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## **KAVANAH IN HEALING PRAYER: AN EXPERIMENTAL APPROACH**

As identified in the *Shulhan Arukh*, *kavanah* is the prerequisite for meaningful *tefillah*. According to Rabbi Aryeh Kaplan, *kavanah* is a form of meditation, and our rabbis intentionally instituted a prayer that required *kavanah*. Rabbi Caro, the compiler of the *Shulhan Arukh*, being himself closely associated with Kaballah and the meditative dimension of religious observance, transformed their legislation into normative Halakhah. Scientific research has been able to identify the effects of meditation on the physical body, as well as measurable effects on the brain. Systems have also been designed that manifest measurable physical changes resulting from meditation. Finally, there exist research studies that explore the potential salutary effect of prayer on illness. There are important implications of this research for the practicing Jew, but the development of such research efforts awaits an enterprising group of scientists at institutions like the Bar-Ilan University.

### I. INTRODUCTION

Before beginning a discussion of an experimental approach to healing prayer, we first should establish a basis for considering that something as clearly spiritual as *kavanah* in prayer should be amenable to physical measurement. Such a basis can be found in the writings of Rabbi Yosef Yehuda Leib Bloch,<sup>1</sup> who was the Rosh Yeshiva of Telshe in Europe from 1910 to 1929. In his introduction to *Nes ve-Tevah*, Vol. 3,<sup>2</sup> Rabbi Bloch summarizes his approach in two succinct paragraphs:

\* I would like to express my appreciation to Professor Moshe Halevi Spero for his encouragement in submitting this article for publication and his continued support and help.

1 Rabbi Yosef Yehuda Leib Bloch was born on the 21st of Shevat of the year 5620 (February 1860) in Rusein, Lithuania. He became Rosh Yeshiva of the Telshe Yeshiva, succeeding his father-in-law in the year 5670 (1910). He died on the 7th of Heshvan, 5690 (10 November 1929).

2 Rabbi Yosef Yehuda Bloch's ideas appear in a series of volumes that are essentially transcriptions of lectures he gave at the Telshe Yeshiva in Lithuania. The volumes are entitled

*B.D.D. 21*, March 2009

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1. God has restricted what He can do in the universe based on the laws that He established when He created the world. The restriction that He imposed on Himself, so to speak, was that He should not interfere with all that He had formed in any way except through established rules. When God set up the world, He established boundaries for everything He created. To safeguard these boundaries He appointed “officers and counselors.” It was God’s desire to interact with these “officers and counselors” in conducting Creation, and not violate the limits on anything that He created beyond the limits that were defined at the Creation.<sup>3</sup>
2. Everything that happens in the world exists and operates by way of natural law. From the minutest to the loftiest, whether for good or for bad, whether as regards something that brings the world closer to fulfilling its ultimate purpose or takes it further from that purpose – everything exists and operates by way of natural law. The law may be a higher law operating within the realm of the spiritual or a mundane law of nature that operates in the realm of the material. All of these laws were established from the beginning of Creation.

According to the above, the potential for prayer to result in healing would not be a wishful fantasy but rather a cause-and-effect relationship that is subject to laws established by God at Creation. While the spiritual elements of these laws may not be accessible to or measurable by current technologies, the effects of the healing prayer leading up to and stemming from the prayer should be measurable, since these are physical. It is these effects that we discuss in this paper. We will show that prayer with *kavanah* is a meditative process that can be measured; and the healing resulting from healing prayer may also be measurable, as we will describe.

*She'urei Da'at*, and, while originally published under the auspices of the Telshe Yeshiva Alumni (and edited by Rabbi Eliyahu Meir Bloch, the son of Rabbi Yosef Yehuda Bloch), they have been republished by Feldheim Publishers and are available.

The present ideas appear in a series of three essays entitled *Nes v'Tevah (Miracle and Nature)* in Volume 1 of the two-volume series. The lectures on which they were based were delivered over the course of several years. *Nes v'Tevah* 1 was delivered in January 1924, as was *Nes v'Tevah* 2 (the following week in fact). *Nes v'Tevah* 3 was delivered four years later, in 1928.

