analysis. In all, the experiment has to be called unresponsive of TT.

Shuzman (1993). The effect of trait anxiety and patient expectation of Therapeutic Touch on the reduction in state anxiety in preoperative patients who receive Therapeutic Touch.

Abstract: The study was designed to investigate the influence of patients' expectation of TT and trait anxiety (T-anxiety) on the efficacy of TT to reduce state anxiety (S-anxiety) in preoperative patients. The framework of this study was provided by the integration of Spielberger's state-trait anxiety model and Hahn's sociocultural model of illness and healing. Eighty-one preoperative female patients scheduled to undergo breast biopsy or gynecological surgery in an ambulatory surgical unit participated in the study. Three cases were deleted from the multiple regression analysis because they were multivariate outliers.

Three nurses administered TT. To ascertain that the nurses were equally experienced in TT, the nurses completed the Subjective Experience of Therapeutic Touch Scale (SETTS). The SETTS scores ranged from 214 to 225 and compared favorably with the range of scores for experienced nurses reported by Ferguson (1986).

The state and trait version of the State-Trait Anxiety Inventory (STAI) was used to measure anxiety prior to patients receiving TT. The state-STAI was given again after patients received a 5-minute TT treatment. A version of the Credibility Scale was used to measure patients' expectation of TT prior to receiving TT. A t-test for paired samples showed a significant decrease in raw pre-TT to post-TT S-anxiety scores ($p=.000$) [sic].

Data analysis demonstrated a significant correlation between pre-TT and post-TT S-anxiety, therefore reduction in S-anxiety was measured by calculating a partialled regressed score through a multiple regression technique. Multiple regression analysis showed that T-anxiety independently accounted for 7% of the reduction in S-anxiety. However T-anxiety and the reduction in S-anxiety were negatively correlated and not in the predicted direction. Patients' expectation of TT was not related to the reduction in S-anxiety. Analysis did not show a significant interaction effect between T-anxiety and the patients' expectation of TT. Ancillary analysis demonstrated that type of surgery and the nurse administering TT were not associated with the reduction in S-anxiety.

Critique:

Simington & Laing (1993). Effects of Therapeutic Touch on anxiety in the institutionalized elderly.

Abstract: The purpose of this study was to determine the effects of TT, a specific healing technique, on state anxiety in 105 institutionalized elderly. A double-blind, 3-group experimental design was used. State anxiety was measured using the Spielberger State-Trait Anxiety Inventory. The anxiety level of subjects who received TT in the form of a back rub was found to be significantly lower than the anxiety level of subjects who received a back rub without TT. Results suggest that this non-invasive intervention has potential for enhancing the quality of life for this population.

Critique:

Sodergren (1993). The effect of absorption and social closeness on responses to educational and relaxation therapies in patients with anticipatory nausea and vomiting during cancer chemotherapy.

Abstract: The first purpose of this study was to determine whether objective non-evaluative information would influence the outcomes of coping in patients experiencing anticipatory nausea and vomiting during cancer chemotherapy when compared with TT, progressive relaxation and no treatment. The second purpose was to explore possible explanations for the effects, specifically absorption, which is a disposition to maintain an attention focus, and social closeness, which is a disposition to seek affiliation. The third purpose was to search for interaction effects, such as between mood and treatment, in bringing about changes in symptomology.

The sample included 80 individuals who were experiencing anticipatory nausea and vomiting during the course of cancer chemotherapy. Participants were randomly assigned to one of 3 treatment groups: Non-evaluative information, TT and progressive relaxation, or were assigned to a no treatment control group. Prior to the intervention, self report data were collected on absorption, social closeness, positive and negative affect, disruption in usual activities, and symptom distress and symptom severity both before and after chemotherapy. Intervention was carried out for 3 chemotherapy cycles. Following each treatment, self-report data were collected on positive and negative affect, disruption in usual activity, and symptom distress and symptom severity both before and after chemotherapy.

Analysis was carried out using MANOVA. Differences in standardized residual change scores indicated that non-evaluative information and TT improved positive affect and decreased symptom severity after chemotherapy. TT and progressive relaxation reduced symptom distress and symptom severity both before and after chemotherapy. Social closeness interacted with treatment to affect symptom distress before and after chemotherapy, and symptom severity after chemotherapy. There was no effect due to the interaction of treatment and absorption, negative affect or positive effect.

Data supported an explanation that TT affects symptomology through creating a relaxation effect, and did not support a "placebo effect" explanation. It was hypothesized that the lack of effect of the information intervention might be due to an increase in objective self awareness. Further research is recommended to investigate this hypothesis.

Critique:

Tharnstrom (1993). The effects of non-contact Therapeutic Touch on the parasympathetic nervous system as evidenced by superficial skin temperature and perceived stress.

Abstract: The purpose of this pilot study utilizing a pretest and posttest research design was to compare the superficial skin temperature and subjective stress level ratings of an experimental, sham, and control group over a 15-minute time period. The physiological response of skin temperature was measured with a computer using a Biofeedback Microlab software package and the stress level was measured utilizing a pretest and posttest question rated on a scale of 1 to 10. Thirty-nine participants were divided into 3 groups of 13 individuals. Analysis of variance (ANOVA) statistically revealed an increase in skin temperature and a decrease in stress level in all 3 groups. No significance differences were found among the 3 groups.

Critique:

Gagne & Toyne (1994) The effects of Therapeutic Touch and relaxation therapy in reducing anxiety.

Abstract: This study examines the effects of 2 non-invasive procedures on experienced anxiety. Thirty-one in-patients of a Veterans Administration psychiatric facility were randomly assigned to one of 2 treatment conditions (TT and relaxation therapy) or to a TT placebo condition. An additional 12 patients were excluded because of failure to meet criteria for the study or failure to complete the procedures. Each subject completed a self-report anxiety measure and was rated for amount of motor activity before and after each of 2 15-minute treatment sessions in a 24-hour period. Subjects' belief in the effectiveness of the intervention was measured. Expectancy did not correlate with outcome and was not analyzed further. Multivariate analysis of variance (MANOVA) showed that whereas relaxation therapy provided significant reduction of anxiety on the self-report measure and the movement measure, the nursing intervention of TT resulted in significant reductions of reported anxiety. The control group showed small but non-significant effects. Results suggest that both relaxation and TT are effective palliatives to experienced anxiety. Implications for nursing theory are discussed.

Critique: With just 10 subjects per group, the possibility of true statistical significance is doubtful. An exclusion rate of 28% is extraordinary and troubling.

Messenger & Roberts (1994). The terminally ill: Serenity nursing interventions for hospice clients.

Abstract: Serenity is an inner peace that is independent of external events. It often is desired by persons near death. Information about nursing interventions to facilitate clients' serenity, however, is missing from the literature. In the study presented, pain control, TT, and assisting clients to build trust were the 3 highest-ranked interventions on both effectiveness and frequency of use.

Critique: No definition was given for TT to the study participants, therefore it is unclear what might have been meant by the patient when this intervention was listed. [Messenger & Roberts (1994)]

Roth (1994). Effect of Therapeutic Touch concepts on the anxiety levels of nursing students in a psychiatric setting.

Abstract:

Critique:

Olson & Sneed (1995). Anxiety and Therapeutic Touch.

Abstract: This 4-group, repeated-measured experimental design divided 40 healthy professional caregivers/students into high- and low-anxiety groups and further into "TT" and comparison groups. The effectiveness of the use of TT in reducing anxiety was evaluated, as were the methodologies used. Three self-report measures of anxiety (Profile of Mood States, Spielberger's State/Trait Anxiety Inventory, and visual analogue scales) were evaluated for equivalence and concurrent validity to determine their potential for use in future studies. The correlations among these instruments were highly significant. The small sample size prevented differences between groups from reaching statistical significance, but the reduction of anxiety in the high-anxiety group was greater for those who had received TT than for those who did not. Using variability data, the sample size necessary to find statistically significant differences between those who had TT and those who did not was determined.

Funded by Competitive Intramural Grant, Medical University of South Carolina.

Critique: Another failure. Supposedly, a statistically significant difference in the immunoglobulin levels which are thought to be related to decrements in stress, but this is not in the abstract. Reported as an NIH-funded study [Putnam (1995a)].

Snyder, Egan, and Burns (1995). Interventions for decreasing agitation behaviors in persons with dementia.

Abstract: Agitation behaviors in persons with dementia are a major problem for caregivers. Hall and Buckwalter (1987) hypothesized that an increase in agitation behaviors occur when persons experience high levels of stress. The purpose of this pilot study was to explore the efficacy of hand massage, TT, and presence (control group) in producing relaxation and decreasing agitation behaviors in persons with dementia. An experimental crossover design was used to study the effects of these interventions in 17 residents on one Alzheimer's Care Unit. Hand massage and TT were administered once a day in late afternoon for 10 days while presence was administered for 5 days. Five days of observation were done before and after the administration of each intervention. Significant differences were found in the level of relaxation for pre- to post-intervention with the use of hand massage and TT. However, no decrease in agitation behaviors was observed.

Critique:

Other Mental States

Schweitzer, S. F. (1980). The effects of Therapeutic Touch on short-term memory recall in the aging population: A pilot study.

Abstract: Subjects 60 years of age and older who exhibited a deficiency in short-term memory recall on the Wechsler Memory Scale were given treatments of TT on 3 consecutive days for 3 minutes. Blood pressure and pulse measurements were recorded to determine changes in the autonomic nervous system during TT. Correlation between heart rate, systolic blood pressure and digit span memory, which might indicate transmission along known sensory pathways was not apparent. However, systolic blood pressure decrease, indicating a relaxation response and digit span improvement indicating that some change was occurring in memory functioning were observed.

Critique:

Rowlands (1984). Therapeutic Touch: Its effects on the depressed elderly.

Abstract: The touch modality introduced was massage.

Critique: This is research on massage, not on TT. The phrase "Therapeutic Touch" is used throughout, and its own bibliography includes many TT references and none on massage, but clearly TT is not the modality being employed and tested. It is included here because at least one reporter [Meehan (1992)] cites it as evidence that TT is effective in relieving depression in nursing home residents.

Kucaba (1985). The relationship of locus of control and response to Therapeutic Touch.

Abstract:

Critique:

Hilliard (1988). The effects of Therapeutic Touch on wandering behavior.

Abstract:

Critique:

Quinn & Strelkauskas (1993). Psychoimmunologic effects of Therapeutic Touch on practitioners and recently bereaved recipients: A pilot study.

Abstract: The purposes of the descriptive pilot study were to address conceptual inconsistencies and several other methodological problems identified in previous research, while also providing direction for future TT studies by attempting to determine the appropriateness and suitability of a combination of psychological and immunological measures in the ongoing empirical evaluation of TT. Research questions were derived from a

unitary perspective. Data on both practitioners and recipients were collected and examined for patterns and relationships. Changes that may be related to TT were observed in immunological, psychological, and unitary measures. Directions for future research within a unitary framework were postulated.

Funded by Institute of Noetic Sciences.

Critique: No definitive conclusions can be reached based on these pilot data. [Quinn (1993)] The study is exploratory, obviously uncontrolled, and highly speculative. [Meehan (1995b)]

Woods (1993). The effect of Therapeutic Touch on disruptive behaviours of individuals with dementia of the Alzheimer type.

Abstract:

Critique:

Effect on Practitioners

Peper & Ancoli (1977). The two endpoints of an EEG continuum of meditation — alpha/theta and fast beta.

Abstract: Evidence is presented to show 2 different types of meditative styles, with corresponding different psychophysiological parameters, existing in advanced meditators. The first is one distinguished by an increase in alpha and theta EEG activity. The second is one characterized by an increase in fast beta frequencies and occurs when the meditative practice consists of a focused intentional passive task. Meditation can be seen as a continuum with the first type at one end and the second at the other. In this case study, the psychophysiological changes associated with a type of meditation called TT were examined. One TT healer was studied for 2 days, alone and with 3 patients. EEG, GSR, EKG and temperature were recorded. The main finding was a preponderance of fast beta EEG activity present in the healer. The physiological results are interpreted as representative of this type of meditative process. The findings indicate that the psychophysiological correlates of meditation depend on the person's meditative style. Most previous studies of meditation do not report the subjective experience and cannot be used to understand psychophysiological measures of subjective experience.

Critique:

Krieger, Peper & Ancoli (1979). Therapeutic Touch: Searching for evidence of physiological change.

Abstract: Attention was directed to physiological effects on the healer or therapist as well as on the patient. The study was done on Krieger while she was doing TT. Done in the laboratory at Langley Porter Neuropsychiatric Institute (UCLA), it was conducted over a 2-day period. A team of doctoral and post-doctoral students made direct observations through a window of a testing chamber, or within the chamber itself, and tended "sophisticated technological equipment" which measured physiological parameters.

Three patients were administered TT by Krieger, while the latter was connected to electroencephalographic, electromyographic, and electro-oculographic leads. During the testing period, Krieger was found to be in a state of deep concentration (fast β state), while patients reported themselves to be in a relaxed state with reported improvements in their physical condition. No claims are made about the patients' response, though they are described with some specificity.

Much further study needs to be done before the findings can be generalized. The report is presented to encourage further inquiry of an area of nursing practice that appears to be of continued interest and use, and to support continued unbiased investigation in its evaluation by peers.

Critique: This was an early, exploratory study which only suggests TT's potential. [Meehan (1993)] No real scientific data is presented by this "study." Disclaimer or not, the rhetorical intention of describing the patients' responses clearly was to credit TT with remarkable cures. [Levine (1979)] Truly, 2 later researchers explicitly *do* cite patients' responses as a claim of the research, namely that it "elicits a condition of general relaxation of the body, which includes flushing of the skin, lowering of the vocal pitch, and a

subjective feeling of tranquillity." [Randolph (1984); see also Quinn (1988)] TT is described by Krieger as a "transference" of energy between healer and patient, directly related to the practitioner's state of consciousness and intent to help and to heal. The usual state of consciousness in which our daily activity is conducted is but one state of awareness to which we have access. [Heidt (1990)] Status of certain physiologic variables pre-treatment, during treatment, and post-treatment were not reported; it is unknown if there were significant changes. [Clark & Clark (1984)]

Dela Cruz (1984). An exploration of the nurses' perception of Therapeutic Touch in nursing practice.

Abstract:

Critique:

Carlson & Schatz (1986). Effects upon the human energy field by massage.

Abstract: This paper has not been obtained despite much effort. Research discovered a very significant increase in the energy fields of both the person giving and receiving massage. [Carlson (1994)] The work is so obscure, however, that none of the other research papers mention it, and nothing is known of the research design, data analysis, or quantified results.

Critique: This work was obscurely presented at a conference on naturopathy in Paris, France. The research they conducted was so well received that Dr. Carlson was given the Academie Internationale d'Humanisme Biologique award of the Hippocrates Prize, Le Grand Priz d'Academie, and a silver medallion. [ed: the awards and awarders are unknown to us] In some circles their research was heralded as the first major breakthrough in Swedish Massage since the systemization of massage techniques from the European medical literature and practice by Peter Henrik Ling (1766-1839). [Carlson (1994)]

Ferguson (1986). Subjective experience of Therapeutic Touch survey (SETTS): Psychometric examination of an instrument.

Abstract: This study evaluated internal consistency reliability, content validity, construct validity, and predictive validity of the Subjective Experience of Therapeutic Touch Survey (SETTS), an instrument developed by Krieger in 1983 for the purpose of differentiating experienced practitioners of TT from inexperienced practitioners of TT.

SETTS and the Adjective Check List (ACL) were administered to 200 registered nurses: 100 who practiced Krieger's method of TT (50 experienced and 50 inexperienced) and 100 who were not familiar with TT.

Internal consistency reliability for SETTS was calculated by coefficient alpha to be .976. Content validity was evaluated by factor analysis with indications of more than one factor in the tool.

Construct validity was examined by the known-groups technique using ANOVA followed by Scheffe's test with results indicating that SETTS had the ability to differentiate experienced practitioners of TT from inexperienced practitioners and from nurses who did not practice TT ($p < .01$). SETTS also had the ability to differentiate inexperienced practitioners from nurses who did not practice TT ($p < .01$).

Results of the ACL were assessed by ANOVA followed by Scheffe's test and

showed that experienced practitioners of TT received significantly higher scores on the ACL subscales of nurturance and creative personality than inexperienced practitioners and nurses who did not practice TT ($p < .01$).

Predictive validity of SETTS was assessed by having recipients of TT received from experienced or inexperienced practitioners complete Spielberger's Self-Evaluation Questionnaire for state anxiety pre- and post-TT session and the SETTS post intervention. Analysis using 2-tailed t-tests for independent samples demonstrated significant differences between group means on change scores for the Self-Evaluation Questionnaire and on group means for the SETTS ($p < .001$).

Multiple linear regression indicated 2 factors contributing the most to a high score on SETTS: frequency with which clients reported improvement of symptoms and the number of people helped by a particular practitioner. The number of years a practitioner had used TT did not make a significant contribution to the high score on SETTS.

Critique: Shows that more experienced healers produce significantly greater reductions in anxiety than inexperienced healers. [Benor (1991a)] This study, of course, assumes that there is a measurable phenomenon with TT and that it is established.

Wagner, D. M. (1986). The relationship between practicing Therapeutic Touch and job satisfaction among registered nurses.

Abstract:

Critique:

Coker (1987). An impact evaluation of a Therapeutic Touch continuing education activity.

Abstract: The purposes of this study were to assess the impact of a continuing education offering on the self-reported behaviors of nurses attending a workshop on TT and to determine what variables were associated with that impact.

These questions were answered by results from the Program Evaluation Form administered immediately following the workshop and the TT Questionnaire administered immediately prior to the workshop and 3 months following. Twenty (71%) of the 28 participants completed the 3-month follow-up questionnaire.

Analysis of the data indicated that there was no significant change in the number of times TT was used; however, there was a significant change in the number of users.

Workshop evaluations were generally positive although some participants reported confusion following the workshop. Implications for nursing included suggestions for improving the workshop. The framework for this study was based on Cervero's framework and the concept of nurse agency. Recommendations included using this study's framework for future impact evaluations.

Critique: This suggests that continuing-education is a major way for TT to vector into the nursing community. This is how skeptics first discovered it—and promptly challenged the CEUs awarded for it.

Sanders (1988). An investigation of the effects of the Therapeutic Touch training program on the patients.

Abstract:

Critique:

Skinner (1990). Nurses practicing therapeutic touch: Perceptions and uses of energy field assessment.

Abstract:

Critique:

Heidt (1991). Therapeutic Touch—The Caring Environment.

Abstract: A case study of one nurse's experience of TT is presented. The major themes of the interview data are discussed by the researcher. The study provides a deeper insight in the caring relationship of the nurse during the time the nurse treats her patient with TT.

Critique:

Peters (1992). The lifestyle changes of selected Therapeutic Touch practitioners: An oral history.

Abstract: This research study sought to ascertain, "Did learning Therapeutic Touch change practitioners' lifestyles?" Furthermore, what type of impact did Therapeutic Touch have on their perspective of life, lifestyle, spirituality, health habits and relationships outside the clinical environment.

The researcher interviewed 12 practitioners who had practiced Therapeutic Touch for a minimum of 4 years to a maximum of 15 years. Open-ended questions were used in the audio tape-recorded interviews to obtain the data.

Illustrative comments from the practitioners were used to glean nuance and shadings that dealt with the concept/issue of lifestyle. These comments were categorized; not all practitioners had comments for each category.

Results from this research indicated that all the practitioners affirmed that Therapeutic Touch changed their lifestyle. The changes occurred in all areas: life, lifestyle, spirituality, health habits and relationships. Also expressed was in their moving forward that their overall outlook on their lives, their perspective of the world, personal relationships, home and work was totally different due to the exposure to Therapeutic Touch.

The responses of these 12 practitioners augmented and validated previous research work that had been done in the clinical environment. Touch used therapeutically indeed has proven not only to aid in healing the ill but has an incredible effect on those who practice and use it on a daily basis.

Critique:

Quinn (1992c). The Senior's Therapeutic Touch Education Program.

Abstract: The conceptualization, implementation, and evaluation of the Senior's Therapeutic Touch Education Program (STTEP) was described. A brief overview of TT was presented, followed by specific information related to the STTEP project.

Phase I of the program involved the education of a group of healthy senior citizens in the basic theory and techniques of TT. Before the workshop, participants completed several questionnaires, including the State-Trait Anxiety Inventory, the Affect Balance Scale, and a recent health survey developed by the researcher.

Phase II involved on-going practice of TT to increase comfort and proficiency in the approach. At the conclusion of the program one year later, a follow-up workshop was conducted and the questionnaires previously identified were administered again. Participants were interviewed. Six women and 2 men completed the entire program out of an original total of 15.

Questionnaire data revealed that all scores remained essentially unchanged from pre-program to post-program. General health status was essentially unchanged. Thus, these data as a source of information about the value of the program are not very useful.

Critique: Another failure for Quinn to show a utilitarian value for TT. Undaunted, however, she claims, "Something seems intrinsically right about giving senior citizens the skills and the support to take on the roles of healers for their communities."

Sies (1993). An exploratory study of relaxation response in nurses who utilize Therapeutic Touch.

Abstract: TT is an advanced nursing intervention used to balance a client's energy field and potentiate a healing pattern which elicits a relaxation response. It is the purpose of this study to explore the existence of a relaxation response in the practitioner utilizing TT. Experienced practitioners of TT, as determined by a SETTS score of >97, who had practiced TT for a least a year and were actively practicing nursing (n=8) measured their peripheral skin temperature while performing TT. Fifty percent of the practitioners demonstrated a relaxation response. A Chi-square analysis of relaxation response and time of TT intervention revealed residuals of ± 2.5 , Pearson's Chi-Square at 7.3 and a small observed significance level of 0.0007. A one-way analysis of variance of relaxation response to time of TT intervention showed a significant difference between groups (f=9, p=.0240). These findings demonstrated that a TT intervention of greater than 15 minutes has a significant effect on relaxation response in the practitioner.

Critique:

Qualitative Research

Unsurprisingly with the failure of quantitative research, TT advocates have latched on to *qualitative* research methods developed for the social sciences, principally Husserlian phenomenology. Before the first of these appeared, the rationalization for using the approach appeared as an aside in a panel discussion on a critical appraisal of TT:

I'm not sure that it's appropriate to do experimental studies of any sort. What you are looking at is individual and unique, a feeling that's going to help people, and experimental designs don't tell us what's unique. They tell us a general kind of thing that's common to everybody. What's going to be most therapeutic depends on the individual person, so I think a *phenomenological* approach is most appropriate. [emphasis supplied; M.-T. C. Meehan in Smith (1984)]

The same researcher,* nine years later, seemed to reverse field, sounding a warning about phenomenology and calling for a re-examination of the phenomenological approach:

A variety of qualitative studies are called for which would help identify human field patterning related to the process of TT. Such study outcomes must make human field patterning "observable" so that it will be understood and believed by others. To this end, as Gortner has cautioned, such qualitative studies should especially adhere to the basic principles of scientific inquiry, "otherwise who is to know that [findings are] not a fleeting piece of imagination." [Meehan (1993)]

It is far from clear that any of the studies presented in this category do in fact "adhere to the basic principles of scientific inquiry," or anything resembling them. Indeed, it is entirely reasonable to conclude that qualitative studies in an area outside of the social sciences, and especially in an area where quantifiability is expected, are *per se* pseudoscientific. Certainly, the burden of proof of the applicability of such techniques lies squarely upon the researchers purporting their use. In a moment of rare candor, one qualitative researcher appeared to admit that replication, at least, was not possible in this sort of research:

One cannot expect, however, to conduct a study exactly as I have this one. Even with the above-mentioned approach, discoveries will have emerged from the researcher's mutual participation in the lived experience with his or her participants, thus possibly necessitating a change in approach. [France (1991)]

It is feasible that qualitative studies could be used to identify the areas of possible therapeutic relief offered by TT. Then quantitative studies could be designed to test TT's actual effects in those areas. But this is not the approach taken by the qualitative researchers for TT. Universally, they have instead used their phenomenological studies as

* Meehan's own research (reported herein) was not phenomenological, and never found evidence for a TT hypothesis.

vehicles to assert TT's efficacy—in short, to buttress their *belief* that it works. As a result, TT does appear to be “a fleeting piece of imagination.”

Lionberger (1985). An interpretive study of nurses' practice of Therapeutic Touch.

Abstract: This phenomenological study sought to identify the practices, beliefs, and intents associated with nurses' use of TT, a clinical modality designed to strengthen the patient's natural healing capacity. Similarities and dissimilarities to usual nursing care, and characteristics of the practice associated with effective outcomes, were examined.

The investigator interviewed 51 registered nurses who had practiced TT for at least 6 months, and 20 patients who had been treated at least once, to obtain descriptions of their experiences with the practice. Open-ended questions were used in the audio tape-recorded interviews to obtain data. Interpretation of the transcribed interview involved 2 levels: (1) description of participants' state interpretations, (2) examination of implications arising from participant interpretations and common meanings.

Results indicated that participants practiced TT in ways substantially different from the original approach proposed by its founder, Dr. Dolores Krieger. Of Krieger's proposed phases of TT (centering, assessment, and treatment), only centering was consistently described in nurses' accounts of effective practice. The data suggested that centering and intent were the most critical features of the practice. Centering involved 4 distinct characteristics: (1) disciplining attention, (2) achieving a calm relaxed state, (3) establishing receptivity, and (4) becoming a channel for the energy of healing. Nurses described intent to: (1) help, (2) promote wholeness or wellness, (3) relieve symptoms, and (4) potentiate patients' psychophysiological resources.

Caring aspects of the practice were found to be similar to, though more focused than, those associated with usual nursing care. Belief in energy exchange as underlying effectiveness of the practice was in contrast with usual nursing care, although it helped nurses to conceptualize and communicate caring and compassion. Interpersonal attraction, social learning, and stress and coping were discussed as examples of existing theories which, as components of an integrated theoretical model, might serve nursing better than that of energy exchange for understanding and explaining the characteristics of TT.

Critique:

Polk (1985). Client's perceptions of experiences following the intervention modality of Therapeutic Touch.

Abstract:

Critique:

Hamilton-Wyatt (1988). Therapeutic Touch: Promoting and assessing conceptual change among health care professionals.

Abstract: This study examined how health care educators can facilitate the conceptual change necessary for health care professionals to incorporate holistic interventions into their practice. The conceptual change model of Posner and Strike provided a framework for the study. The subjects were 11 registered nurses. The intervention was a 2-day advanced workshop on TT. Data were obtained at 4 time intervals, using written surveys, case studies, audio tapes, and interviews.

An inductive analysis resulted in 12 themes and revealed the additional variable of barriers to implementation in practice. The variable of orientation (holistic/dualistic) was also coded.

The deductive analysis consisted of both process and outcome variables. The process variables were included in the workshop and were verified both by the subjects and a non-attending TT instructor. These process variables were dissatisfaction with the existing concept, understanding, plausibility, and fruitfulness of the new concept.

The outcome variables derived from a stage theory including 2 levels of 3 variables: knowledge, application, and acceptance of the new concept. To evaluate all the data, an alternative rating system was developed for the stage evaluation, including 2 new variables (barriers and orientation). The results of the outcome analysis demonstrated that the majority of the subjects began at a stage one or 2 and rose to a stage three one week after the workshop, and then reverted back to stage one or two, 2 months after the workshop. The factor of barriers strongly contributed to this shift back to stages one and two. Another result was that acceptance of the new concept was found at all 3 stages rather than only stage three, as proposed by the conceptual stage model. A final finding was that conceptual change concerning TT was maintained better than for holistic interventions.

Critique:

Heidt (1990). Openness: A qualitative analysis of nurses' and patients' experiences of Therapeutic Touch.

Abstract: The constant comparative method was used to generate a grounded theory explaining the process of TT for 7 nurses and 7 patients. Interviews and observations of one treatment session each indicate that the primary experience of TT is opening to the flow of the universal life energy. This includes 3 major categories of experience: (a) opening intent—allowing oneself to focus on getting the universal life energy moving again; (b) opening sensitivity—assessing the quality of its flow; and (c) opening communication—participating in a healing relationship that unblocks, engages and enlivens its movement. Further research on TT using qualitative methodology may deepen our understanding of the inner experiences of both patients and nurses to experiences that facilitate the healing process.

Critique: This study is a preliminary report and has the limitation of non-theoretical sampling and lack of data saturation. [Heidt, 1990] It is pure advocacy, with every underlying premise of TT accepted at face value. The “qualitative” methodology used is phenomenology, which employs more metaphysics than science. The researcher chooses a very small sample and employs no controls. Patients receiving TT have widely varying medical problems and the practitioners are allowed to pick their own patients, each of whom had experienced 10 to 100 TT sessions previously. One test session only is observed and participants are asked general, unstructured questions afterwards. The patients may have been asked leading questions in which TT was referred to as a “treatment.” Data for patients and TT practitioners alike were combined. No standard tests were used as an adjunct, such as personality testing (which perhaps might have revealed high scores for cognitive dissonance).

Thomas-Beckett (1991). Attitudes toward Therapeutic Touch: A pilot study of women with breast cancer.

Abstract: TT is a holistic nursing intervention used to assist clients in achieving balance in their energy fields, therefore maximizing their own recuperative powers. The purpose of this study was to describe the attitudes of women with breast cancer toward a written description of TT. Since no instrument existed in the literature, a 30-item Likert scale was developed and administered in conjunction with 3 open-ended questions. Preliminary psychometric analyses revealed that the scale was unidimensional and had an acceptable level of internal consistency ($\alpha=0.98$). Subjects who had heard of TT before expressed more positive attitudes toward the intervention. Analyses of the open-ended questions revealed an active interest in TT and an openness to options, with 39% of the sample reporting a willingness to receive the intervention. Implications for research and nursing practice are presented.

Critique: Appears to be primarily a poll revealing that there is a huge market of desperate people out there ready for something magical.

France (1991). A phenomenological inquiry on the child's lived experience of perceiving the human energy field using Therapeutic Touch.

Abstract: This is a descriptive, exploratory phenomenological study on the child's lived experience of perceiving the human energy field using TT. The TT literature is replete with research and many case studies and anecdotal accounts of TT experiences on persons across the lifespan (primarily adults). Studies, however, on what constitutes the child's perception of the TT experience are lacking. Research supporting TT as an innate potential in persons across the lifespan is notably absent.

Husserlian Phenomenology was the guiding philosophy for the selected methods and design. The researcher used a multiple perspectival [sic] approach to discover the essence of the child's lived experience of TT including serial videotaped interview sessions, child's drawings, parental journal, and the researcher's journal.

Eleven children, 3 to 9 years, willingly participated in the study. Phenomenological reduction allowed the essential structures and the synthesis of unity to emerge during the interview sessions and during transcription and analysis of the data. The essential structures of the child's lived experience identified in this study are "being with," "taking in the world to know more," and "struggling to make sense of it." "That look" was recognized as the synthesis of unity among the essential structures. The researcher captured the synthesis of unity in the metaphor "the eyes tell all."

The study's findings suggest that the child can feel the human energy field with purpose or intent to help. Thus, the child possesses the fundamental principles of TT. The findings also suggest that the child (as "healer" and "healee") was in a meditative/reflexive state. These findings, therefore, support TT as an innate potential and as a healing meditation. A coherence of the findings gives evidence of a congruence with Rogerian Science and Husserlian phenomenology. The perceptiveness and the sensitivity of the child's lived experience may be enhanced using the Rogerian world view.

Critique: The use of Husserlian approaches to an area where objective measurement should be entirely possible is a final admission that TT research has exhausted nearly all possibilities of demonstrating itself as a scientifically valid intervention. It now becomes hand-waving in the academic sense as well as the physical. Watching the author repeat-

edly declare *ex cathedra* that she had “bracketed” her data was amusing, if not convincing. And *eleven* subjects!

Cabico (1992). A phenomenological study of the experiences of nurses practicing Therapeutic Touch.

Abstract: A descriptive phenomenological study was conducted to explore 5 nurses’ experiences in practicing TT. Rogers’s conceptual system and Krieger’s conceptualization of TT provided the framework for the inquiry. A semi-structured interview guide was used. The responses were content analyzed. The analysis demonstrated that practicing TT was a fulfilling pan-dimensional experience that facilitated the 5 nurses’ personal and professional growth. Professionally, the practice of the modality had positive changes on the nurses’ perspective in care-giving. Personally, the practice improved their sense of inner strength/calmness and enhanced their self-esteem, self-confidence, spirituality, and sensitivity to others. At work, the nurses presently practice the modality primarily behind closed doors or under the guise of different intervention due to lack of support from management and absence of approved written policies/procedures to back the practice.

Critique: However can you tell that something is a “fulfilling, pan-dimensional [!] experience” from interviewing just 5 people? The researches apparently found 5 ethically-challenged subjects: practicing TT “behind closed doors” because it is unapproved and unsupported (insupportable?), instead of openly working for its approval and acceptance. Can they be trusted to give their patients objective information on the procedure, obtaining genuinely informed consent from those patients?

Clark & Seifert (1992). Client perceptions of Therapeutic Touch.

Abstract: Seven randomly selected individuals who had received at least 3 TT treatments from the same practitioner in the past 6 months were interviewed to determine their expectations and experience of TT and their perception of any effects occurring during the treatments, immediately after or up to 3 weeks following the treatments. Results were that most had no clear expectations of TT ahead of time because they were not sure about what it was. All 7 subjects reported profound relaxation during and immediately following the treatment. Six of the 7 reported significant relief of some pain they had been experiencing such as low back pain, knee pain, etc. Other responses included being able to deal with an emotional situation which was stressful, sleeping better, feeling more energetic and having a greater sense of well-being.

Critique:

Samarel (1992). The experience of receiving Therapeutic Touch.

Abstract: The purpose of this qualitative study was to describe the patient’s experience of receiving TT treatments. The design was informed by phenomenology in the sense that it was searching for a definition of the lived experience of the phenomenon of TT. Data were obtained through one open-ended interview and a second clarifying interview of each subject. All data were subjected to content analysis.

For participants, the lived experience was described as a linear process that began with the perceived need for and decision to seek treatment. It progressed through one or

more treatments and continued to have an impact upon the participants' lives. These findings were examined within the context of Martha Rogers's conceptual system.

This study has shown that, for 20 participants receiving treatment, TT was a fulfilling multidimensional experience that facilitated personal growth. Such an experience can only enrich the lives of those who receive treatment. Certainly, a nursing intervention that can achieve such a positive influence has potential for use in all areas of nursing care and needs to be explored further.

Critique: A large sample (20), as qualitative studies go.

Hughes (1994). The experience of Therapeutic Touch as a treatment modality with adolescent psychiatric patients.

Abstract:

Critique:

Miscellany

Beck & Peper (1981). Healer-healee interactions and beliefs in Therapeutic Touch: Some observations and suggestions.

Abstract: The interactions of TT were studied at a 2-week training program in which healers (practitioners) and healees (patients) lived in a communal setting. About 80 health professionals were trained in TT by Dolores Krieger and Dora Kunz. Patients numbering 13 were administered an average of 9 healings from as many healers. The healer-healee interaction was explored by questionnaire. The responses are described and discussed in regard to 2 main categories: factors affecting the relationship between the healer and the healee and factors influencing the healee's beliefs. Healers must learn to optimize the interactive healing process by incorporating 5 key concepts: (1) what we communicate by attitude, act and word as well as the setting we provide will affect our potential to heal; (2) what the healer believes is important; (3) all persons involved are interconnected—there can be no independent observer; (4) some of the essential qualities may neither be observable nor measurable; and (5) time may contract or expand.

Critique:

Brown (1981). The effects of Therapeutic Touch on chemotherapy-induced nausea and vomiting: A pilot study.

Abstract: The purpose of this pilot study was to investigate the effects of TT on chemotherapy-induced nausea and vomiting. The subjects were women who were receiving chemotherapy for breast cancer. Each subject received TT for 10 minutes prior to receiving her chemotherapy injection. In addition, 2 control treatments were used. The first control consisted of the subject maintaining the study criteria while no investigational treatment was administered. The second control consisted of having the subject listen to a tape of relaxation music for 10 minutes prior to receiving her chemotherapy. Furthermore, subjects were divided into 2 groups in order to vary the sequence in which the investigational treatments were administered. Only 7 subjects were obtained for this study. Therefore, it was not possible to analyze the data with statistical tests. Instead, the results were reported by discussing the subjects' responses to the investigational treatments. Certain trends which supported the effectiveness of TT were suggested. Therefore, the investigator recommends further research utilizing a larger subject population.

Critique: As admitted by the researcher, the small sample size precluded any valid statistical analysis, and hence the study has no scientific value. It was 13 years before a follow-up on this "pilot study" was reported [see Sodergren (1993)].

Olson (1981). Holistic health and Therapeutic Touch and its impact on allopathic medicine.

Abstract:

Critique:

Dean (1982). An examination of infra-red and ultra-violet techniques to test for changes in water following the laying-on of hands.

Abstract: This experimental research originated in Grad's discovery that barley seeds grew into plants 50% higher when watered with 30-minute healer-held saline bottles as compared with control saline not held. He passed infra-red light through both saline solutions and revealed a difference in percent transmission between 2,800 and 3,000 millimicrons. But he called it an error since the region was outside the instrument's specifications. I replicated this observation on an instrument designed for the region. Teaming up with a spectroscopist, Edward Brame, we tried a double-blind study using pure triply distilled water. Brame developed a multiple internal reflection cell to separate IR bands at 2,700Å (healer-associated) and 3,000Å (O-H stretching vibrations) millimicrons. Dividing the intensity of the 2,700Å by that of the 3,000Å band gave the IR ratio which is the unit used in this research. We tested the healer, Olga Worrall, holding distilled water bottles for 5, 15, and 30 minutes. Larger 2,700Å bands and large IR ratios appeared with longer time of holding. We set IR ratios below 0.035 for water in the control area; water held by some healers had an IR ratio up to 0.065. I replicated these results at Kings College with Rose Gladden. Further, I found partly full bottles seemed to give larger 2,700Å bands than full bottles, even up to 0.080. A thyroid-attached bottle gave a larger band than one attached at the solar plexus. Hand-held and imaging "higher consciousness" gave a large band, whereas imagining "magnetizing" gave control values. Boiling the healer-treated water to steam and condensing it back to water seemed not to boil the healer effect out. Using heavy water seemed to show a similar healer effect to normal water. Ultra-violet measurements on the instrument used could not go far enough for some peak frequency results, but absorbances seemed to be changed. Extra peaks were found in valid ranges associated with a healer effect. The discussion develops the connection of these tentative results with the chemistry of water and with humanistic psychology and parapsychology.