- 3 The “officers and counselors” might be regarded as the scientific laws, the laws of physics, which quantify and qualify nature.

## II. *KAVANAH* IN *TEFILLAH*

The starting point is the statement of the *Shulhan Arukh* about praying the *Amidah*.<sup>4</sup> In the laws of the special *tefillah* of *Shemonah Esrei* we read (*Orah Hayim* 101-1): “When a person prays [the eighteen-blessing prayer], he is required to say all the blessings with *kavanah*. If he is unable to say all the blessings with *kavanah*, he should at least say the blessing *Avot* with *kavanah*.”

## III. A DEFINITION OF *KAVANAH*

What is *kavanah* and why is it something one requires specifically when performing (or “praying”) the *Amidah* doxology as opposed to other parts of the prayer service? While there are “popular” definitions such as “concentration” or “feeling” or “devotion,” we are more interested in what Rabbi Yosef Caro in the *Orah Hayim* meant by the use of the word *kavanah*. Rabbi Aryeh Kaplan argues that the proper definition of *kavanah* is meditation. The word *kavanah* comes from the Hebrew root *k-v-n*, which means “to aim.” The implication is that *kavanah* denotes the mental effort to, or strategies for “aiming” consciousness toward a certain goal. In fact, a better translation of *kavanah* might then be “directed consciousness.”<sup>5</sup> As a scholar of both Hebrew language and the Kabbalah, Rabbi Kaplan, in his book *Jewish Meditation*,<sup>6</sup> is able to provide us with the background to this idea.

## IV. HISTORY OF JEWISH MEDITATION

Meditative practices were widespread among Jews throughout Jewish history, and references to meditation are found in major Jewish texts in every period from the biblical to the pre-modern era.<sup>7</sup> According to Kaplan, one reason that this has not been recognized is that the vocabulary of meditation has been lost, especially during the last century.

Prior to the Jewish Enlightenment in the 19th century, mysticism had been an important and quite natural component of Jewish learning. As a result of the

4 There is also a statement regarding *kavanah* in the saying of the first sentence of the *kriyat shema* (*Orah Hayim* 61- 1): He should read *kriyat shema* with *kavanah*, with awe, fear, and ... It is the custom to read the first sentence loudly in order to arouse *kavanah*. We will, however, only be focusing on the *Amidah*.

5 *Jewish Meditation: A Practical Guide* (New York: Schocken Books, 1985), p. 49.

6 *Ibid.*, p. 40.

7 Aryeh Kaplan, *Meditation and the Kabbalah* (New York: Samuel Weiser, 1982), Introduction.

Enlightenment, Jewish mysticism came to be regarded as no more than superstition, unworthy of serious study. Even the books of the Kabbalah itself were reduced to no more than an intellectual exercise. Because experiencing the meditative state cannot be explained rationally, this was particularly sad. In fact, all references to meditation vanished from mainstream Jewish literature about 150 years ago. This was true even in Hasidic literature, where meditation had initially played a central role. Kabbalistic works published after around 1840 do not even mention meditation.

Although one has to resort to a kind of “verbal archeology” to discover the true meaning of key words,<sup>8</sup> references to meditation in earlier literature are abundant, even in the *Tanakh*. From both biblical and post-biblical sources, it appears that the prophetic experience was attained while in a meditative state. For example, the *Tanakh* records explicitly that the prophets used chants and music to attain higher states of consciousness. Careful philological analysis of certain key words in the Bible suggests that these words refer to specific meditative methods.<sup>9</sup>

There is also evidence that during the period of the *Tanakh* (until approximately 400 BCE), meditation was practiced by a large proportion of the Jewish people in the form of dance, one of the most important techniques of body meditation. In fact, the Talmud states that on the festival of Succot, during the “Festival of Drawing” (*Simhat ha-Shoevah*) in Jerusalem, “Saints and men of deed would dance before the assemblage, holding torches and singing hymns of praise.”<sup>10</sup> As further proof of the fact that this was indeed a form of meditation, we quote from the Jerusalem Talmud, which states: “Why was it called a ‘Festival of Drawing?’ Because it was a time when people drew in *Ruah ha-Kodesh*.”<sup>11</sup>