Critique:

Dean (1982). An examination of infra-red and ultra-violet techniques to test for changes in water following the laying-on of hands.

Abstract: Following suggestions in Grad (1964), the author attempted to replicate and extend the inconclusive infrared measurements used in the older experiment. The author was given equipment to try to repeat these results at Kings College, University of London. The IR ratio was used as a unit; that is, the intensity or size of the 2.7 micron band or peak divided by the intensity of the 3.0 band.

He found the effect first in 2.5-year-old bottles of tap water held by the English healer Rose Gladden. Holding for 5 minutes averaged IR ratios of 0.043; 15 minutes, 0.053; 20 minutes, 0.058; well above the control limit of 0.035. Then he went to Gladden's house to get bottles freshly held by Rose and her husband, Peter, acting as a control. The water was distilled. When Gladden held a bottle for 2 minutes, the IR ratio was 0.052; for 5 minutes, 0.053; for 15 minutes, 0.056; and for 30 minutes, 0.060. Peter's values were around the control (same water—not held): 0.026.

Then the author tried a new concept, that of partly full bottles. First, a full 2-oz. bottle with 2 oz. distilled water in it, second a half-ful 4-oz. bottle with 2 oz. in it, and third a

35-oz. bottle with 2 oz. in it. Gladden held all 3 bottles at once for 30 minutes. The IR ratio values of partly full bottles were much higher than those of full bottles, but there was an approximately 12-hr. delay in reaching the high values. Thereafter, the IR ratio values slowly declined with time. A repetition of this result was carried out with healer Peter Higginson.

Gladden tried placing a 2-oz. bottle of distilled water for 5 min. at her solar plexus (IR ratio 0.043) and at her thyroid (IR ratio 0.079). The latter was the second highest healer peak obtained. Further, holding a 2-oz. bottle in her hand, she imagined healing with her body energy (IR ratio—control); while imagining healing by “higher consciousness,” she recorded 0.074.

Next, it was hypothesized that the healer effect would be boiled out by heating high IR ratio water into steam and condensing back into water. This did not appear to be the case. Boiling 0.055 water into steam and condensing still produced 0.053 water. Gladden placed her hands around the steam from control water (IR ratio 0.020) and the condensate water was 0.053, suggesting a healer effect with steam.

Finally, Gladden held her hands around heavy water (D₂O). The massive hydroxyl band is shifted 0.9 microns up the scale. Measuring a healer band in the same proportionate position for normal water seemed to show a healer band which was not present in the control (hot held) heavy water. The results showed a 5 times more rapidly decaying IR ratio than normal water.

The results are speculative because of the small body of data and the short time allowed for use of the equipment free of charge. Further research would be worthwhile.

Critique:

Grad & Dean (1983). Independent confirmation of infrared healer effects.

Abstract: Grad independently of Dean attempted to confirm Dean’s results with healers which suggested that healer-held bottles of distilled water gave higher IR ratios at 2.7 microns than control bottles not held. In the first study using saline, 4 healer-treated values at 7.9 microns were 3 times higher on average than 2 controls. In the second study using distilled water 3 healer-treated values were 6 to 10 times higher at 7.9 microns than the control. In total, 7 healer-treated IR values were all higher and 3 controls were all lower in the same direction found by Dean.

Critique:

Ray, S. (1983). The effect of laying-on of hands by Therapeutic Touch on three criterion measures of nausea in cancer patients undergoing radiotherapy.

Abstract:

Critique:

Sherwen (1986). Research: Therapeutic Touch.

Abstract: [unable to obtain this report; may only be a survey or review]

Critique:

Greene (1987). A survey of registered nurses' and physicians' knowledge, attitudes, and practice of three health care approaches—biofeedback, hypnosis, and Therapeutic Touch.

Abstract:

Critique:

Wright (1988). Development and construct validity of the energy field assessment form.

Abstract: One of the most recent approaches to the study and treatment of pain and other illness has been the study and treatment of human energy systems, specifically the human energy field. Many health care professionals, nurses specifically, have learned to assess the human energy field with their hands. Assessing the human energy field is a developmental process and is done as a prelude to treatment of the human energy field in the process known as TT. To this point, the human energy field assessment has not been systematically assessed and recorded. Therefore, the energy field assessment (EFA) form was developed by this investigator to record specific qualities of the human energy field assessment. The purpose of this study was to establish construct validity and interrater reliability for the EFA. To establish construct validity, the theoretical relationships of the energy field variables to pain intensity, pain location, depression and fatigue were examined.

Fifty-two patients with chronic non-malignant pain participated in the study. Consenting subjects were given the study questionnaire which contained the demographics inventory, the Brief Pain Inventory (BPI) and the Profile of Mood States (POMS). Following a procedure to blind the investigator to any prior knowledge of the subjects, an energy field assessment on each subject was completed and recorded.

The results of the study showed: (1) a significant positive relationship between location of field disturbance and location of pain for the body areas of lower back, upper back and neck ($p < .0008-.00001$), (2) a significant positive relationship between overall (background) strength of the field and fatigue ($r = .48, p < .002$), (3) no significant relationship between intensity of energy field disturbance (foreground) and pain intensity, (4) no determination on the relationship between the overall strength of the field and depression due to lack of depression in the study sample. Iterated reliability was calculated at .3-.86 over 3 tests.

Based on these results, the energy field assessment form has good initial evidence for construct validity and interrater reliability.

Critique:

Wirth (1989). Healing expectations: A study of the significance of expectation within the healing encounter.

Abstract: [unable to obtain report; journal excerpt is misreferenced (see Annex A)]

Critique: There is much suspicious about this researcher and the institution (John F. Kennedy University) where this thesis was accepted. JFK University is sometimes described as a law school, elsewhere as a institution specializing in "metaphysical" research.

Bolstad (1990). Healing through the human energy field.

Abstract: [unable to obtain paper; may not report new research]

Critique:

Harrison (1990). Therapeutic Touch.

Abstract: [unable to obtain paper; may not report new research]

Critique:

Post (1990). The effects of Therapeutic Touch on muscle tone.

Abstract: A pre-experimental, mixed factorial design was used to investigate whether TT would significantly change muscle tone in 38 adult subjects. Subjects were faculty or students at San Jose State University in California. Nine subjects were male and 18 were female. Subjects ranged in age from 19 to 46 years. Subjects were randomly assigned to receive TT or a placebo. Subjects were unaware of their group assignments. A Cyborg P303 electromyographic biofeedback instrument with data accumulator (Q700) was used to monitor muscle activity. The frontalis muscle was targeted for observation. Hierarchical regression analysis with post-hoc specific means comparisons where main effects were found revealed no significant differences in change of muscle tone over the intervention span between the subjects receiving TT and subjects receiving the placebo. All subjects experienced a significant decrease in muscle tone during the span of intervention.

Critique: A new area for hypothesis is put forward and shot down. TT just doesn't seem to have it anywhere.

Schwartz, De Mattei, Brame & Spottiswoode (1990). Infrared spectra alteration in water proximate to the palms of therapeutic practitioners.

Abstract:

Critique:

Quinn (1992b). Holding sacred space: The nurse as healing environment.

Abstract: Given that we are interconnected to all of life, our consciousness is not separate and apart but integral with all consciousness. Today, one cannot approach the cutting edge of essentially any modern scientific discipline, nor the tradition of any major spiritual culture, and not see that same idea proposed. No longer merely conjecture, the interconnectedness of all of life seems clear. The clinical practice of TT is an exemplar of this premise because its modus operandi is a shift in the consciousness of the practitioner through which there can also be a shift in consciousness of the recipient.

One of the indices of expanded consciousness is postulated to be an alteration in time perception. This descriptive pilot study explored the effects of TT treatment were collected during a larger research project. This study explored the effects of TT on selected

psychoimmunological parameters in both practitioners and recipients. Participants were 2 very experienced TT practitioners and 4 recently bereaved TT recipients.

The findings suggest a resonance of 2 individual human fields of consciousness during a healing interaction.

Funded by Institute of Noetic Sciences.

Critique: This effort does not start as a research paper, but as a manifesto. The remainder of the paper is an exemplar of how much nonsense can be extrapolated from very little (mostly insignificant) data. Its self-description as an “exploratory pilot study” is indicative of the relative absence of useful data.

Hogan (1993). Implications for advanced nursing practice in the use of Therapeutic Touch.

Abstract: TT is derived from the ancient practice of laying-on of hands. The theory behind TT is based on the fundamental assumption that there is a universal life energy common to all living things. The art of nursing includes both physiological and psychosocial needs of the patient. The nature of the nurse-patient interaction dictates a heightened sensitivity to the need for human contact and a return to basic caring acts. TT provides one framework for considering the power of this human interaction as a resource for healing.

Critique:

Wetzel (1993). Healing Touch as a nursing intervention: Wound infection following Cesarean birth—An anecdotal case study.

Abstract: From the context of postoperative wound infection care, this article describes the clinical use of Healing Touch, an integrated system of energetic healing techniques now being taught nationwide in cooperation with the American Holistic Nurses' Association. The author documents the progress of a patient with a significant wound infection as a consequence of cesarean birth. Along with standard medical care, the patient received Healing Touch treatments. This is an anecdotal report and is not intended to replace a structured study on wound healing.

Critique:

Fawcett (J.), Sidney (J. S.), Hanson (M. J.) & Riley-Lawless (K.) (1994) Use of alternative health therapies by people with multiple sclerosis: an exploratory study.

Abstract: Sixteen people with multiple sclerosis (MS) responded to a semi-structured questionnaire about their experiences with alternative therapies. No definition of alternative therapies was provided. Physical therapy, counseling, nutrition, and massage were the most frequently used alternative therapies. Other therapies included acupuncture, occupational therapy, aquatic therapy, TT, yoga, passive exercise, and removal of mercury alloy tooth fillings. Almost two-thirds of the respondents reported seeking an alternative health practitioner because traditional physicians offered no cure for MS. Just under one-third of the respondents stated that the quality of their lives was improved by alternative therapies.

Critique: TT is only one of many “alternatives” explored by MS sufferers, and it was down in the noise level. This is an “exploratory” study, and consequently its value is small. The sample is small, and there is no quantification of the use of TT. The meaning of the “improvement” in quality of life is unknowable.

Annex A

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² Also given a date of 1987. Excerpt is misreferenced; there is no vol. 41, and the volume for 1992 is #35. No reference to Wirth can be found in the journal's own index.

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Incidental Mentions

The following is a less than comprehensive listing of works where Therapeutic Touch is not the principal or main topic. There are 111 such works identified.

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- Airey, S. see Smith, I. W.
- Ake, J. see Meehan, M.-T. C.
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- Begley, S. (1992). Alternative medicine. in *American Health*, Apr, 11(3):29-40,44,46. [Critical mentions of TT]
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- Brierly, T. D. (1992). Employers' New Age training programs fail to alter the consciousness of the EEOC. in *Labor Law Journal*, Jul, 43(2):411-420. [TT mentioned as one such program]
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- Buenting, J. A. (1993). Human energy fields and birth: Implications for research and practice. in *Advances in Nursing Science*, Jun, 15(4):53-59. [TT described as best-known technique in use]
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- Bullough, B. (1994). Nursing theory: History and critique. in Bullough & Bullough (1994), pp. 64-82. [TT discussed briefly in context of Rogers's Theory]
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- Ehrenreich, D. see Owens, M. K.
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- Lerner, M. P. (1994). Therapeutic Touch. in *Choices in Healing: Integrating the Best of Conventional and Complementary Approaches to Cancer* (Cambridge, MA: MIT Press, 693 pp. [ISBN 0-262-12180-8]), pp. 362-365, 578.
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- New York University, School of Nursing. *A Report to the Profession: Nursing Research Emphasis Grant for Doctoral Programs in Nursing*. New York, NY: New York University, School of Nursing. [mentions TT on p. 8]

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- Phillips, J. R. (1995). Homeless nurses and feeling homeless in nursing. in *Nursing Science Quarterly*, Summer, 8(2):55-56.
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- Reisser, P. C. (1989). Body, mind & soul: What are holistic healers really after? in *Journal of Christian Nursing*, Spring, 6(2):11-14. [mentions TT briefly]
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- Skelton, R. (1988). mention in *The Practice of Witchcraft Today: An Introduction to Beliefs and Rituals of the Old Religion*. London: Hale, 204 pp. [ISBN 0-709-03525-X (hb); new ed., 1992, 0-709-04716-9 (pb)], p. 39. New York, NY: Carol Publishing Group (Victoria, BC: Porcepic), 1990, 213 pp. [ISBN 0-806-51674-7]. Spanish translation: El Retorno de las Brojas (Mexico: Ediciones Martinez Roca, 1991, 191pp. [ISBN 8-42701-563-1, 9-68210-897-7] [TT as a form of "pranic healing"]
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- The Birmingham News*. newspaper, Birmingham, AL. ISSN 0899-0050.
- Birmingham Post-Herald*. newspaper, Birmingham, AL.
- Boulder Daily Camera*. newspaper, Boulder, CO. USPS 0616-6000.
- Boulder Sunday Camera*. newspaper, Boulder, CO. USPS 0616-6000.
- The Bristol Press*. newspaper, Bristol, CT. ISSN 0891-5563.
- British Journal of Nursing*. London, UK: Mark Allen. ISSN 0966-0461.
- The Buffalo News*. newspaper, Buffalo, NY. ISSN 0745-2691.
- CAET Journal*. Ottawa, ON: Canadian Association for Enterostomal Therapy. ISSN 1192-0890.
- Canadian Journal of Cardiovascular Nursing*. Ottawa, ON: Canadian Council of Cardiovascular Nurses. ISSN 0843-6096.
- The Canadian Nurse*. Ottawa, ON: Canadian Nurses' Association. ISSN 0008-4581. absorbed *L'Infirmiere Canadienne*.
- Caring*. Washington, DC: National Association for Home Care. ISSN 0738-467X.
- Center for Human Caring News*. Denver, CO: University of Colorado Health Sciences Center. no ISSN.
- The Charleston Post and Courier*. newspaper, Charleston, SC. ISSN 1061-5105.
- Chicago Tribune NursingNews*. newspaper, Chicago, IL. ISSN _____.
- Childbirth Educator*. New York, NY: American Baby. ISSN 0279-490X.
- Childbirth Instructor Magazine*. New York, NY: Cradle Publications. ISSN 1075-9689.
- The Christian Century*. Chicago: Christian Century. ISSN 0009-5281.
- Christian Nurse*. Mysore, India: Nurses' League of the Christian Medical Association of India. ISSN 0009-5540.
- Christian Research Journal*. San Juan Capistrano, CA: Christian Research Institute. ISSN 1082-572X.
- Christianity Today*. Carol Stream, IL: Christianity Today. ISSN 0009-5753.
- Clinical Nurse Specialist*. Baltimore: Williams & Wilkins. ISSN 0887-6274.
- Clinical Nursing Research*. Newbury Park, CA: Sage Periodicals. ISSN 1054-7738.
- Clinics in Perinatology*. Philadelphia, PA: Saunders. ISSN 0095-5108.
- Colorado Skeptic*. Loveland, CO: Front Range Skeptics. no ISSN. continued as *Rational Skeptic*.
- Complementary Medical Research*. London: Research Council for Complementary Medicine. ISSN 0268-4055.
- Complementary Therapies in Medicine*. New York, NY: Churchill Livingstone. ISSN 0965-2299.
- Complementary Therapies in Nursing & Midwifery*. New York, NY: Churchill Livingstone. ISSN 1353-6117.
- Concern*. Regina, Sask: Saskatchewan Registered Nurses' Association. ISSN 0836-7310.
- Cooperative Connection*. New York, NY: Nurse Healers Professional Associates.
- Dean's Notes*. Pitman, NJ: National Student Nurses Association. no ISSN.
- The Denver Post*. newspaper, Denver, CO.

- Dermatological Nursing*. Pitman, NJ: Dermatology Nurses' Association. ISSN 1060-3441.
- Deutsch Krankenpflege-Zeitschrift*. Stuttgart, Germany: Kohlhammer. ISSN 0012-074X. [in German] continues *Deutsch Schwesternzeitung*. continued by *Pflege Zeitschrift*.
- Dissertation Abstracts International*. Ann Arbor, MI: University Microfilms International. ISSN 0419-4217.
- Early Child Development and Care*. New York, NY: Gordon & Breach. ISSN 0300-4430.
- East/West*. Brookline Village, MA: East West Partners. ISSN 0888-1375. ceased.
- Elderly Care*. Ely, Cardiff, Wales: Nursing Standard. ISSN 0956-8115. continues *Nursing the Elderly*.
- Emergency Medical Services*. North Hollywood, CA: Emergency Medical Services. ISSN 0094-6575.
- Esquire*. Chicago, IL: Esquire, Inc. ISSN 0194-9535.
- Executive Wire*. New York, NY: National League for Nursing.
- Family Circle*. Mattoon, IL: Family Circle. ISSN 0014-7206. continues *Everywoman's Family Circle*.
- Family Health*. New York, NY: Family Media. ISSN 0014-1249. continues *Today's Health*; also *Health*.
- Fate*. Chicago, IL: Clark Publishing. ISSN 0014-8776.
- Glamour*. New York, NY: Condé Nast Publications. ISSN 0017-0747.
- The Good Life*. Malibu, CA: Newsletter, Inc.
- Healing Healthcare Network Newsletter*.
- Health Progress*. St. Louis, MO: Catholic Health Association of the United States. ISSN 0882-1577.
- Health Visitor*. London: Health Visitors' Association. ISSN 0017-9140.
- Heart Beats*. Denver, CO: Presbyterian/St. Luke's Hospital. no ISSN.
- Holistic Nursing Practice*. Gaithersburg, MD: Aspen Systems. ISSN 0887-9311. continues *Topics in Clinical Nursing*.
- Homemaker's Magazine*. Toronto, ON: Comac Communications. ISSN 0018-4209.
- The Honolulu Advertiser*. newspaper, Honolulu, HI. ISSN 1072-7191.
- Human Behavior*. Los Angeles, CA: Manson Western. ISSN 0046-8134.
- Human Dimensions*. Buffalo, NY: Human Dimensions Institute.
- Image: The Journal of Nursing Scholarship*. Indianapolis, IN: Sigma Theta Tau. ISSN 0743-5150.
- Imprint*. New York, NY: National Student Nurses' Association. ISSN 0019-3062.
- L'Infirmiere Canadienne*. Ottawa, ON: Canadian Nurses' Association. ISSN 0019-9605. absorbed by *The Canadian Nurse*.
- Institute of Noetic Sciences Newsletter*. Sausalito, CA: Institute of Noetic Sciences. ISSN 0888-3432. continued by *Noetic Sciences Review*.
- Interfaces*.
- International Journal of Adolescence and Youth*. Berkhamsted, Herts, UK: AB Academic Publishers. ISSN 0267-3843.
- International Journal of Nursing Studies*. Oxford, UK: Pergamon Press. ISSN 0020-7489.
- International Journal of Parapsychology*. New York, NY: Parapsychology Foundation. ISSN 0553-206X. continued by *Parapsychology*.
- International Journal of Psychoenergetic Systems*.

- International Journal of Psychosomatics*. Philadelphia, PA: International Psychosomatics Institute. ISSN 0884-8297.
- International Journal of Touch for Health*.
- Investigations: Bulletin of the Institute of Noetic Sciences*. Sausalito, CA: Institute of Noetic Sciences. ISSN 0897-1013. continued by *Noetic Sciences Quarterly Bulletin*.
- Issues in Mental Health Nursing*. Washington, DC: Hemisphere Publishing. ISSN 0161-2840.
- Journal of Altered States of Consciousness*. Farmingdale, NY: Baywood Publications. ISSN 0276-2366. continued by *Journal of Imagination, Cognition and Personality*.
- Journal of the American Dietetic Association*. Chicago, IL: American Dietetic Association. ISSN 0002-8223. continues *Bulletin of the American Dietetic Association*.
- Journal of the American Society for Psychical Research*. New York, NY: American Society for Psychical Research. ISSN 0003-1070. continues *Psychic Research*.
- Journal of the Association of Pediatric Oncology Nurses*. Chicago, IL: Association of Pediatric Oncology Nurses. ISSN 0748-1802.
- Journal of Cancer Care*. New York, NY: Churchill Livingstone. ISSN 0960-9768.
- Journal of Christian Nursing*. Downers Grove, IL: Nurses Christian Fellowship. ISSN 0743-2550. continues *Nurses Lamp*.
- The Journal of Continuing Education in Nursing*. Thorofare, NJ: Slack. ISSN 0022-0124.
- Journal of Gerontological Nursing*. Thorofare, NJ: Slack. ISSN 0098-9134.
- Journal of Holistic Health*. Del Mar, CA: Association of Holistic Health. ISSN 0161-5491.
- The Journal of Holistic Medicine*. New York, NY: American Holistic Medical Association. ISSN 0195-5977. continues *American Journal of Holistic Medicine*.
- Journal of Holistic Nursing*. Newbury Park, CA: American Holistic Nurses' Association. ISSN 0898-0101.
- Journal of the New York State Nursing Association*. Guilderland, NY: New York State Nursing Association. ISSN 0028-7644.
- Journal of Nursing Administration*. Philadelphia, PA: Lippincott. ISSN 0002-0443.
- The Journal of Parapsychology*. Durham, NC: Duke University. ISSN 0022-3387.
- Journal of Post Anesthesia Nursing*. Philadelphia, PA: National Association for Practical Nurse Education and Service. ISSN 0883-9433.
- Journal of Nursing Care Quality*. Frederick, MD: Aspen. ISSN 1057-3631. continues *Journal of Nursing Quality Assurance*.
- The Journal of Practical Nursing*. Silver Spring, MD: National Association for Practical Nurse Education and Service. ISSN 0022-3867.
- Journal of Psychosocial Nursing and Mental Health Services*. Thorofare, NJ: Slack. ISSN 0279-3695.
- Journal of Scientific Exploration*. New York, NY: Society for Scientific Exploration. ISSN 0892-3310.
- Journal of Wound, Ostomy, and Continence Nursing*. St. Louis, MO: Wound, Ostomy and Continence Nurses Society. ISSN 1071-5754.
- Kaleidoscope*. Birmingham, AL; University of Alabama at Birmingham.
- Kango Kenkyu [Japanese Journal of Nursing Research]*. Tokyo, Japan: Igaku Shoin. ISSN 0022-8370. [in Japanese]

- The Kansas Nurse*. Topeka, KS: Kansas State Nurses' Association. ISSN 0022-8710. continues *Kansas State Nurses' Association Bulletin*.
- Krankenpflege/Soins Infirmierse*. Solothurn, Switzerland: Schweizer Berufsverband der Krankenschwestern und Krankenpflege. ISSN 0253-0465. ceased. [in German]
- Labor Law Journal*. Chicago: Commerce Clearing House. ISSN 0023-2366.
- Lamp*. Sydney, Australia: New South Wales Nurses' Association. ISSN 0047-3936.
- Library Journal*. New York, NY: Bowker. ISSN 0363-0277.
- Longevity*. New York, NY: Omni. ISSN 0895-8254.
- Longmont Sunday Times-Call Magazine*. newspaper, Longmont, CO.
- Loveland Reporter-Herald*. newspaper, Loveland, CO. USPS 321-020.
- Lubbock Avalanche-Journal*. newspaper, Lubbock, TX.
- Magazine of Physical Therapy*. Alexandria, VA: American Physical Therapy Association. ISSN 1065-5077.
- The Maine Nurse*. Auguste, ME: Maine State Nurses' Association. ISSN 0025-0767.
- Massage*. Davis, CA: Noah Publishing. ISSN 1045-4268. continues *Massage Magazine*.
- Massage Therapy Journal*. Kingsport, TN: American Massage Therapy Association. ISSN 0895-0814.
- Masters Abstracts International*. Ann Arbor, MI: University Microfilms International. ISSN 0898-9095.
- Mayo Clinic Health Letter*. Rochester, MN: Mayo Clinic. ISSN 0741-6245.
- McCall's*. New York, NY: McCall Publishing. ISSN 0024-8908.
- Medical Self-Care*. Inverness, CA: Medical Self-Care. ISSN 0162-2285.
- Mediscope*. Manchester, UK: Medical Students Representative Council. ISSN 0261-7099. continues *Manchester Medical Gazette*.
- MedSource*. Birmingham, AL: Birmingham News. no ISSN.
- Michigan Hospitals*. Lansing, MI: Michigan Hospital Association. ISSN 0026-220X. continued by *Michigan Health & Hospitals*.
- The Mount Sinai Journal of Medicine*. New York, NY: Mount Sinai Hospital. ISSN 0027-2507.
- NCAHF Bulletin Board*. Loma Linda, CA: National Center Against Health Fraud. no ISSN.
- NCAHF Newsletter*. Loma Linda, CA: National Center Against Health Fraud. ISSN 0890-3417.
- NP News*. Bellevue, WA: Vernon Publications. ISSN 1069-6903.
- National Enquirer*. Lantana, FL: National Enquirer. ISSN 1056-3482.
- Neonatal Network*. Petaluma, CA: Neonatal Network. ISSN 0730-0832.
- New Age*. Brookline Village, MA: New Age Communications. ISSN 0164-3967. continued by *New Age Journal*.
- New Age Journal*. Brighton, MA: Rising Star Associates. ISSN 0746-3618. continues *New Age*.
- The New Orleans Times-Picayune*. newspaper, New Orleans, LA. ISSN 1055-3053.
- New Realities Magazine*. Washington, DC: Heldref Publications. ISSN 0147-7625. ceased. continued *Psychic*.
- New Woman*. Palm Beach, FL: New Woman. ISSN 0028-0694.
- New York Daily News Sunday News Magazine*. newspaper, New York, NY.
- The New York Times*. newspaper, New York, NY. ISSN 0362-4331.
- New Zealand Journal of Physiotherapy*. Wellington, NZ: New Zealand Society of Physiotherapists. ISSN 0303-7193.

- The New Zealand Nursing Journal*. Wellington, NZ: New Zealand Nurses' Association. ISSN 0028-8535. continued by *Nursing New Zealand*.
- NewsBank*. Stamford, CT: Newsbank. ISSN 0737-3864.
- Newsletter of the Nurse Healers Professional Associates*. New York, NY: Nurse Healers Professional Associates. no ISSN.
- Nexus*. newspaper, Boulder, CO.
- Noetic Sciences Review*. Sausalito, CA: Institute of Noetic Sciences. ISSN 0897-1005. continues *Institute of Noetic Sciences Newsletter*.
- The Nurse Practitioner*. Bellevue, WA: Vernon Publications. ISSN 0361-1867.
- Nurse Practitioner Forum*. Philadelphia, PA: Saunders. ISSN 1045-5485.
- Nursing: The Journal of Clinical Practice, Education, and Management*. London.
- Nursing and Health Care*. New York, NY: National League for Nursing. ISSN 0027-6804.
- Nursing BC*. Vancouver, BC: Registered Nurses' Association of British Columbia. ISSN 1185-3638.
- Nursing Clinics of North America*. Philadelphia, PA: Saunders. ISSN 0029-6465. continued by *Nursing Clinics*.
- Nursing Forum*. Philadelphia, PA: Nursecom. ISSN 0029-6473.
- Nursing Homes*. Potomac, MD: Centaur. ISSN 0029-649X.
- Nursing New Zealand*. Wellington, NZ: New Zealand Nurses' Association. ISSN 0028-8535. continues *The New Zealand Nursing Journal*.
- Nursing Quebec*. Montreal, PQ: Order of Nurses of Quebec. ISSN 0381-6419. continues *Notes et Nouvelles de l'Ordre des Infirmieres et Infirmiers du Quebec*.
- Nursing Research*. New York, NY: American Nurses' Association. ISSN 0029-6562.
- Nursing Scan in Critical Care*. Philadelphia, PA; American Association of Critical-Care Nurses. ISSN 1055-8349.
- Nursing Science Quarterly*. Pittsburgh, PA: Chestnut House Publications. ISSN 0894-3184.
- Nursing Standard*. Harrow-on-the-Hill, MDSX, UK: Scutari Projects. ISSN 0029-6570.
- Nursing Times*. London, UK: Macmillan Magazines. ISSN 0954-7762.
- NursingConnections*. Washington, DC: Washington Hospital Center. ISSN 0895-2809.
- Nursingworld Journal*. Weston, MA: Prime National Publications. ISSN 0745-8630.
- Oesterreichische Krankenplegezeitschrift*. Vienna, Austria: Oesterreichischer Krankenpflegeverband. ISSN 0303-4461. [in German] continues *Oesterreichische Schwesternzeitung*.
- The Olympian*. newspaper, Olympia, WA. ISSN 0746-7575.
- Omni*. New York, NY: Omni. ISSN 0149-8711.
- Orthopaedic Nursing*. Pitman, NJ: National Association of Orthopedic Nurses. ISSN 0794-6020.
- Pain*. Amsterdam: International Association for the Study of Pain. ISSN 0167-6482.
- Pediatric Nursing*. Pitman, NJ: National Association of Pediatric Nurse Associates and Practitioners. ISSN 0097-9805.
- People Weekly*. New York, NY: Time/Warner. ISSN 0093-7673.
- Phactum*. Philadelphia, PA: Philadelphia Association for Critical Thinking. no ISSN.
- Proceedings Research Day*.
- The Professional Nurse*. London, UK: Austen Cornish. ISSN 0266-8130.
- Professioni Infermieristiche*. Torino, Italy: Consociazione Nazionale Infermiere Professionali e Assistenti Sanitarie Visitatrici. ISSN 0033-0205. [in Italian]
- Providence Sunday Journal-Bulletin*. newspaper, Providence, RI.

Psi Research. San Francisco, CA: Washington Research Center/Foundation for Human Science. ISSN 0749-2898.

Psychological Reports. Missoula, MT: Psychological Reports. ISSN 0033-2941.

Psychology Today. New York, NY: Sussex Publishers. ISSN 0033-3107.

Publishers' Weekly. Marion, OH: Bowker. ISSN 0000-0019.

The Quest. Wheaton, IL: Theosophical Society of America. ISSN 1040-533X.

RN Magazine. Montvale, NJ: Medical Economics. ISSN 0033-7021.

Rational Skeptic. Loveland, CO: Front Range Skeptics. no ISSN. continues *Colorado Skeptic*.

Recent Advances in Nursing. New York, NY: Churchill Livingstone. ISSN 0144-6592.

Rehabilitation Nursing. Evanston, IL: Association of Rehabilitation Nurses. ISSN 0278-4807.

Research in Nursing & Health. New York, NY: Wiley. ISSN 0160-6891.

Respiratory Care. Dallas, TX: American Association for Respiratory Therapy. ISSN 0730-8418.

Revolution: The Journal of Nurse Empowerment. Staten Island, NY: Von Publishers. ISSN 1059-0927.

Rocky Mountain News. newspaper, Denver, CO. USPS 469-280.

Rocky Mountain Skeptic. Boulder, CO: Rocky Mountain Skeptics. no ISSN.

Rogerian Nursing Science News. New York, NY: Society of Rogerian Scholars. ISSN 1050-9089.

SCP Newsletter. Berkeley, CA: Spiritual Counterfeits Project. ISSN 0883-1319. ceased.

Sairaanhoitaja. Helsinki, Finland: Suomen Sairaanhoitajaliito. ISSN 0785-7527.

San Antonio Sentinel. newspaper, San Antonio, TX.

San Francisco Chronicle. newspaper, San Francisco, CA.

San Francisco Sunday Examiner and Chronicle. newspaper, San Francisco, CA.

The Santa Fe New Mexican. newspaper, Santa Fe, NM.

Saturday Review of the Sciences. San Francisco, CA: Saturday Review. ISSN 0091-8547. ceased.

Search: Improved Nursing Care Through Research.

Self. New York, NY: Condé Nast Publications. ISSN 0149-0699.

Shape. Woodland Hills, CA: Shape Magazine. ISSN 0744-5121.

Skeptic. Altadena, CA: Skeptics Society. ISSN 1063-9330.

the Skeptic. Sydney, NSW, Australia: Australian Skeptics. ISSN 0726-9897.

The Skeptical Inquirer. Buffalo, NY: Committee for Scientific Investigation of Claims of the Paranormal. ISSN 0194-6730.

Social Science & Medicine. Oxford, UK: Pergamon. ISSN 0277-9536.

The South Carolina Nurse. Columbia, SC: South Carolina Nurses Association. ISSN 1046-7394.

Spiritual Frontiers. Evanston, IL: Spiritual Frontiers Fellowship. ISSN 0038-7614. continues *Gateway*.

Subtle Energies. Golden, CO: International Society of the Study of Subtle Energies and Energy Medicine. ISSN 1084-2209.

Tampa Bay Skeptics Report. Tampa, FL: Tampa Bay Skeptics. no ISSN.

Tennessee Nurse. Nashville, TN: Tennessee Nurses Association. ISSN 1055-3134. continues *Bulletin of the Tennessee Nurses Association*.

The Theosophical Research Journal.

Time. New York, NY: Time/Warner. ISSN 0040-781X.

Today's OR Nurse. Thorofare, NY: Slack. ISSN 0194-5181.

- Topics in Clinical Nursing*. Gaithersburg, MD: Aspen Systems. ISSN 0164-0534. continued by *Holistic Nursing Practice*.
- The Toronto Globe and Mail*. newspaper, Toronto, ON. ISSN 0319-0714.
- The Toronto Star*. newspaper, Toronto, ON.
- UAB Report*. Birmingham, AL: University of Alabama at Birmingham. no ISSN.
- University of Colorado School of Nursing News*. Denver, CO: University of Colorado Health Sciences Center. no ISSN.
- Up the Creek*. newspaper, Denver, CO.
- Venture Inward*. Virginia Beach, VA: Association for Research and Enlightenment. ISSN 0748-3406.
- The Village Voice*. New York, NY: Village Voice. ISSN 0042-6480.
- Visions: The Journal of Rogerian Nursing Science*. New York, NY: Society of Rogerian Scholars. ISSN 0042-6480.
- Vogue*. New York, NY: Condé Nast. ISSN 0042-8000.
- Voices: The Art and Science of Psychotherapy*. Fair Lawn, NJ: American Academy of Psychotherapists. ISSN 0042-8272.
- The Washington Post*. newspaper, Washington, DC. ISSN 0190-8286.
- The Washington Post Health*. newspaper, Washington, DC. no ISSN.
- Western Journal of Nursing Research*. Newbury Park, CA: Sage Publications. ISSN 0193-9459.
- Westword*. newspaper, Denver, CO. ISSN 0194-7710.
- Woman's Day*. New York, NY: CBS Magazines. ISSN 0043-7336.
- Women of Power Magazine*.
- Women's Health Nursing Scan*. Philadelphia, PA: Association of Women's Health, Obstetric and Neonatal Nurses. ISSN 1070-308X.
- Your Health*. Boca Raton, FL: Summit. ISSN 0889-4329.

Annex B

Categorization of Quinn's Reading List

Professor Janet Quinn of the University of Colorado was called upon in 1992 to document an “increasing volume of research and clinical literature” verifying the efficacy of Therapeutic Touch. Prof. Quinn responded to this call by the State Board of Nursing (SBN) in Colorado by producing what she called a “reading list” of some 201 references, very little of which—if any—contained any “research and clinical literature.” Nevertheless, the list was touted as “proof” for TT and was used by the SBN to allow the practice to earn continuing-education credits for Colorado nurses.

Two hundred one references seems at first glance to be an impressive number. However, it should be noted that even at face value, this number represents less than 10 papers per year of TT’s existence. Moreover, the papers themselves are much less than the paragons of scientific respectability. Below is an analysis done by the authors of this Report on Prof. Quinn’s list. It re-categorizes those references found there to reveal how little scientific content they contain *prima facie*.

To start with, 8 of the references are either duplicates or separate listings of different parts of the same work. So the actual references appearing on the list total not 201, but 193.

Appearances in the popular press (10):

While such appearances are informative with regard to the type of coverage a topic is receiving in the public at large, it is not legitimate to cite them as research, or with them to convey the impression that there is a larger body of work than actually exists (as I think has been done with the reading list here at issue).

Huff (1978)
Fine (1979)
Quindlen (1981)
Burns (1982)
Brody (1985)
Howell & Castleman (1987)
Nadel (1987)
Quinn (1986c)
Quinn (1989d)
Schechter (1989)

Unrelated publications, incidental mentions, and “popular” works (44):

It should be remembered that “Therapeutic Touch” never actually *touches* anyone. Some of the following are pure new-age buncombe, which should of course never appear in a professional research bibliography. Some relate to Martha Rogers’s theories, which are claimed by some (particularly Quinn) to be the basis for TT. Others just mention TT in passing.

Tart, C. T., ed. (1975 [1969]). *Altered States of Consciousness: A Book of Readings*. New York: Wiley, 575 pp. ISBN 471-84560-4. LC (69-16040). Garden City: Doubleday, 1972, 598 pp. New York: Dutton, 1975, 316 pp.