During this period, schools of meditation flourished. Everything found in later literature seems to indicate that these meditative schools required discipline and adherence to a strict regimen. The schools were extremely demanding, and were open only to those willing to devote themselves totally. Before even being admitted to one of these schools, a person had not only to be spiritually advanced, but also in complete control of all his emotions. Torah and *mitzvot* were central to these schools, requiring a degree of self-mastery to which not everyone could aspire. This was one of the attractions of ancient idolatry. While the Jewish meditative schools required extensive discipline and preparation, many idolatrous schools of

8 Aryeh Kaplan, *Meditation and the Bible* (New York: Samuel Weiser, 1978), p. 99.

9 *Ibid.*, p. 63.

10 *Mishneh, Succah*, 5:4.

11 Jerusalem Talmud, *Succah*, 5:1(22b). Quoted in Kaplan, *Meditation and the Kabbalah*, n. 7 *supra*.

mysticism and meditation were open to all. A person could at least think he was having a transcendental experience, without adhering to the tight discipline of Torah. It was very much like the situation today, where Eastern meditative groups seem easier to relate to than the strict discipline of Judaism.

Rabbi Kaplan, who himself meditated regularly, writes that for anyone who has ever had a taste of the transcendental, “it can be an infinitely sweet experience, more pleasurable than love or sex.”<sup>12</sup> And, indeed, for many people, meditative states became an experience after which they would lust. When the Talmud speaks of the “lust for idolatry,” it could be speaking of the magnetic attraction that this spiritual experience has for people. If they could not get it from Jewish sources, they would seek it in idolatrous rites.

As long as the Jews were in their homeland, the situation was under control. Idolatry may have been a strong temptation, but the prophetic mystical schools were strong enough to prevent the people from assimilating. Individuals or groups could always be drawn back into the fold. All this changed with the Diaspora. It became evident that if the masses remained involved in prophetic mysticism, the temptations drawing them to idolatry would ultimately alienate them from the Torah. Widely scattered groups would fall prey to false teachers and experiences. To prevent this, the more advanced forms of meditation were hidden from the masses and confined to the realm of secret teachings. Now only the most qualified individuals would be party to the secrets of advanced prophetic meditation. The Mishnah in Tractate *Hagigah* reflects this.<sup>13</sup>

Yet the Men of the Great Assembly (*Anshei Knesset ha-Gedolah*) also realized that the general populace still needed a meditative discipline. Rather than something loose and unstructured, they needed a discipline with a structure that would be common to the entire Jewish nation. The meditative discipline that was composed by the Great Assembly ended up as the *Amidah*, a “standing” prayer comprising eighteen sections, which would be repeated silently, in an upright position, three times each day. It is true that nowadays the *Amidah* is thought of more as a prayer than a meditative device, but the most ancient sources intended it as a meditation, as is verified by the Talmud itself.<sup>14</sup> The *Amidah* was meant to be repeated three times each day from childhood on, and essentially the same formula would be said

12 *Jewish Meditation*, n. 5 *supra*, p. 43.

13 “The Work of Creation (*Maaseh Bereshit*) may not be expounded in the presence of two, nor the Work of the Chariot (*Maaseh Merkava*) in the presence of one, unless he is a sage and understands of his own knowledge” (Mishneh, Tractate *Hagigah*, 11b).

14 *Meditation and the Kabbalah*, n. 7 *supra*, p. 20.

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for an entire lifetime. The *Amidah* could therefore be looked upon as one long mantra, lifting the individual to a high meditative level of consciousness. Most importantly, there is ample evidence that it was originally composed as the common form of meditation to be used by the entire Jewish nation. And the form of meditation used was called: *kavanah*.