- Rogers, M. E. (1970). *An Introduction to the Theoretical Basis of Nursing*. Philadelphia: Davis, 144 pp.
- Domainian, J. (1971). The psychological significance of touch. in *Nursing Times*, 22 Jul, 67(29):896-898.
- Durr, C. A. (1971). Hands that help... but how? in *Nursing Forum*, Fall, 10(4):392-400.
- Montagu, A. (1978 [1971]). *Touching: The Human Significance of Skin*. New York: Columbia University Press, 1971, 346 pp. New York: Harper & Row, 2nd ed., 1978, 394 pp. New York: Perennial Library, 3rd ed., 1986, 508 pp.
- Burr, H. S. (1972). *The Fields of Life*. New York: Ballentine Books.
- LeShan, L. (1974). *How to Meditate*. New York: Bantam.
- Capra, F. (1975). *The Tao of Physics: An Exploration of the Parallels between Modern Physics and Eastern Mysticism*. Berkeley, CA: Shambhala. New York: Bantam, 1977. New York: Bantam, 1984, 2nd ed., 367 pp. Boston: Shambhala, 1991, 3rd ed., 366 pp.
- Krippner & Villoldo (1976)
- Pelletier, K. R. (1977). *Mind as Healer, Mind as Slayer: A Holistic Approach to Preventing Stress Disorders*. New York: Delacorte Press, 366 pp. ISBN 0-440-55592-2.
- Carrington, P. (1978). *Freedom in Meditation*. Garden City, NY: Anchor, 400 pp.
- Simonton (O. C.), Matthews-Simonton (S.) & Creighton (J. L.) (1978). *Getting Well Again: A Step-by-Step, Self-Help Guide to Overcoming Cancer for Patients and Their Families*. Los Angeles: Tarcher, 268 pp. New York: Bantam, 1980.
- Lynch, J. J. (1978). The simple act of touching. in *Nursing*, Jun, 8(6):32-36.
- Brallier, L. W. (1978). The nurse as holistic health practitioner: Expanding the role again. in *Nursing Clinics of North America*, Dec, 13(4):643-656.
- Weber, R. (1979). Philosophical foundations and frameworks for healing. in *Revision Journal*, Fall, 2(2):66-76. reprinted in Borelli & Heidt (1981), pp. 13-39; also in Kunz (1985), pp. 21-43.
- Ferguson, M. (1980). *The Aquarian Conspiracy: Personal and Social Transformation in the 1980's*. Los Angeles: Tarcher, 448 pp.
- Sheldrake, R. (1981). *A New Science of Life: The Hypothesis of Formative Causation*. Los Angeles: Tarcher, 229 pp.
- Capra, F. (1982). *The Turning Point: Science, Society, and the Rising Culture*. New York: Simon & Schuster, 464 pp.
- Kunz & Peper (1982, 1983, 1984, 1985). [each part cited separately by Quinn]
- Weil, A. (1983). *Health and Healing: Understanding Conventional and Alternative Medicine*. Boston: Houghton Mifflin, 265 pp. Boston: Houghton Mifflin, rev. ed., 1988, 304 pp.
- Bulbrook (1984a)
- Hammer, S. (1984). The mind as healer. in *Science Digest*, Apr, 92(4):47-49,100.
- Quinn, J. F. (1984b). The healing arts in modern health care. in *The American Theosophist*, 72(5):198-203. reprinted in Kunz (1985), pp. 116-124.
- Krieger (1985a)
- Skolimowski, H. (1985). Wholeness, Hippocrates and ancient philosophy. in Kunz (1985), pp. 14-20.
- Kunz, D. (1985b). Compassion, rootness and detachment: Their role in healing. interview by R. Weber in Kunz (1985a), pp. 289-305. reprinted in *Journal of Holistic Medicine*, 1986, 1:14-17. [appears twice in Quinn list]
- Quinn, J. F. (1986b)
- Burnham, S. (1986). Healing hands. in *New Woman*, pp. 72,74-78. [about Reiki, not TT]
- Wolf, Z. R. (1986). The caring concept and nurse identified caring behaviors. in *Topics in Clinical Nursing*, 8(2):84-93.
- Yen-Patton (1986)
- LeMay, A. (1986). The human connection. in *Nursing Times*, 19 Nov, 82(47):28-30.
- Harrison, A. (1986). Getting the massage. in *Nursing Times*, 26 Nov, 82(48):34-35.
- Cohen (1987)
- Keegan (1987)
- Keegan (1988a)
- Rogers (1988)
- Karagulla & Kunz (1989)

Quinn (1989c)
Ridzon (1989)
Brazelton & Barnard (1990)
Smith, M. (1990). Healing through touch. in *Nursing Times*, 24 Jan, 86(4):31-32.
Hover-Kramer (1990)
McGlone (1990)
Smith, Airey & Salmond (1990)

Articles in journals with little, no, or suspicious scientific reputations (28):

It is surprising to see anything in this category. With the (remotely) possible exception of the "holistic" journals, the publications do not even have a shred of academic respectability. None of these are indexed in either the *Science Citation Index* (SCI), a standard index for legitimate, peer-reviewed, scientific journals, or *Index Medicus*, the standard index for medicine.

The American Theosophist:

Macrae (1983)

Holistic Nursing Practice [prev. *Topics in Clinical Nursing*]:

Randolph (1979)

Boguslawski (1980)

Fanslow (1983)

Jurgens, Connell-Meehan & Wilson (1987)

Newshan (1989)

Quinn (1992b)

Quinn (1992c)

Human Dimensions.

Smith (1972)

Institute of Noetic Sciences Newsletter.

O'Regan (1984)

O'Regan (1986)

Remen (1986)

Interfaces:

Tart, C. T. (1985)

International Journal of Parapsychology:

Grad, Cadoret & Paul (1961)

Grad (1963)

Grad (1964)

International Journal of Psychoenergetic Systems:

Krieger (1976)

Investigations: Bulletin of the Institute of Noetic Sciences:

O'Regan (1983)

Journal of Altered States of Consciousness.

Brown, Fischer, Wagman, Horrom & Marks (1977)

Journal of the American Society of Psychical Research:

Grad (1965a)

Grad (1967)

Journal of Holistic Nursing:

Keller (1984)

Quinn (1988)

Quinn (1989b)

Search: Improved Nursing Care Through Research:

Quinn (1986a)

Shape:

Quinn (1992a)
Subtle Energies:
Wirth (1989)
The Theosophical Research Journal:
Croll-Young (1985)

Non-peer-reviewed book appearances (38):

The best way to avoid niggling objections to thesis and methodology is to bypass the refereed journals and go straight to the book-happy public. A few are recognizable buncombe. Some are simply how-to. Usually a reputable editor can overcome all this, but none here had sufficient recognition or methodology to force any of the works into the *SCI*. There are even a couple of videotapes!

Krieger (1979a)
Peper & Ancoli (1977)
Borelli & Heidt (1981)
Beck & Peper (1981)
Borelli (1981a)
Borelli (1981b)
Caleb (1981)
Finnerin (1981)
Gallagher (1981)
Heidt (1981a)
Heidt (1981b)
Jonasen (1981)
Krieger (1981a)
Krieger (1981b)
Lukasiewicz (1981)
Macrae (1981)
Mueller Jackson (1981)
Nagelberg-Gerhard (1981)
Proudfoot (1981)
Upland (1981)
Wolfson (1981)
Barnard, Brown & Brazelton (1984) [not listed separately in Quinn's list]
Connell-Meehan (1984)
Smith (1984)
Weber (1984) [may not be on TT]
Wolfson (1984)
Kunz (1985a)
Krieger (1985)
Lionberger (1986)
Harvey & Wolff (1986)
Krieger, D. (1987a)
Macrae, J. A. (1988)
Carlson & Shield (1989)
Krieger (1989) [may not be on TT]
Quinn (1989e) [may not be on TT]
Boguslawski (1990)
Connell-Meehan (1988)
Connell-Meehan (1990)
Quinn (1992e) [three tapes listed separately in Quinn's list]

Unrefereed articles in newsletters and trade publications (30):

Mostly these are reports which are thinly disguised advocacy of TT as a technique. At best they give only anecdotal support for its efficacy. Some deal with TT's predecessor "modalities." A number are in obscure publications which are difficult to obtain for validation—another favorite tactic of quackery. It should be noted that a half-dozen of the journals here are indexed in *Index Medicus*, but nonetheless the articles remain in this category.

Zefron (1975)
Boguslawski (1978)
Quinn (1979)
Macrae (1979)
Miller (1979)
Curtin (1980)
Sandroff (1980)
Bulbrook (1984b)
Bulbrook (1984c)
Raucheisen (1984)
Simeone (1984)
Witt (1984)
Braun, Layton & Braun (1986)
Doherty & Jackson (1986)
Turton (1986)
Reisser, Reisser & Weldon (1986)
Fink (1987)
Wright (1987)
Leduc (1987)
Wuthnow & Miller (1987)
Husband (1988)
Joiner (1988)
Woods-Smith (1988)
Hamilton-Wyatt & Dimmer (1988)
Leduc (1989)
Payne (1989)
Turton (1989)
Kirby (1990)
Krieger (1988)
Sagar, E. (1990)

Correspondence responding to attacks (2):

Sometimes publication stirs the pot and invites retort and attack. It is legitimate to respond to those attacks, but it is not legitimate to use the exchange to enhance the "count" in a bibliography.

Krieger (1984a)
Quinn (1984e)

Dissertations & theses which are oblique to the topic (6):

Academic work which treats TT as sociological phenomenon, or that does not even at-

tempt a clinical evaluation, does not count as research into the evaluation of the technique as a therapy.

Macrae (1982)
Lionberger (1985)
Ferguson (1986)
Coker (1987)
Hamilton-Wyatt (1988)
Wright (1988)

Reviews, with no original work in them (3):

A paper that merely recounts the “state of the art” does not contribute to the body of scientific literature. Only the *American Journal of Nursing* is indexed by *Index Medicus*.

Krieger, Peper & Ancoli (1979)
Mentgen (1989)
Thayer (1990)

Probable reviews, with no original work (2):

It remains to be confirmed that these are mere surveys, but their titles are universally un-explicit. Such titles invariably characterize a survey. It should also be noted that none of the “journals” here are indexed by *Index Medicus*.

Carr (1990)
Connell-Meehan (1981)

Supportive Dissertations and Theses (5):

This is a potentially legitimate area for locating valid research. This is all that is left of 16 advanced-degree works which appeared in Quinn’s bibliography. The abstracts reveal uniformly small sample sizes and experimental designs that are easily challenged. Half of these are masters’ theses, and both of the two dissertations were done under Krieger; one is Quinn’s own work. The last is over five years old.

Heidt (1979) [listed twice]
Quinn (1982)
Keller (1983)
Guerrero (1985)
Pomerhn (1987)

Possibly authentic research papers (5):

These articles need to be investigated for possible scientific content. The publications are obscure and may not be legitimate refereed journals. It may be significant that the research (if such it be) has been published only in a couple of journals, and that most of it is quite old. None of the appearances are indexed by *Index Medicus*.

Quinn (1984d)

Sherwen (1986)
Quinn & Strelkauskas (1987) [omits mentioning Strelkauskas's co-authorship]
Bolstad (1990)
Harrison (1990)

Genuine research reports (6):

These have been looked at and confirmed as an attempt at genuine research into TT as therapy. However, this is not to say that the research attempt is a particularly good one, that the analysis is correct, or that the conclusions are validly reached. (In fact, all but one has been attacked by others on some grounds.) An evaluation of this body of putative research by a competent authority would be a valuable contribution, itself worthy of publication. Only half of those below appear in *Index Medicus*.

Krieger (1973a)
Krieger (1975a)
Quinn, J. F. (1984a)
Keller & Bzdek (1986)
Heidt, P. R. (1990)
Kramer, N. A. (1990)

Contrarian responses (12):

Unsurprisingly, not many entries in the bibliography are contrarian or skeptical of TT. But annoyingly, those that are listed are not clearly labelled as such, indicating that their inclusion was part of the padding of the bibliography, along with allowing entrée to some of the entries for the proponents. (Without including Clark & Clark (1983), for example, the inclusion of Quinn's own *unpublished* letter in the list would have been unsettling to a reviewer—as it was to me in any event). A couple of these are even by *advocates* (cf. Randolph and Connell-Meehan, and even occasionally Quinn herself), indicating that they are having difficulty developing evidence, yet are still feeling the pressure to publish.

Most disturbing on Quinn's list are the dissertations which attempt, but fail, to confirm the TT hypothesis. From their titles, they sound like they might be supportive, and with no annotation to the contrary, Quinn's list definitely make them appear so.

Walike, Bruno, Donaldson, Erickson, Giblin, Hanson, Mitchell, Sharp, Mahomet, Bolin, Craven & Enloe (1975)
Levine (1979)
Randolph (1980) [appears twice]
Clark & Clark (1984)
Clark (1984)
Fedoruk (1984)
Connell-Meehan (1985)
Parkes (1985)
Hale (1986)
Nodine (1987)
Mueller Hinze (1988)
Quinn (1989b)

Annex C

Governmental Statements

Three governmental statements have been issued in response to skeptical challenges to TT, all in Colorado:

- Recommendations from the State Board of Nursing's Subcommittee to Investigate the Awarding of Continuing Education Units to Nurses for the Study of Therapeutic Touch and Other Non-Traditional Complementary Healing Modalities, issued May 1991. (reprinted in *Rocky Mountain Skeptic*, Nov-Dec 1992, 10(4):3. [also in *ibid.*, Mar-Apr 1993, 10(6):4]).
- Report of University of Colorado Health Sciences Center's Academic Relevance Committee, on the Center for Human Caring, dated 17 November 1993. (reprinted in *Rocky Mountain Skeptic*, Nov-Dec 1993, 11(4):4-8)
- Report on Chancellor's Committee on Therapeutic Touch, University of Colorado Health Sciences Center, dated 6 July 1994.

The following is the full text of each of these. Any emphases displayed are in the originals.

SBN Subcommittee on CEU's for TT

Because Nursing is both a science and an art, nurses require access to and familiarity with many belief systems and knowledge bases, including, but not limited to, the traditional sciences. Nurses conduct scientific research on nursing interventions and phenomenon of concern to nurses, such as pain, suffering, and healing. Nurses also use the insights and experiences gained from studying peoples of other cultures and learning other perspectives to alleviate suffering and promote health and healing, which may lack modern scientific investigation. Always at the heart of nursing practice is the well being of the patient, using approaches which help without causing harm. An openness to all possible approaches to the relief of human suffering and the compassionate, caring use of touch have been the cornerstones of excellent nursing practice since the time of Florence Nightingale.

Based on an increasing volume of research and clinical literature supporting the effectiveness of Therapeutic Touch in the easing of human suffering and the stimulation of healing, the State Board of Nursing of Colorado, like other State Boards of Nursing all over the country, should continue to be an advocate for the public safety and for **patient's rights to access the full range of caring and healing interventions** by continuing to acknowledge continuing education units earned for the study of Therapeutic Touch. Therapeutic Touch, as a nursing intervention, is being taught to nurses through many colleges and universities, and by the National League for Nursing through its continuing education videotape series on Therapeutic Touch. It is completely within the mainstream of modern nursing practice. Moreover, we encourage the Board to continue to acknowledge continuing education efforts undertaken by nurses in related complementary healing modalities, even when scientific investigation of such modalities is incomplete, for two reasons. First, the lay public is becoming increasingly sophisticated in these complementary modalities and nurses should be familiar enough with them to be able to provide adequate information at the request of patients. Second, these modalities can be used as meaningful adjuncts to, and not replacements for, standard medical and nursing care.

We wish to remind all concerned that individual patients always have the right to refuse *any* intervention, medical or nursing, which is not consistent with their values or beliefs. The State Board of Nursing will undoubtedly continue to serve as an advocate and protector of that right.

UCHSC Academic Relevance Committee

The Center for Human Caring was organized in 1986 under the direction of Dr. Jean Watson, then Dean of the School of Nursing. Campus and Presidential approval was obtained and it is stated by Dr. Watson that Regental approval was not needed at that time. The Center does not have a separate non-profit status and operates as an entity within the School of Nursing....

The first Mission Statement in July 1986 listed the central purposes of the Center to be:...5. The development of the Center as a local, regional and national resource for on-going study, research and dissemination of information.

In 1989 the Mission Statement was revised to delineate four essential purposes:...3. To develop and disseminate educational, research and clinical strategies to re-establish the critical balance between techno-cure and human-care within the health care system....

The most recent minutes available to our Committee, from April 23, 1993, note that Dr. Watson felt that the Center for Human Caring could serve as an organizational unit to develop new directions for nursing, such as the development of Centers offering "total care of patients."

...**Activities/Programs**...3. Continuing education courses....14. Therapeutic Touch. An activity that is taught and practiced in a number of Center programs. Discussed below.

...Frequent publications have emanated from the Center members, many of which have appeared in peer reviewed journals....

...**Future Objectives**...2. Implement human caring-healing study programs....4. Create new clinical demonstration models of caring and healing...

...The Academic Relevance Committee has come to the following conclusions, and offers the following recommendations:

...Therapeutic Touch is the most controversial of the Center activities and will be discussed further below. It is important to realize, however, that the Therapeutic Touch activity is not a synonym for the Center for Human Caring. Therapeutic Touch is taught and practiced in a number of the Center programs, such as the Denver Nursing Program in Human Caring, The Summer Postgraduate courses and in graduate programs. In some of these, however, such as the Denver Nursing Program in Human Caring, it is a minor component of the much larger activity.

...6. The Center Directors should realize that they do themselves, their concepts and the School harm by the use of jargon that cannot clearly be understood, and by the espousal

of theoretical constructs which appear devoid of proof. Course titles such as Emerging Ontologies, Developing Resources of the Inner Self-in-Context, and Existential Advocacy: An Ethic of Embodiment do not encourage widespread appeal or understanding. The criticism of Therapeutic Touch has cast suspicion over the entire Center. If it is good therapy, it should be validated and encouraged. If not, it should be terminated. The sense of our Committee is that the scientific basis for Therapeutic Touch has not been validated and that efforts at this Center to do so have been inadequate.

7. Our Committee believes that the following should be done with regard to Therapeutic Touch. The Chancellor and the Dean of the School of Nursing should appoint a special committee of investigators to carefully read the very extensive literature on this subject, to view all the videos and relevant course material, and to witness actual demonstrations of this technique. It should solicit testimony from both critics and advocates. The members of the committee should be investigators well-versed in the scientific method and should come from several disciplines on the Health Sciences Center campus with the exception of the School of Nursing. Nurses should be represented on the committee but it would be appropriate if they came from other nursing schools to avoid the appearance of conflict of interest. Our Committee cannot feasibly take on this time consuming and important task because of our charge to review approximately 35 other Centers on this campus, because two members of the Committee are faculty of the School of Nursing, and because not all members possess the background needed to fairly critique this program. Rather than superficially review this most contentious area, we feel that it should be done once and for all in depth, and in a thorough scientific manner. We believe that a focused committee with this single charge could come up with a useful report in a short time frame. If Therapeutic Touch is not recognized as a bonafide activity with academic relevance, then no further course work should be offered under the aegis of the University.

8. Finally, if and when the administrative relationships of the Center are clarified, the Center mission more focused, a frequent review mechanism established, the role of Therapeutic Touch investigated, and jargon and mysticism eliminated from course work, then seed money for a variety of programs, of which the Denver Nursing Project in Human Caring is the best example, might flow appropriately to the Center. Unless these issues are dealt with, the good ideas with which the Center started may be overlooked in a tide of mounting criticism of unorthodox and unproven or untestable viewpoints and hypotheses.