#### V. RABBI YOSEF CARO

The question we might raise is whether the author of the *Shulhan Arukh*, Rabbi Yosef Caro, would have had this meditation in mind when he used the word *kavanah*. If we could establish that Rabbi Caro was involved with Kabbalah, that might strengthen our assumption.

Even though the main focus of Rabbi Caro's activity as a writer and teacher was in the halakhic field, he was also a major kabbalist. He belonged to a circle of scholars that included the leading kabbalists of the time, many of whom were known to have had visionary, auditory, and other mystical experiences. Included among Rabbi Caro's acquaintances and associates was Moses Cordovero (who considered Rabbi Caro as his "master"), Cordovero's teacher, friend, and brother-in-law Solomon Alkabez (who was also Rabbi Caro's close friend), and other leading kabbalists of the city of Safed. Rabbi Caro believed himself to be regularly visited – generally at night – by a heavenly mentor or *magid* who revealed to him kabbalistic ideas, as well as rules and predictions for his private life. This heavenly mentor identified himself as the heavenly archetype of the Shekhinah, and manifested himself in the form of "automatic speech," i.e. as a voice emanating spontaneously from Rabbi Caro's mouth, and that could be heard by others. The best-known account of this phenomenon is contained in a letter by Solomon Alkabez, recounting one such "maggidic" manifestation during the night of Shavuot in Rabbi Caro's house. These visitations, which Rabbi Caro recorded in a kind of mystical diary, continued for about fifty years. A small part of this diary has survived in manuscript, and was subsequently printed under the title *Magid Mesharim*.<sup>15</sup>

Based on this background, it would be reasonable to assume that if *kavanah* was the form of meditation selected to be used by the rabbis of the Talmud for the *Amidah*, then Rabbi Caro would have used the word in that same sense when establishing the Halakhah pertaining to this phenomenon.

15 R.J. Zwi Werblowsky, in *Encyclopaedia Judaica*.

## VI. PHYSIOLOGICAL EFFECTS OF MEDITATION

*Kavanah* – that is, meditation – is an alternative state of consciousness, and is measurable. Robert K. Benson of Harvard University began studying meditation in the 1960s.<sup>16</sup> His studies led to the development of the relaxation response, a very important therapy in reducing stress and its related conditions.<sup>17</sup> He carried out his measurements on practitioners of Transcendental Meditation.<sup>18</sup>

The changes that take place when one meditates – and this would include praying with *kavanah* – include the following:

1. Oxygen consumption falls sharply and carbon dioxide elimination decreases. This implies a reduction in metabolism rate.
2. Arterial blood pressure falls to quite a low level during the quiet premeditation period, and does not change significantly during meditation or afterward.
3. Lactate concentration in the blood declines precipitously, which is an indication of increased blood flow. For example, patients with anxiety neurosis show a large rise in blood lactate.
4. Skin resistance to electric current increases markedly.
5. Heart rate slows by about three beats per minute.
6. EEG readings disclose a marked intensification of alpha waves, as well as theta waves in the frontal area of the brain.

We would therefore expect that a person praying the *Amidah* with appropriate *kavanah* would be in a meditative state. If this person were attached in a manner similar to that described by Dr. Benson to the various technologies, the same types of results should be observed. *Kavanah* can be measured!

16 Robert K. Benson and Herbert Wallace, “The Physiology of Meditation,” *Scientific American*, 226 (1972): 84-90.

17 <http://www.relaxationresponse.org>.

18 The technique of “transcendental meditation” was developed by Maharishi Mahesh Yogi, and is taught by an organization of instructors personally qualified by him. The technique does not require intense concentration or any form of rigorous mental or physical control. It is easily learned, so that all subjects who have been through a relatively short period of training are “experts.” The training does not involve devotion to any specific beliefs or lifestyle, and consists simply of two daily sessions of practice, each for 15 to 20 minutes. The practitioner sits in a comfortable position with eyes closed. By a systematic method that he has been taught, he perceives a “suitable” sound or thought. Without attempting to concentrate specifically on this cue, he allows his mind to experience it freely, and his thinking, as the practitioners themselves report, rises to a “finer and more creative level in an easy and natural manner.”