UCHSC Committee on TT (Claman Report)

On the advice of the Academic Relevance Committee, Chancellor Fulginiti appointed a committee on Therapeutic Touch (referred to as TT). This committee is composed of:

- Robert Freeman, MD, Professor of Psychiatry, UCHSC, Denver, CO.
- David Quissell, PhD, Professor and Chair, Dept. of Basic Sciences & Oral Research, School of Dentistry, UCHSC, Denver, CO.
- Joan Fowler-Shaver, PhD, RN, Professor & Chairperson, Dept. of Physiological Nursing, University of Washington, Seattle, WA.
- Ora Lea Strickland, PhD, Independence Foundation Research Chair and Professor, Nell Hodgson Woodruff School of Nursing, Emory University, Atlanta, GA.
- Henry N. Claman, MD, Distinguished Professor of Medicine and Immunology, UCHSC, Denver, *Chair*.

Dr. Fulginiti asked the TT Committee to consider the role of TT in the curriculum of the Center for Human Caring (CHC), School of Nursing (SON), UCHSC and the rationale for the practice and theory of TT.

The TT Committee, in whole or in part, met with:

- Chancellor Vincent Fulginiti, MD.
- Janet Quinn, PhD, RN, FAAN, Associated Professor of Nursing, CHC, UCHSC.
- Jean Watson, PhD, RN, FAAN, Distinguished Professor of Nursing, CHC, UCHSC.
- Clair E. Martin, PhD, Dean, School of Nursing, UCHSC.
- Representatives of the Rocky Mountain Skeptics and other skeptical members of the public.*

The TT Committee reviewed the set of 3 videotapes featuring Dr. Janet Quinn and produced under the auspices of the National League of Nursing.

The TT Committee held an open meeting in April, 1994; 42 people attended and 14 people spoke about TT.

TT Committee members received letters, telephone calls, reprints, books and brochures from the TT practitioners (SON) as well as from other sources across the US.

* *Editor's note.* The "other skeptical members of the public" were members of the Front Range Skeptics.

The meetings of the TT Committee occurred between January and June, 1994. This report was produced during May and June, 1994.

Introduction

TT is a method that purports to use the hands to help or to heal. It is a derivative of the laying on of hands. In the variety of TT used and taught at the CHC, SON, UCHSC, the practitioners hands do not touch the patient or client. This has been called Non-Contact TT and it is the only form of TT that is considered in this report. TT is practiced by faculty members at the SON, as well as by nurses, physicians and others in the community at large, in Colorado and elsewhere. TT is taught in elective courses at the SON, and students there have written PhD theses which primarily use or investigate TT. Some investigative work on TT has been done at the SON.

It is fair to say that both the theory and the practice of TT are controversial. TT is not a generally accepted healing modality. There is disagreement about its efficacy both within and outside the nursing profession. There are firm believers in the efficacy of TT as it is practiced as well as firm skeptics who question the validity of both the theory and practice of TT. There is a significant but not extensive amount of literature—scientific, lay press, news media, etc.—which describes in detail both support of and non-belief in TT.

In considering as many aspects as time permitted, the TT Committee made the following comments.

A. Academic Freedom

The teaching of Therapeutic Touch (TT) is an academic activity of the School of Nursing that is protected and regulated by Article X of the Laws of the Regents, as outlined in the 1988 Faculty Handbook of the University of Colorado. The Handbook makes clear that the educational aims of the University “can only be achieved in that atmosphere of free inquiry and discussion which has become a tradition of universities and is called academic freedom. For this purpose, academic freedom is defined as the freedom to inquire, discover, publish, and teach truth as the faculty member sees it...” The Regents’ Law thus puts the primary determination of what should be taught onto the individual faculty member. In this case, the decision of several faculty members of the School of Nursing to teach TT is clearly within the academic freedom given by the Regents to University members.

As the choice of what to teach is defined as a freedom, the limitations on this freedom must be narrowly interpreted. In the case of academic freedom, the Regents state that it

is "subject to no control or authority, save the control or authority of the rational methods by which truth is established." This Committee found that the scientific rationale for TT is not established and indeed can be questioned in several areas. However, the Committee also found that the faculty members currently teaching TT have participated in empirical research on TT. Therefore, we conclude that the requirement of control or authority of rational methods has been met by these faculty.

The Faculty Handbook further states that: "The fullest exposure to conflicting opinions is the best insurance against error." The creation of the intellectual setting in which teaching occurs is not the prerogative of an individual faculty member, but it is a responsibility which has been clearly delegated in the Faculty Handbook to departmental chairs (Regent Action 12/20/84, Faculty Handbook, pp. I.22-I.23). The responsibility of the leadership of the School of Nursing to set the teaching of TT within the appropriate scholarly framework, in which the conflict of evidence and opinion is clearly delineated, is described in a subsequent section. A second related duty of the SON faculty stems from the use of TT in the clinical care mission of the School. The SON faculty's duty is to ensure that TT is good clinical care and to fully inform patients of the nature of TT, so that each can make an informed consent to the procedure, is also described in a subsequent section.

A final duty, which the Regents have delegated to the members of the University as a whole, is the duty to protect the scholarly efforts of faculty members from "direct or indirect pressures or interference from within the University, and the University will resist to the utmost such pressures or interference when exerted from without." The Committee recognizes that the University of Colorado is a public institution and, as such, that scholarly and teaching activities of faculty members should be fully disclosed to members of the public, including their Regental and legislative representatives. Furthermore, it is appropriate that Regents, legislators, and members of the general public should freely comment on scholarly and teaching activities of faculty members. However, the protection of academic freedom by the University, as specified by the Regents, requires that the process of public debate not become one of interference or pressure on the scholarly activities of faculty members, to the extent that these activities are protected by academic freedom. Therefore, the creation of special committees to respond to public criticism of activities such as the teaching of TT should not be used as the instrument of interference or pressure. This Committee thus wishes to make explicit that the teaching of TT is protected by the academic freedom set forth by the Regents. Furthermore, the regularly constituted bodies within the School of Nursing that review curriculum content and clinical practice are fully adequate to perform these functions, without interference or pressure from within or without the University.

B. Curriculum Evaluation

Within the academic milieu it is expected that educational programs be evaluated in a

consistent ongoing manner. It is the responsibility of the faculty and program administrators to develop and implement an evaluation plan that informs them and other program audiences about program inputs, processes and outcomes to aid in decision-making regarding the overall effectiveness of the program and its curriculum, the program's policies and procedures, and resource needs and utilization.

The TT Committee has determined that the Chancellor of the UCHSC at Denver has appropriately implemented University-level review of the Center for Human Caring and the members of the TT component of the curriculum. The School of Nursing has implemented appropriate evaluation of the TT component of the nursing curriculum by receiving ongoing evaluations of courses and faculty review of course syllabi. The School of Nursing programs also have been thoroughly reviewed externally by the National League for Nursing and received national accreditation. There is currently no evidence available to indicate that the TT component of the program should be discontinued based on evaluation data. However, when programs are under development or are of a nontraditional nature, it is the responsibility of the faculty and school administrators to implement more intensive evaluation strategies which involve the review of external experts in the field (see Recommendations).

C. Public Representation of Therapeutic Touch

Issue

The representation of TT within the scientific community is fledgling with few sustained programs of research. The majority of support for TT as a nursing therapeutic emanates from clinical efficacy observations by practitioners. Since the scientific basis for this therapy has yet to be substantially developed, it is important that it is being represented appropriately and accurately and that false claims or misleading statements are not made in the marketing and representation of courses of study at the University of Colorado.

Evaluation

The Committee evaluate the brochure, "Therapeutic Touch as the Center for Human Caring." In general, the claims made in the brochure are fair and adequate. Key claims noted include the following:

1. TT is a derivative of the laying on of hands but differs in that a religious context is not part of the representation and it is a skill that can be learned and taught.
2. TT is taught in an estimated 80 colleges and schools of nursing.
3. TT *may* decrease pain, decrease the amount of pain medicine people need, induce profound relaxation, and accelerate wound healing.
4. Our understanding of how and why TT works is incomplete and the underlying theory

of a human energy field remains to be demonstrated using traditional Western science.

5. Attempting to cure disease is not part of the view.
6. Natural processes for healing are stimulated.
7. There is no way to know what specific effects TT will have for an individual.
8. TT complements rather than replaces regular medical and nursing care.
9. There is no preconceived dose (# of treatments) over time and each treatment takes about 10-15 minutes.
10. TT is embedded in clarifying goals for health, exploring meanings of health problems and learning self-care.
11. The process for the therapist is to become calm, enter her/himself with the *intention* to assist healing and perform movements believed to allow interaction with an energy field.

No clearly misleading statements are made in the brochure. However, because of the thin scientific basis for claiming efficacy or mechanism, a rewording for claim #3 above is suggested; e.g., "Although not completely proven, over 20 years of clinical experience and research suggests that in certain contexts, TT might reduce pain and the amount of pain medication, perhaps improve wound healing and very often induce profound relaxation."

Under brochure section "*Can TT cure my disease?*" and in relation to claim #6, since the "natural processes" are unspecified, it is recommended that wording of sentence #2 in this paragraph be something like: "The focus for TT is on healing, defined as stimulating wholeness of body, mind and spirit."

Under the brochure section "*What happens in a TT session?*" and its relation to claim #11, since the mechanism is uncertain, omit the second to last sentence of this section "which we believe allow her to interact with energy field" or substitute with "which promotes healing" or a less specific statement.

A question regarding claim #2 is how or where this is documented; i.e., 80 colleges and schools of nursing. The recommendation is to omit or refer to the proper source.

In sum, this brochure with suggested changes will convey the historical grounding for TT, the tentative research outcomes, and the lack of theoretical substantiation. It will also disavow replacement of conventional therapy, make no promises regarding individual response and generally explain the process. Thereby, the brochure can represent the reality of what is known about the phenomenon and is not deemed to constitute misrepresentation.

D. The Efficacy of Therapeutic Touch

There is disagreement about whether TT is effective. To date, there is not a sufficient body of data, both in quality and quantity, to establish TT as a unique and efficacious healing modality. There are major gaps in the literature regarding the actual efficacy of the practice of non-contact TT as a unique healing modality. This lack of data and consequently the perceived uncertainties of TT's possible unique beneficial attributes in the practice of the healing arts greatly compromise the general acceptance of TT and brings the potential to have a negative effect on the stature and reputation of the School of Nursing. Qualitative judgments and evaluation are not sufficient to document and establish TT as an efficacious therapeutic or healing modality. The development of verifiable data is essential if TT is to be accepted in the health sciences community. If an effect is observable, it can be measured. It is not adequate to state that TT involves mechanisms which exist beyond the five senses and which therefore cannot be proven by ordinary methods. Such comments are a disservice to science and the practice of healing and demonstrate a commitment to metaphysics and the mystical view of life rather than to a scientific or rational view of life. Therefore, it is not surprising that TT is looked upon by many individuals within and outside the community with concern and disbelief. It is inappropriate in the context of a health science center to teach and practice TT for another 20 years in the absence of validation of TT as an efficacious healing modality. As private practitioners are unlikely to undertake controlled studies, it is the academic practitioners of TT who have the obligation and responsibility to the community to critically assess TT. Studies of TT as an empirical phenomenon, if they are to be performed adequately, may require a critical mass of skilled individuals with academic expertise in different areas of both the social, nursing and medical sciences.

From our study and analysis, it has become quite clear that the University of Colorado School of Nursing has a unique opportunity and responsibility to provide to the health sciences community a greater understanding of the actual nature and efficacy of TT. The School of Nursing has established itself as one of the major nursing schools in the country where TT is being practiced and taught as an effective alternative healing modality. TT has become an important academic component of the Center for Human Caring. Nonetheless, the critical evaluation of TT and the establishment of its efficacy as an unique healing modality has not been emphasized to the same extent as its practice and the training of new TT practitioners.

E. The Scientific Basis of Therapeutic Touch

The primary scientific explanation for the possible efficacy of TT is based on the concept of personal energy fields. TT proponents believe that each person is and/or has an energy field which extends beyond the edges of the physical body. This concept can be

found in oriental lore, but TT proponents trace it mainly to Dr. Martha Rogers of NYU. Her metaphor that a person is an energy field has been made concrete by TT practitioners who believe a) that this energy field can be perceived by trained TT practitioners; b) that it is perturbed (or “imbalanced” or “congested”) in people who need healing; c) that practitioners of TT can modify this energy field by passing their hands over the body repeatedly; and d) that such changing of the energy field will promote relaxation, healing and well-being.

Although TT practitioners state that the existence and nature of the [human] energy field is an hypothesis which has not been confirmed in over 20 years, in practice they behave as if the energy field were a perceptible reality.

There is virtually no acceptable scientific evidence concerning the existence or nature of these energy fields. There is no ongoing research on this concept at the Center for Human Caring, nor are there any plans for such research, nor even any ideas about how such research might be conducted. In view of these facts, the Committee believes that assertions about the existence and modification of energy fields as the possible scientific basis of the teaching practice of TT are premature.

F. Summary

In terms of UCHSC School of Nursing faculty teaching, research and practice scholarship incorporating TT, the Committee determined that, in the main, this involves two faculty who have TT as their major scholarship domain and two elective courses within the curriculum of the School. The faculty involved have engaged in some empirically-based research in this domain which, as with virtually all intervention research, can be criticized for its incompleteness and methodological flaws. It was deemed by the Committee that the domain of TT and the teaching and research done by members of the faculty is protected by Article X of the Laws of the Regents of the University of Colorado, guaranteeing faculty the academic freedom to pursue worthy scholarship (see Section A). Further, the faculty with the School of Nursing have subjected this domain of scholarship to the same evaluation process as the remaining domains of the curriculum which was deemed by the Committee in accordance with usual curricular quality control (see Section B). A public document through which potential therapists and recipients are informed of the practice of TT was analyzed and it was determined that no misrepresentations of the phenomenon existed in the document (see Section C).

G. Recommendations

1. *The need for external input.*

As the TT program appears to be operating in settings which are somewhat isolated from other biomedical disciplines, the Committee believes that there is a need for cross-disciplinary input relative to approaches to teaching and research. Many academic programs have standing external review or advisory boards or committees, and this should be considered for TT. In the case of TT, representatives from the social as well as the health sciences should be useful.

2. *Research approaches for TT.*

In the field of TT as a whole, there is an urgent need for:

- a. Information concerning the scientific basis of TT in terms of the existence, nature and modulation of a personal energy field.
- b. Information concerning the efficacy of TT as an adjunct to healing, in comparison to other options such as no treatment or placebo TT or another form of relaxation or biofeedback, etc.

Faculty in the School of Nursing should decide if research in TT is to be part of its widely-promulgated program of TT. This Committee believes that research into the scientific basis and the practical efficacy of TT is highly desirable and that the UCHSC SON is a logical place for this research effort. Proponents of TT need to reach beyond their own practices to develop true interdisciplinary approaches to understanding TT. In such endeavors, it is highly desirable to use, as much as possible, quantitative methods rather than relying heavily on descriptive phenomenology.

In terms of the *underlying scientific basis of TT*, i.e., energy fields, TT proponents need to collaborate with engineers and biophysicians, perhaps with experts in biofeedback, autonomic physiology and electrophysiology to seek empirical validation.

In terms of establishing the *efficacy of TT* as a healing modality according to accepted methods used in other fields, the following items come to mind:

- Approaches to assessment of outcome could be developed in collaboration with the UCHSC Center for Health Services Research. This Center is an acknowledged leader in the field of outcomes research. Such collaboration could aid in the design of studies, in decisions as to which clinical situations should be explored and which control groups might be used (e.g., TT vs. no-treatment, vs. placebo, vs. another relaxation modality, etc.), and which methods of assessment are best.

- If TT is as dramatically helpful in reducing post-traumatic pain and inflammation as is claimed in anecdotal reports, interdisciplinary studies could be carried out in collaboration with:
 - a. UCHSC pain clinics which study chronic pain.
 - b. The Dept. of Obstetrics & Gynecology, which operates a clinic for women with chronic pelvic pain.
 - c. The Dept. of Emergency Medicine and/or the Dept. of Orthopedics for the study of the reduction of post-traumatic pain or inflammation.
- If TT is effective in helping to relieve stress and fatigue, there is an internationally recognized program in Chronic Fatigue Syndrome studies at the National Jewish Center here in Denver, where patients are eager to find relief for their problems.

It is not difficult to think of other collaborative situations in which SON faculty which practice TT could fruitfully interact with other health science disciplines.

3. *Teaching and practice of TT.*

TT is potentially a source of considerable income. Training in TT is not complex and arduous and the practice of TT does not require a large investment in equipment or personnel.

The Chancellor should recommend to the Dean of the School of Nursing that the Faculty of the School of Nursing ensure:

- that the proper type of informed consent be obtained from patients prior to TT, i.e., consent for standard treatment vs. consent for research.
- that TT practice represents good nursing practice. A special concern is that the TT program avoid as much as possible being perceived as a New Age cult procedure.
- that proper academic standards be maintained for courses and degree requirements in the teaching of TT.
- that public representation of TT and their promotion of TT practice in brochures, videotapes, etc., be accurate.
- that adequate formal records of treatment and reimbursements be kept.

With these considerations in mind, the Committee believes that the School of Nursing could establish Therapeutic Touch as a beneficial adjunct treatment to work along with regular medical and nursing care.

Annex D

Development of TT

Hand to Hand Combat

What Happens When a Skeptical Nurse Takes On Pseudo-Nursing?

by Linda Rosa, RN

This article is based upon one that originally appeared in *Skeptic*, 1994, 3(1):40-49. Reprinted with permission. *Skeptic* is published by the Skeptics Society, 2761 N. Marengo Ave., Altadena, CA 91001, (818)794-3119.

Almost thirty years ago, Dora Kunz, an eccentric, self-styled “fifth-generation sensitive” and President of the American Theosophical Society, befriended a doctoral candidate in nursing. A chain of events began then that today has the entire profession of nursing threatened with pseudoscientific bondage.

In the tumultuous sixties, nurses were still the handmaidens of physicians and Western medicine. But after a century of experience, the profession was aspiring to greater legal, academic, and scientific respectability. Academic theorists arrived on the scene to add analysis and structure to the gentle arts of Florence Nightingale, with an emphasis on real science and sound research.

But by a quarter-century later, the picture had changed dramatically. Attempts to find a separate identity resulted in a non-scientific, anti-Western, even mystical agenda achieving ascendancy in Ms. Nightingale’s profession. Today, hand-waving faith-healers are declared to be the “mainstream” of nursing. Hospitals have “Departments of Energy”—though without a single physicist on staff—charged with treating patients as human energy fields. Nursing students color mandalas in class. Theorists believe nurses to be—literally—“healing environments” in which human energy fields (i.e., people) can invoke a “Haelen Effect” to heal themselves. Doctorates in nursing “science” are awarded to candidates with dissertations bearing titles like, “Children’s experience of parental discipline—a picnic spoiled.” Distinguished nursing professors unabashedly declare they have actually seen angels and assert that such phantasms point the way for our figurative angels of mercy. “Curing” is out; “caring” is in. *Homo spatialis* is supplanting *Homo sapiens*. The Force Be With You.