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## VII. NEWBURG AND D'AQUILI

The changes described by Aryeh Kaplan are much more profound than the physiological changes described above. They are mental changes; spiritual changes, if you will. The research of Andrew Newburg and Eugene D'Aquili of the University of Pennsylvania, using the SPECT diagnostic tool, has shown that profound changes in brain chemistry do take place when someone meditates. The deeper the meditation, the more profound are the changes. While these neurobiological transformations might not be isomorphic with all that is unique to religious experience – and do not satisfactorily address the thorny dilemma of the role of God Himself in the experience – the effect of these changes appears to account for a large proportion of the images, feelings, and emotions of the great mystics in all religions, or what Kaplan identified as the “infinitely sweet experience, more pleasurable than love or sex.”

According to Dr. Newberg, many studies of meditation had shown that the prefrontal cortex was involved. What was unique in their studies was involving more of the brain, and this could only be studied using the neuroimaging techniques provided by the SPECT diagnostic tool.<sup>19</sup> The scan of the brains of eight Tibetan monks and three Franciscan nuns at prayer pointed to unusual activity in a small knob of gray matter known as the posterior superior parietal lobe, an area the authors also refer to as the orientation association area, or OAA. The known purpose of this knob is to orient the individual in physical space, a job it performs by drawing, in the words of the authors, “a sharp distinction between the individual and everything else, to sort out ‘you’ from the ‘not-you’ that makes up the rest of the universe.”

In the instances studied, Newberg and d'Aquili concluded that the orientation association area had stopped receiving the incoming flow of sensory information, that information had, in fact, been blocked. “What would happen if the OAA had no information upon which to work?” they write. “In that case, the brain would have no choice but to perceive that the self is endless and intimately interwoven with everyone and everything the mind senses. And this perception would feel utterly and unquestionably real.”

<sup>19</sup> *Why God Won't Go Away* provides an in-depth look at just what happens to the brain during a religious experience. It is the popularized version of *The Mystical Mind: Probing the Biology of Religious Experience*, a book Newberg and d'Aquili completed in 1998, just prior to d'Aquili's sudden death from a massive heart attack. It was Newberg's idea to reach out to a lay audience with a far more accessible book.



But this is exactly how the empirical subjects and generations of people of prayer before them have described their peak mystical moments: the dissolving of boundaries between the self and everything else. A 13th-century Franciscan, Angela of Foligno, expressed it this way: “I possessed God so fully that I was no longer in my previous customary state but was led to find a peace in which I was united with God and was content with everything.” Manuals of Zen meditation, texts from Hindus, Sufis, or Christian desert fathers on prayer include the same generic description, couched in the language of that particular culture and tradition. Such findings reinforce the validity of the study. This is of interest to us with regard to the use of the *Amidah* as a mantra through which we can enter a meditative state.

#### VIII. BASIC RESEARCH ON THE POWER OF *KAVANAH*: PEAR

We have established that the objective of the *Amidah* is to help us enter a meditative state where we encounter the glory of God. Is there more, however, to the meditative state? Can we “do” something while we are meditating? In other words, does prayer “work”?

The Princeton Engineering Anomalies Research (PEAR) program was established at Princeton University in 1979 by Robert G. Jahn, then Dean of the School of Engineering and Applied Science, to pursue rigorous scientific study of the interaction of human consciousness with sensitive physical devices, systems, and processes common to contemporary engineering practice.<sup>20</sup>

The most substantial of the PEAR Projects examines anomalies arising in human/machine interactions. In these experiments, human operators attempt to influence the behavior of a variety of devices without using any known physical processes. In unattended calibrations, these machines all produce strictly random outputs, yet the experimental results display results that can only be attributed to the influence of the consciousness of the human operator. Over the laboratory’s thirty-year history, thousands of such experiments, involving many millions of trials, have been performed by several hundred operators. The observed effects are usually quite small but they are statistically repeatable and compound to highly significant deviations from chance expectations.