Changing such a state of affairs, given the

pleasant poeries of nonsense, would be arduous at best. But could a lone skeptical nurse reasonably hope to prevail in a struggle to re-establish science and reason within her profession? Would there be (excuse me) a ghost of chance, when the particular battlefield is Boulder, Colorado, which even its denizens describe as “40 square miles surrounded by reality”?

Into the Valley of...

In 1991, I became aware of Dora Kunz’s, and other mystics’, efforts in nursing by perusing course offerings in “continuing education.” State-sanctioned credit (CEUs) was given to nurses for learning (supposedly for professional practice) such pseudosciences as Therapeutic Touch, Neurolinguistic Programming, reflexology, applied kinesiology, crystal healing, and acupressure. For purposes of state relicensure, these were given the same recognition and professional weight as traumatology, advanced cardiac life support, neonatology, etc.

Though none of the New Age “alternative” healing techniques have medical value or scientific backing, they nonetheless had the imprimatur of the State of Colorado. And practitioners enthusiastically cite such governmental recognition in their promotions.

Nursing is a regulated profession, governed in all 50 states by the “Nurse Practice Act.” The law states that professional nurses must demonstrate “specialized knowledge, judgment, and skill involving the application of principles of biological, physical, social, and behavioral sciences...” (emphasis added). So when the regulatory body, the State Board of Nursing (SBN), says that a continuing-education activity is sufficient for maintaining professional competency, the implication is clear: approved

courses have a sound *scientific* basis, as well as a valid relationship to the medical arts. State approval, then, gives many pseudoscientists a backdoor claim to scientific respectability. If a nurse can maintain her government license by learning and practicing this stuff, then the natural conclusion is that this must be scientifically valid stuff.

Alarmed, I decided to take action, little knowing what action was needed or where it would lead. As a skeptic, I naturally turned to those who might best understand my concerns—other skeptics. Particularly concerned with the advancement of scientific and critical thinking, Skeptics are scientists, magicians, and other intellectually curious people who are focus on pseudoscience, proto-science, non-science, anti-science, paranormal, magic, and superstition. Debunking allegedly scientific claims of practitioners in these areas is an occasional activity of skeptics; investigation and confrontation are a hallmark. It is well that I started with people outside the profession, because as I was to learn, nursing had already been captured—at least in Colorado—by an unreasoning, touchy-feely crowd.

By early 1992, we were ready to present my concerns publicly. Confronting Colorado's SBN with evidence of a long list of pseudoscientific and pseudomedical practices being taught to nurses for CEUs, I and my skeptical friends demanded an accounting as citizens. They replied that they'd "study" it and get back to us. Then they went into a four-month huddle with the pseudo-nursing crowd at the School of Nursing at the University of Colorado (CU) and several Denver-area hospitals (which together constitute the nursing "establishment" in Colorado).

When they broke their huddle, they sent a letter ignoring our generalized concern about CEUs for pseudoscientific practices. Plucking just one of them out of our list of examples, they declared Therapeutic Touch (TT) to be in the "mainstream of nursing" substantiated, in their words, by "an increasing volume of research and clinical literature." We had walked into it.

The New Age-establishmentarians chose to narrow the battleground to TT because they were supremely confident they could win the whole battle there. This strange form of faith-healing, involving hand-waving and metaphysical prattlings, was the best, if not only, hope of showing that skeptics didn't know what they were talking about. By discrediting critics on just one paranormal practice, they planned to save all the others. Moreover, it just so happen-

ed that some leading national proponents of TT were academics at CU. They convinced themselves that TT's acceptance within some nursing schools would allow them to re-cast their opponents as anti-nurse, sexist, uncaring, prejudiced, ignorant, and more than a little wacko. A neat trick, actually, given the genesis of their underlying beliefs.

The Hungarian Camel

Therapeutic Touch is quintessential New-Age quackery. It is little more than a latter-day form of faith healing, but with Western religious constructs supplanted by oriental mysticism, and overlaid with veneers of academic mumbo-jumbo and extremely poor scientific and clinical research. There is little reason for it to have become the leading New-Age "healing intervention," save for a serendipitous history.

Dora Kunz was an American, born and raised in Java and convinced that she had been a clairvoyant since birth. Moving to the US, in the sixties she found America in the clutches of the baby boomer's Age of Aquarius, ready to embrace mysticism in almost any form (but especially oriental). She was enamored herself of a Hungarian who claimed to have spectacular healing power through the ancient practice of the "laying on of hands." Technically, Oskar Estabany (who claimed to be a colonel in the non-existent Hungarian cavalry) was not a "faith healer" in that he supposedly assigned no divine source for his abilities.

As in traditional faith healing, Estabany placed his hands on afflicted parts of a body. "Healing" did not automatically take place, but seemed to occur only when he lay on his hands with an "intention" of helping. This approach seemed substantively different to Kunz than the usual pious motivity, with "intentionality" replacing "god." And it had the unusual twist of requiring only the *practitioner* to believe or intend that healing take place, apparently banning possible placebo explanations.

Kunz had befriended Dolores Krieger, a registered nurse soon to be on the faculty of New York University's School of Nursing. Fresh from her own dissertation work, Krieger assisted in Kunz's "scientific" studies of Estabany's powers. For five years, that's what the two of them purported to do. Over time, Krieger's Ph.D. and academic access put her in the lead. Their initial work produced nothing publishable. But eventually, they believed they hit on a measurable effect—elevated hemoglobin

levels in the blood. Such an increase in the presence of Estabany's touch would, they asserted, indicate the presence both of a real effect and of a possible explanation for the healing mechanism.

In 1972, they published in the premier issue of an obscure journal with a metaphysical bent. The paper was not a success in that it caused no big stir. The hemoglobin effect was observed and measured, but the sample sizes were small, the experimental paradigm and choice of statistical tools were questionable, and they made a bizarre comparison between "oxygen uptake" and chlorophyll (which made some wonder about Dr. Krieger—as the paper's nominal author—and her understanding of physiology).

A year later, a slight re-work of the experiment was presented as a paper before a nursing research conference. This time, the sample sizes were larger, though serious methodological and statistical problems remained. (Bizarrely, Krieger later rationalized these as "having done the best with the limited knowledge at the time," as if science and medicine were in the Dark Ages in the 1970's.) This time there was a reaction. Krieger was ready with a defense on metaphysical grounds, putting forward grand mechanism: the healer was transferring *prana* (Hindu life-force) to the sufferer. The weird comparison of hemoglobin to chlorophyll was still there, but it was overshadowed by the assertion of a transference of life-force as the underlying effective mechanism.

Although the paper appeared nowhere else outside the proceedings for the conference, it was a turning point for nursing. Just presenting a paper at a respectable scientific conference was enough for Krieger. She had not one scintilla of scientific evidence for her prattle about prana, but she knew it had to be challenged to be dismissed. It wasn't challenged, so it wasn't dismissed. The camel's nose was inside the nurses' tent.

You're in Good Hands

Dr. Krieger needed little more than one quasi-scientific study and her faculty position at NYU to set the transformation of nursing into motion.

Declaring that any human being—or certainly any nurse—could do what Estabany was observed to do, Krieger set about to practice laying-on-of-hands herself. Her first patient was a woman said to be dying from a gall bladder condition (or from a broken neck, the story

varies). The woman—who afterwards became Krieger's housemate—was cured (or substantially relieved from pain, that part of the story also varies).

Krieger also set out to teach this new skill to others in a formal course at NYU. Almost immediately it came to the attention of the tabloid press. When a *National Enquirer* headline proclaimed, "America's largest school of nursing teaches psychic healing," there was a moment's hesitation at NYU. Academics don't take kindly to being snickered at. But Krieger managed to finesse the curriculum committee and TT survived. Presumably she did so under cover of "academic freedom," the principle whereby faculty members can teach truth as they see it without interference. If so, it would be just the first time academic freedom would be used to save TT from extinction.

It was a close enough call, though, for Krieger to realize the importance of public relations. She spent the rest of her career making TT "respectable."

First, the term "laying-on-of-hands" had to go, because such a description was "given little credence in modern technological society." She adopted the name *Therapeutic Touch* "simply because the term appears to be more acceptable to curriculum committees and other institutional bulwarks of today's society."

Next, Krieger wrapped up her original research. She reported her hemoglobin work in the then unrefereed *American Journal of Nursing*. It prompted a dozen nursing professors to sign a letter criticizing her for an "article which lacks scientific accuracy and detail" and the *Journal* for "embellish[ing] a totally unscientific process with the aura of science..." Krieger brushed off the criticism, and went on to publish a more "formal" paper in the initial issue of a British pseudo-journal. She was never to publish again, at least not peer-reviewed research.* Her focus changed to teaching/promoting TT at NYU and elsewhere.

The hemoglobin hypotheses were a dead-end for TT. Krieger never did satisfactorily demonstrate them. The critics of her experiments were never adequately answered. In short, they were scientific and research failures. Yet to this day, proponents of TT can be found citing these studies as part of their proof that TT works.

* Krieger did get a research grant to study the effects of TT during childbirth. However, a formal report on it has never surfaced in the literature, though Krieger did make a nominal report on it as an appendix to one of her books on TT. It was never disclosed in a reputable refereed or peer-reviewed journal, however.

The Force Be With You

Professionally, Krieger was able to shift from research to proselytization by her third and cleverest tactical move. She changed underlying mechanism for TT from Hindu *prana* to “human energy fields,” currying the favor of NYU Dean of Nursing—and grand nursing theorist—Martha Rogers.

In 1970, just as Krieger was arriving at NYU, Rogers was bursting upon the nursing scene with her *Science-Based Nursing and Science of Unitary Man* (later retitled a politically correct *Science of Unitary Human Beings*). In spite of the ubiquitous use of the term science, though, there is little recognizably scientific in Rogers’s “grand theories.” (One wonders, for example, what Karl Popper would think of her descriptions of “testability.”) Rogers saw few bounds on the role or place for nurses, and even spoke excitedly of nursing in outer space, since it was obvious to her that mankind was evolving from *Homo sapiens* to *Homo spatialis*.

Most of Rogers’s influence was felt in her notion of human beings as energy fields. With her companion notions that everything outside an individual constitutes an “environmental” energy field, and that the two fields (human and environmental) are in continual interaction, she was able to postulate a theory of illness that transcended traditional Western medical models. Health became a matter of “balance” or easy flow of energy in and between these fields; illness (or “dis-ease”) is a matter of imbalance or “congestion” in the fields. It is significant that: (1) there is no identification of the “energy” in these fields, and the description of the effects bears no resemblance to that of forms of energy discovered by the physical sciences; (2) her notion of “fields” seems to be a semantic shift of the term as used by mathematicians and theoretical physicists; and (3) the whole theory seems to have been developed without any prior empirical suggestion, meaning that nothing observed in either laboratory or clinic would lead one to suggest that such a scheme of things is real.

In actuality, Rogers’s theory is little more than a Westernized restatement of the ancient Chinese notion of *Qi* (pronounced “chee”), which itself is analogous to the Hindu *prana*, i.e., a life-force. With Rogers, the life-force becomes synonymous with energy, the latter unknown to either the Hindus or the ancient Chinese. (In physics, “force” and “energy” are very different things.)

One telling criticism of her theory is that it

is amorphous and ill-defined, with no clinical application. That alone should have doomed it to a footnote in nursing history, except that Krieger and TT came along to salvage it. Rogers’s energy fields returned the favor for Krieger and TT. Krieger adopted Rogers as the theoretical underpinning for TT’s alleged efficacy. In return, Rogers acknowledged TT as a clinical application of human energy fields.

Metaphorically, nurse-practitioners of TT became sort of Jedi Knights. They could “feel” the Force move within them. Through their hands, they could reach out with their feelings and sense “differences” in the Force in others. With deliberate intention they could direct the Force for healing and the relief of suffering. Except the Force is really an energy field; Krieger effectively declares there is no Dark Side; and according to Rogers, we all are destined for outer space to boot.

And nursing is along for the ride.

Touchy Feely Without the Touchy

The fusion of TT and “Rogerian Science” led irresistibly to the next significant development: the abandonment of *touch* itself.

Up to this point, TT could have been called “palm therapy.” The hands of the therapist were passed lightly over the skin of the patient, allegedly transferring energy and stimulating healing. Only one non-Krieger paper, actually a 1979 dissertation (at NYU, naturally), reported any statistically significant effect by this procedure, in this case the reduction of anxiety in hospitalized patients. In spite of massive flaws and extraordinarily small samples (a hallmark of TT research), proponents latched onto it as clinching evidence for TT’s efficacy. Even if it had been, an alternative mechanism could easily be the placebo-like soothing effects of actual human-to-human, skin-to-skin contact.

As long as actual physical contact remained, however, there would always be unresolvable debate over the true mechanism for any observable effects. Rogers’s theory, though, suggested that touch was totally unnecessary. A human energy field extends beyond the physical body and a TT practitioner need not come into actual contact with the body to interact with the field. Hence, it was both a political necessity and a theoretical possibility to do away with the *touch* in Therapeutic Touch. So of course, that is exactly what was done.

In 1982, another of “Krieger’s Krazies” was awarded a doctorate from NYU. Janet

Quinn, a burnt-out ICU nurse who had re-entered academia looking for something spiritual in nursing, wrote a dissertation replicating the 1979 study of TT (including the same methodological flaws—but with even smaller sample sizes[!]). This time, though, an additional group of subjects got *non-contact* TT. Lo and behold, the responses of the non-contact group were statistically the same as those of the full-contact group! So convincing and astounding was this result, that this one dissertation alone allowed the entire TT community immediately abandon touch forever in their practices. Never mind that the results could have been interpreted as that both full-contact and non-contact TT are equally *worthless*. Never mind that the study has never been replicated. Never mind that the only peer review of the study was by the nursing faculty at NYU, which had a vested interest in the outcome.

Unshackled from any lingering self-doubts, TT practitioners moved out into the country. They now knew TT to be clearly non-invasive and *safe* (how could it be otherwise when nobody even touches anybody). It had the language of caring and concern; nurses could finally heal their long-suffering charges (Western medicine being so spectacularly unsuccessful, you see). Why, not even a doctor's permission is necessary for something so benign and beneficial. Krieger's workshops took off. Books by her and her acolytes were published and uncritically accepted into medical libraries. The practice was introduced into nursing (usually *graduate*) curricula around the country, particularly at schools where NYU grads happened into the faculties. TT entered the continuing-education programs at many hospitals, even into their policies-and-procedures books. Like a virus vectoring into a vulnerable population, TT began to infect the whole of American nursing.

It spread more in spite of the research that followed Quinn's questionable study, than because of it. As studies got better methodologically, the more elusive the evidence for TT became. In spite of numerous public claims that TT "works," no reliable study has ever given any convincing evidence that any of the claims for it are true. In fact, the number of unconfirming studies has mounted to the point that collectively they could be considered *disproof* of the TT hypothesis.* Yet many nurses unwaveringly

believe in TT.

One reason for this uncritical acceptance is the name, "Therapeutic Touch." In spite of the facts that the procedure no longer involved any touch at all and that there was no clinical evidence to support any claims of therapeutic value, the practitioners nevertheless chose to continue to use its old moniker. For obvious reasons, it was valuable to retain a name that invokes images of tender, loving care by a trained nurse who should know what's best. It was also tactically useful to confuse listeners with a semantic shift, first talking about the therapeutic value of soothing human touch—which rings true with most people—then segueing into TT without even a hint of a difference.

To Care or to Cure...

A viral exposure does not result in epidemic infection unless a population is *vulnerable*. Nursing was and is vulnerable to TT because of four factors intrinsic to the profession. In the analysis of Susan Williams, these factors are: (1) belief in nursing's unique "caring" role; (2) nursing's historical orientation toward promoting "wellness"; (3) a professional concern for distinguishing nursing from medicine; and (4) many nurses' lack of the necessary knowledge and skills to evaluate scientific research. All played their role, but the false dichotomy of "caring" versus "curing" provided the final impetus for TT to infect the nursing host.

As it had done with Rogers a decade before, TT promoted itself by latching onto another nursing theorist, this time Dr. Jean Watson of the University of Colorado.

Watson had made a name for herself by seizing upon the ill-defined belief in the "caring" role of nurses and giving it academic structure if not rigor. She made it the philosophical basis for, even the *raison d'être* of, all nursing practice. What before Watson had been an empathic need for many (mostly) women to enter a field where they could comfort the afflicted, had become the moral imperative for a profession with an inferiority complex. Nurses were to give up the attempt to become more like medicine; it was unworthy of them. Cold, intellectual, mechanistic, reductionist, objectivist, occi-

* A recent survey of the literature showed some 41 research reports, seven of which were too obscurely published to be obtained. Four were oblique to TT as an intervention. Thirteen (32%) failed to confirm a TT hypothesis. Three were self-described as "quasi-experimental". Of the remaining six, only one was an

attempt at a double-blind experiment, and it was not reported in a peer-reviewed journal; it and the remaining five have been attacked on methodological and/or statistical grounds.

dental, amoral, *masculine* medicine is concerned only with curing and cheating death. By contrast, earthy, feeling, empathic, holistic, spiritual, oriental, moralistic, *feminine* nursing is concerned with caring and becoming immortal (by being one with the universe, or at least with the earth mother). “[H]uman caring processes in nursing require a special way of being,” declares Dr. Watson, “... what is needed is subordination of knowledge, meaning and technique to morals and a way of being as a caring professional—in other words, from *doing* to *being*...” (Gerunds are big with this crowd.)

Though Watson’s outlook is almost totally anti-science and anti-Western, the National League of Nursing (NLN) decided that she, as a nursing theorist, nevertheless deserved their Martha Rogers Award for the advancement of *science*-based nursing.

As Dean of the Nursing School at the University of Colorado (CU), Watson shifted the focus of that school to “acknowledge the act of caring as a moral ideal and incorporate philosophical theories of human caring, health, and healing into our curricula.” That done, she formed the quasi-independent “Center for Human Caring” and quickly stepped down as Dean to become its full-time director. In a speech as a newly designated “distinguished professor” at CU, she declared war on “reductionist” science:

“...this seminar is part of the universe turning, ushering in one of the seasonal ancient calendar revolutions...appeasing the gods and goddesses of the universe...this leave-taking from the Age of Pisces, after 2,000 years of the Mayan calendar, takes us away from the destruction, the violence, the technological, industrialized war, and power into spirit-filled life, creativity, and nurturing-period cosmology...commercial and machine entropy are being scattered to the universe and being replaced by guardians, angels in fact, of esthetic, mystic and spiritual unification, of human and planetary evolution.”

(How’s that again?)

The National League of Nursing promptly elected her President, a post she currently holds.

Dr. Quinn, Healing Woman

In spite of the appeals to the “gods and goddesses of the universe,” the Theory and Center for Human Caring initially had problems making headway into nursing at large. Partly, this was because the theory had little appeal except to those nursing students with an anti-intellectual, feminist angst toward the modern world. Partly, it was because it offered little more than sophistry to the suffering public who would be

their clients.

TT’s arrival at the Center for Human Caring came in the person of Janet Quinn, who after a stint in South Carolina after NYU, landed a job on the faculty at CU. She fit right in.