From the point of view of this paper, the strategies used by the human operator to “influence” these devices are what merit particular emphasis. The experimenters report, on the basis of informal discussions with their operators, casual observations of their styles, and occasional remarks recorded in the experimental logbooks, that

20 From the website at <http://www.princeton.edu/~pear/>

operators used meditation exercises, visualization techniques, and other strategies to help them focus their attention on the devices.<sup>21</sup> I would view these all as techniques for *kavanah*.

The random devices also respond to group activities of larger numbers of people, even when they are unaware of the machine's presence. "FieldREG" data produced in environments fostering relatively intense subjective resonance show larger deviations than those generated in assemblies that are more objective in nature. Elaborate analytical methods have been developed to extract as much understanding as possible from all these results, and to guarantee their integrity. Details of the experiments themselves can be obtained from the many articles available for download on the PEAR website.<sup>22</sup>

After a detailed analysis of all the experiments, the circumstances under which the anomalous effects were noted were identified.<sup>23</sup> These "circumstances" are remarkably similar to what the rabbis in the Talmud asked of those who wanted their prayers to be accepted. For example,

1. The PEAR research indicated that the anomalous effects were most likely to occur in "emotionally meaningful contexts." Compare this to, "When you pray, regard not your prayer as a fixed task; but as an appeal for mercy and grace before the All-Present" (*Pirkei Avot*, 2, 18).
2. PEAR research indicates "relatively profound personal involvement, especially if shared in a group" as a characteristic. Compare this to the following reference about the importance of a *minyan* (prayer quorum): "Whoever has a synagogue in his town, and does not enter it to pray is called 'an evil neighbor.' ... It was told to Rabbi Yohanan, who was a Palestinian, 'There are old men to be found in Babylon.' He was astonished and exclaimed, 'It is written, "That your days may be multiplied, and the days of your children, upon the Land (Deut. 11: 21) upon the land of Israel, but not outside it.'" When they told him that the old men are in the Synagogue early and late, he said, 'It is this which helps them to live long.' This is similar to what Rabbi Joshua ben Levi said to his sons, 'Rise early and stay up late to enter the synagogue, so that you may prolong your life'" (Talmud, *Berakhot*, 8a).

21 Robert G. Jahn and Brenda J. Dunne, *Margins of Reality: The Role of Consciousness in the Physical World* (New York: Harcourt Brace and Company, 1987), p. 141.

22 at <http://www.princeton.edu/~pear/publist.html>

23 R.D. Nelson, R.G.Jahn, B.J. Dunne, Y.H. Dobyms, and G.J. Bradish, "FieldREG II: Consciousness Field Effects: Replications and Explorations," *Journal of Scientific Exploration* 12, 3: 425-54.

3. PEAR research notes that the effects are most pronounced when there is “freshness or novelty for participants.” Rabba and Rav Joseph both said: “[Unacceptable prayer is] anyone who is not able to add something new thereto” (Talmud, *Berakhot*, 30b).

These three are but a few of the analogues we could quote between the results of the PEAR experiments and quotes from the Talmud regarding communal and individual prayer.

#### IX. THE EFFECTS OF *KAVANAH*: A SUMMARY OF PEAR

In trying to understand their experiments, the staff at PEAR developed a model. This model relates very well to the notion of *kavanah* we have been developing in this paper. A summary of the PEAR model has been developed by Dean Radin.<sup>24</sup> I would like to paraphrase this model and elaborate on it, relating it to the ideas of this paper.