Like Rogers’s theory before it, Watson’s Theory of Human Caring had its research problems. In the latter case, there is something inherently untestable about a theory that denies the applicability of science, kind of like trying to prove logically the invalidity of logic. CU researchers stumbled onto a clever way of doing research anyway by abandoning “quantitative” science and adopting instead “qualitative” methods, particularly Husserlian phenomenology. Phenomenology is intended for the social sciences, where there are insurmountable difficulties in isolating single causes in experimentation, and where there are ethical (or legal) problems associated with direct testing. (For instance, if you have a theory on the causation of war, do you go out and start one to test it?)

For TT and Human Caring both, phenomenology was a godsend (so to speak). The subjectivity, humanism, holism, and above all *fuzziness*, of phenomenological research are useful to both. But how phenomenology, sometimes called the “science of examples,” raises anecdotal evidence to a level of philosophical respectability is precisely what TT in particular needed. TT thrives on anecdote.

Many doctoral dissertations and master’s theses from CU’s School of Nursing during Watson’s tenure as Dean were phenomenological (easily identified by the phrase “lived experience” in the titles). After Quinn’s arrival at CU, nearly all supportive research into TT nationwide went qualitative rather than quantitative. Quinn herself abandoned quantitative research after several failed attempts to collect evidence for human energy fields. Instead, she turned to case studies, “pilot” studies, and explications of her notion of a “Haelen Effect” (the last essentially an Anglo-Saxon linguistic play on “healing”).

Quinn’s arrival also moved the Center for Human Caring from the theoretical to the applied. TT quickly became the centerpiece of the Center’s offerings. Over time, Quinn conjured up a few derivative offerings, such as Holotropic Breathwork, but TT was set at the heart of Human Caring. Its applied oriental mysticism gave practical cover to the Center and to Watson’s theory. That cover was sorely needed in what is essentially a medical school that prides itself on research (with more than its share of NIH grants).

For their part, Watson and the Center had

their effect on Quinn, too. In addition to bending her toward qualitative analysis and Haelen effects, she went to visit Australian aborigines and wonder at their senses of "place" and "belonging," and took on board Watson's Caring agenda ("... if we are to create a true health care system, the feminine principle must be permitted to reemerge....Nurses must claim that which we have always done and demand the space in which to do it.") Rogers's environmental energy field became Quinn's "nurse as healing environment." Nurse burn-out, the source of Quinn's own epiphany, was to be a thing of the past.

With Quinn's enthusiasm, Watson's agenda, Rogers's "science," Krieger's pulpit, and CU's imprimatur, TT became the centerpiece of the entire holistic/mystic/anti-intellectual movement that was beginning to grip all of nursing. Colorado's Nursing Board was, unfortunately, right to call it in the "mainstream." Because of proximity, TT spread throughout CU and the Denver-Boulder metroplex. It entered CU's graduate and undergraduate curricula. Nurses everywhere 'round about were practicing this "alternative healing modality." Policies-and-procedures were being modified in many local hospitals to permit use of TT. At least two local hospitals were so taken with the whole thing that they created "Departments of Energy," and smugly declared, "This is not mysticism; this is quantum physics." A Quinn/Watson colleague at CU became President of the State Board of Nursing, and TT—along with many other alternative modalities—became acceptable for continuing-ed credit, offered promptly by many hospitals and for-profit purveyors.

Cranky Science

The TT virus became pandemic in the early nineties. The NLN became TT-positive: Watson got the President's chair, it produced videotapes on TT, and plans gelled to *re-quire* TT in nursing curricula around the country. It was vectoring internationally, too: Krieger had spread TT to eighty schools of nursing in a dozen countries; Watson was setting up branches of her Center in Scotland, Australia, and the Far East; Quinn had tenure at CU and was touring abroad teaching TT and learning about nursing from Australian aborigines and native healers. CU was prominently displayed in a BBC documentary on TT—as a "leading research university studying" the intervention. Holistic medicine and nursing, wellness, caring, and general good vibes were everywhere.

Then the cranks started showing up.

First, it was a few "Christian" nurses, complaining about New Age practices. But they were easy to shut up—just label them Christian Right, and make them feel guilty about attacking "spirituality" in the profession.

Next, it was a few curmudgeonly academics. They were easy to take care of, too: rattle the NLN saber (who did the curriculum certifications around the country?), dazzle them with qualitative research, accuse them of professional jealousy, declare their time was past, or give them pause to be self-conscious about their own research.

Then there were the quack-hunters. They could be easily dismissed as mouthpieces for the oppressive, male, medical establishment.

Finally, there were the skeptics. They should have been *real* easy: obvious cranks, no credentials, anti-nurse, no financial resources, no broad constituency. But somehow with this last group, it didn't go as it should.

When skeptics first showed up in front of Colorado's nursing board, with a nurse (me) leading the way, it was obvious that *ad hominem* attacks weren't going to work. An official declaration that TT was mainstream, along with vague references to "volumes" of research, should have been sufficient to shut down the challenge. It wasn't. Proponents were totally unprepared when skeptics returned with a request that in effect said, "We've been waiting for someone to come forward with real evidence of paranormal effects; so what's this 'evidence' you're talking about?" It was several months, in fact, before they were able to respond with a "reading list" prepared by Janet Quinn.

The sheer size of Quinn's list was obviously intended to impress or intimidate. There were over 200 items on it, but it was obviously padded. For example, Quinn's own 5-part videotape on TT was included, with each part a separate entry in the list. To be sure, there was a nearly comprehensive listing of the actual TT research appearing in the literature, including some that was unsupportive, but there was no indication which was which, and in fact, the list made it appear that everything on it was uncritically favorable. There were also references to *People* magazine, *McCall's*, and others in the popular press, hardly of academic merit. There were paranormal books and articles (some oblique to the topic), and a host of pieces in nursing trade publications. Far from being impressed, the skeptics had the bad form to *read* the list. They even went so far as to produce a bar chart showing how much "fluff" the list contained (a majority), and how much acceptable supporting

research was there (none). And they had the additional bad form to insist upon a rehearing before the SBN, claiming its endorsement of TT was predicated on false, fallacious, and insubstantial grounds.

Exit Science, Enter Politics

In spite of the rhetoric about science and research, the battle had become overtly political, as it had been, covertly, all along. The question on the table was whether TT was valid; and it was to be decided as a political matter, not as a scientific issue. Both sides prepared intensely for the next SBN meeting.

The proponents cranked up their Old Girl Network to pressure Board members. A letter-writing campaign drew testimonials and support for TT from around the country. Local TT practitioners packed the meeting room.

For their part, skeptics were prepared this time as they had not been a year before. They had their chart of Quinn's list, along with a detailed analysis of the works cited on it (plus a long addendum of citations she had *not* included). More valuably, they had enrolled one of their own in a TT course and he was ready to report to the Board what he had found. Plus, they primed the local press, and one local TV station aired a two-part skeptical series about TT on evening newscasts immediately preceding the Board meeting.

The day was clearly going to be the skeptics'. At the meeting, a skeptical polemic was read detailing the Board's responsibility to protect the public, and to do that by judging things scientifically. The chart and analysis of Quinn's list were presented. Next, with TV news cameras rolling, the undercover skeptic demonstrated what he had learned: "centering" himself; drawing his hands 2-6 inches over a subject, feeling "differences" in the energy field; flicking off "excess" energy from his fingers, "fluffing" the aura, and "smoothing" the field; showing off a pad of raw cotton, into which he could store "sky energy" for later therapeutic use. In a dramatic conclusion, he recounted how the TT teacher responded to some students who had difficulty detecting the energy field, by advising them to heed a pithy saying posted on her own refrigerator. He then held high a sign upon which was, writ large, her sage advice: **"Fake It 'Til You Make It!"**

The Board was clearly stunned. With TV cameras still whirring, they fumbled around, eventually allowing their legal counsel to question whether the course being discussed was tru-

ly certified for nursing continuing education. (It was—unquestionably.) And besides, it might be a fluke, an aberration of a single practitioner. Seizing on the legal quibble, the Board quickly voted to postpone any further consideration to their next meeting in two months, so a staff investigation and report could be made. The TV cameras packed up and left. The skeptics had apparently won the day.

But it ain't over 'til it's over. No sooner had the TV crew departed—and the skeptics contingent was out in the hall being interviewed by the print media—the Board voted to reconsider its postponement. Without the glare of the klieg lights, Board members related how they had personally "seen TT work," and how they had academic assurances from CU that all was well on the scientific front for TT. With that, they hurriedly voted (with a single dissenter, who wanted to stick by the delay) to reaffirm their prior support. The skeptics' victory turned to ash.

TT proponents crowed about it afterwards. Not mentioning how, or on what grounds, it was accomplished, they gleefully used their second victory as a badge of authenticity for TT...the very thing skeptics had objected to at the beginning. The proponents' PR machine cranked up. Columnists in the Boulder press attacked the skeptics unmercifully and called for end to their "hectoring" over a now-accepted, valuable therapy. Things seemed worse than ever, with no apparent place left to go.

But one of the skeptics had a political card of his own up his sleeve and he played it. He presented the controversy to a state senator who was a close political ally. As a conservative (even Christian Right) politician, the senator was appalled. But what could he do about it? Plenty. As it turned out, three of the SBN members were up for reappointment, and had to be confirmed by the senate. Exercising senatorial privilege as a majority member, the senator held up the confirmations for an unprecedented month, while the Senate's committee on health matters looked into the charges, and the skeptics testified about them. Ultimately, the reappointments still went through, but the committee chairman was startled by what she heard and extracted a promise from the Board that they would act more responsibly in the future, specifically being more careful about approving "alternative healing modalities" with no scientific basis.

The SBN was now on notice. Since the entire Board was to be considered in a "sunset" review in a year's time, they had to be on their best behavior. Accordingly, when the whole

Board heard out a Reiki “master” who wanted his techniques (similar to TT’s) approved for continuing-education credit for nurses, this time the Board *disapproved*. And the process, if not their decision, bothered them. They couldn’t spend their time doing this for *every* wacky thing that comes along. So in short order, and with a Canadian study at the ready to show no correlation between professional competence and continuing education, they ended altogether the mandatory requirements for continuing-ed for nurses.

It was a victory for skepticism. Originally, this was all that was sought: that this regulatory body no longer be a tool for the legitimization and promotion of pseudoscientific practices. That the Board did so without conceding the skeptical point left some skeptics uncomfortable, but the decision was not illegitimately reasoned. If a court decides a case in your favor without reasoning in just the way you would have done so, you don’t hector the judges for a “better” decision.

But pseudoscientists are nothing if not agile. While they may have lost being able to say, “CEUs approved for nurses,” in their advertising, they lost no time in advertising their courses as “approved and regulated by the Division of Continuing Education, Colorado Department of Education.” *C’est la guerre*.

The Belly of the Beast

The SBN affair revealed that the center of the infection was the University of Colorado School of Nursing. Obviously, CU had not been practicing safe science. So skeptics took the battle there.

The case skeptics had to make was simple enough. CU is a public institution, governed by a public board and funded with tax money. The medical school is charged with research and teaching in the health *sciences*. TT is not demonstrably scientific, and giving academic credit for it (especially *graduate* credit) seems irresponsible. Watson’s Center for Human Caring in addition is patently *anti-science* and its presence seems antithetical to the school’s mission; to the extent the Center has graduated from mysticism to New-Age religiosity, it has also passed over a line for a tax-supported institution. Moreover, CU’s reputation in academics and research might be sullied if the school remains closely associated with TT and Human Caring.

We skeptics took our argument right to the top at CU—the Board of Regents. As it so hap-

pened, several skeptics were personally acquainted with four of the nine-member Board. Political networking gave us access to a fifth, and a probable working majority on the issue.

So, no sooner had a new Chancellor for the medical campus walked into his office, then he was faced with a torrent of regential concern about the School of Nursing. Immediately, he commanded a campus-wide review of the “academic relevance” of all schools, departments, and allied centers. He conspicuously moved the Center for Human Caring—and implicitly TT—to the front of the queue. He wanted it resolved, and fast.

Skeptics tried to be heard by the resulting Academic Relevance Committee, but the committee would have none of it. This was an internal matter in their view, and they would brook no “outside interference.” The smell of cover-up was in the air, but there was little to do but wait and keep our options open with the regents. When the committee’s report was issued, it whitewashed the Center as feared, but to head off criticism from the Regents, it took an unprecedented additional step. It recommended that a blue-ribbon panel be convened to consider the scientific credibility of TT. If that panel concluded that TT has a sufficient scientific basis, then TT could continue in the curriculum; if its conclusion was otherwise, TT was *not* to be taught or promoted at CU! The regents adopted the suggestion completely, stressing to the chancellor that skeptics in particular were to be heard out.

The resulting five-member group consisted of three CU faculty members outside the School of Nursing, and two nursing professors from outside CU. It was chaired by Dr. Henry Claman, a distinguished professor and chairman of the department of immunology at CU. To no one’s memory has there ever been such a scientific jury convened to sit in judgment of a pseudoscience, so there were no guidelines for its conduct. They set their own ground rules and agenda, hearing from skeptics and faculty members alike. They even held a public hearing where a large number of nurse practitioners of TT, and others, bore witness.

Skeptics showed the panel that the science was absent. A CU professor of physics warned against “quantum medicine,” explaining the fallacy of extrapolating quantum theory from the sub-atomic world to the human body. A professor of physiology complained that the theory and practice of TT were embarrassing for all of medicine.

The skeptics’ centerpiece was a 90-page report on all known (or alleged) scientific work.

Some 71 papers were abstracted and critiqued, with the conclusion:

One thing leaps out in surveying these papers. The more rigorous the research design, the more detailed the statistical analysis, the less evidence there is that there is any observed—or observable—phenomenon here....The skeptic's first question is always: where's the evidence? In the case of TT, it's not here!

The report showed how the evidence was wanting in all the areas of efficacy claimed for TT that had received any attention: metabolic change, hematology, analgesia, relaxation, effects on practitioners, and muscle tone. It also warned the panel to beware of a number of other claims for TT which had *not* been researched, namely that: physiological change occurs through "electron transfer resonance," TT is an effective therapy for the dying, there is no correlation with a placebo effect, it promotes healing of bone fractures, recipients of TT want to become healers themselves, it is a valuable basis for support groups (in multiple sclerosis, arthritis, Raynaud's disease, and cancer), it gives relief for the elderly, children and infants are more sensitive to it, nurses using it feel a sense of well-being, it promotes a more healthful lifestyle for practitioners, it can assist parents to bond with and heal their infants, TT-practicing nurses are better in tune with their patients, it can be used safely by lay-people, practitioners are sick less often and recover from illness faster, it works on many different kinds of cancer, and finally TT shows the interconnectedness of all life.

The Mother of All Political Correctness

By any objective standard, the skeptics had done what they set out to do: demolish the supposed scientific underpinnings for TT. When the Claman Report was released, the verdict on the science was unmistakable:

To date, there is not a sufficient body of data, both in quality and quantity, to establish TT as a unique and efficacious healing modality...This lack of data and consequently the perceived uncertainties...brings the potential to have a negative effect on the stature and reputation of the School of Nursing. Qualitative judgments and evaluation are not sufficient to document and establish TT as an efficacious therapeutic or healing modality....If an effect is observable, it can be measured. It is not adequate to state that TT involves mechanisms which exist beyond the five senses and which therefore cannot be proven by ordinary methods. Such com-

ments are a disservice to science and the practice of healing and demonstrate a commitment to metaphysics and the mystical view of life....It is inappropriate in the context of a health science center to teach and practice TT for another 20 years in the absence of validation of TT as an efficacious healing modality.

Although TT practitioners state that the existence and nature of the [human] energy field is an hypothesis which has not been confirmed in over 20 years, in practice they behave as if the energy field were a perceptible reality. There is virtually no acceptable scientific evidence concerning the existence or nature of these energy fields. There is no ongoing research on this concept at the Center for Human Caring, nor are there any plans for such research, nor even any ideas about how such research might be conducted.

The entire veneer of respectability for TT had been stripped away. The committee had found that there was no scientific basis for TT. Under the rules of the game, then, TT was to be discontinued as in the curriculum at CU. Yet, that's not what happened.

Watson, Quinn, and the other defenders of TT had changed the subject. While we were making our showings about the science, TT's defenders were drawing up the issues upon which the matter would be ultimately resolved: feminism, academic freedom, and dollars. Early on, Claman's committee heard from the Nursing School that a negative finding would be viewed as male-dominated medical imperialism against female-dominated nursing—nurses would not sit still for one more instance of men attempting to keep women in their place, this time denying women the all-important opportunity to be "healers." A negative ruling would also deny a number of faculty members of the Nursing School (all women) the academic freedom enjoyed by their male cohorts. And finally, a negative report would damage CU's chances to grab a share of the NIH's "alternative-medicine" research funds. In short, they threatened to make this the mother of politically-correct battles.

Claman's committee reeled, and given campus politics, there was little the committee could do but rule on the side of the faculty. Academic freedom doesn't mean "anything goes," so the committee had to find a convenient cover. It was that CU's curriculum was getting external review and accreditation...from the National League of Nursing...Jean Watson's NLN. They tweaked a few of the more egregious promotional aspects of the Center for Human Caring (perhaps making them more slippery), but essentially came down for the status quo. They did urge CU's research arm to obtain

NIH "alternative-medicine" grant money for work into TT. Money will out.

The Chancellor must have sighed a sigh of relief when he received the report. He accepted Claman's report and dutifully sent it along to the Regents, knowing full well that he was finessing them and his own Committee on Academic Relevance. TT had failed the test scientifically, but Claman had given him the means to avoid a campus brouhaha.

That it was incestuous niceties that saved them matters little to TT's defenders, who have been quick to claim victory on *all* fronts. For them, the report showed medical "science" is a myth. "We would like to imagine our whole lives are rational and science-based, but only about 15% of medical interventions are supported by solid scientific evidence," declared the Dean of the Nursing School upon the report's release. In other words, we know so little through science, we must accept moving beyond it. That's not what Claman's committee even came close to saying, but that's the message being put out now by the TT establishment.

Still, this may be regarded at best as a pyrrhic victory for TT. As far as science goes, the episode shows that peer review works. While Claman's committee may have had little politic-

al choice in their recommendations, its members still had their professional reputations to consider. They could not afford to be seen passing favorably on something so deficient as TT. Consequently, their report is a devastating judgment on the intervention itself. Their critique can be useful to nurses and skeptics nationwide who encounter this ubiquitous practice.

The Colorado phase of the battle is over. Now it shifts to the nation as a whole. National damage control by TT proponents is already underway. Fresh propoganda is being prepared and published. A recent cover article in the prestigious (but loosely refereed) *AJN* (American Journal of Nursing) misleads nurses about TT (for continuing-ed credit, no less). It deliberately ignores the Claman Committee's conclusions, misrepresents many studies, and makes unsupported claims. *AJN's* editor will not be publishing a rebuttal/clarification, because "it would confuse" the nurses who read the magazine. Besides, he says, "critics aren't giving TT a chance."

So unsurprisingly, the TT establishment is able to fight back, and they are highly placed and influential. Those on the side of science, integrity, and professional competence still have much to do. The fight goes on. It ain't over 'til it's over.

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(for full entries on most, see Annex A)

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