*Kavanah* extends beyond the individual in that it can affect the probabilities of events. This is a most important idea, because our image of man is that he is totally isolated from every other man. So how can *tefillah* help? Using the ideas of Newburg and d’Aquili, the meditative process transforms man from an isolated individual to a more universal entity. *Kavanah* injects order into systems in proportion to the “strength” of *kavanah* present. *Tefillah* with *kavanah* has the power to transform the world around us by injecting order into the randomness and chaos of what is normal. Physical and biological systems of all kinds respond to *kavanah* by becoming more ordered, which is why *tefillah* might be able to modify illness and exert an effect on weather (such as in the stories in the tractate *Taanit*). With particular reference to healing, many biological systems operate in a random fashion at the microscopic level. Even a small effect such as is generated by *kavanah*, if it affects the randomness of these biological systems, can mean the difference between health and sickness. Certainly cancers are very much a matter of random processes,<sup>25</sup> which could make proper *tefillah* in this case especially effective.

The state of mind in an individual can fluctuate from moment to moment. It is regulated by the focus of attention. Ordinary awareness, for example, has a fairly

24 “Moving Mind, Moving Matter,” *Noetic Sciences Review* (Summer 1998).

25 W. Wayt Gibbs, “Untangling the Roots of Cancer,” *Scientific American* (July 2003).

This article is available online at <http://www.sciam.com> (go to magazine, then previous issues, and select July 2003).

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low focus of attention compared to peak states, mystical states, and other non-ordinary states. That is why special attention is paid to *kavanah* in *tefillah*. However, a group of individuals can be said to exercise “group *kavanah*.” Group *kavanah* strengthens when the group’s attention is focused on a common object or event, creating coherence among the group. That is the reason why the concept of *minyan* is so important. There is a multiplier effect when we pray together. Even if one member’s focus of attention wavers, his colleagues will pick up the slack. The other side of the coin is when individuals in a group are all attending to different things, then the group *kavanah* and group mental coherence are effectively zero, producing what amounts to background noise. That is the reason for so many things that we do in a *minyan*: why being *mafsik* is so wrong; why we insist on separate seating of men and women, etc. It is all about strengthening *kavanah*.

#### X. RESEARCH ON HEALING PRAYER

Having suggested, as a working hypothesis, that *kavanah* can have a substantive effect on healing, the next step would be to design and implement research studies demonstrating this in a scientifically appropriate manner. Such experiments have been reported in the literature.

In the lead article in the recent issue of *Explore*,<sup>26</sup> Dr. Larry Dossey reviews the research on healing prayer. He cites twenty controlled clinical trials of “remote, intercessory prayer and healing intentions.” Eleven of these studies have demonstrated statistically positive results. He also identifies nine meta-analyses of this body of research with eight reporting positive findings. This body of work is only a beginning, but it does present research designs that can be further refined.

The “classical” study, and the one most often cited, is that of Randolph Byrd.<sup>27</sup> The experimental design that he used, a randomized double-blind protocol, is the one most often replicated. His application was a population of coronary care unit (CCU) patients. Over ten months, 393 patients admitted to the CCU were randomized, after signing informed consent, to a healing prayer group (192 patients) or to a control group (201 patients). While hospitalized, the first group was prayed for by participating Christians praying outside the hospital; the control group was

26 Larry Dossey, “PEAR Lab and Nonlocal Mind: Why They Matter,” *Explore: The Journal of Science and Healing*, 3, 3 (May/June 2007). This is the introductory article by the editor, Larry Dossey, to an issue devoted to research papers from PEAR. The article is available for download at <http://www.princeton.edu/~Epear/pdfs/Explore-Intro.pdf>

27 Randolph Byrd, “Positive Therapeutic Effects of Intercessory Prayer in a Coronary Care Unit Population,” *Southern Medical Journal*, 81 (1988): 826-29. Available online.

not prayed for. At entry, chi-square and stepwise logistic analysis revealed no statistical difference between the groups. After entry, all patients had follow-up for the remainder of the admission. The group that was prayed for subsequently had a significantly lower severity score based on the hospital course after entry ( $P < .01$ ). Multivariate analysis separated the groups on the basis of the outcome variables ( $P < .0001$ ). The control patients required ventilatory assistance, antibiotics, and diuretics more frequently than patients who were prayed for. The data and analysis did suggest that healing prayer has a beneficial therapeutic effect in patients admitted to a CCU.

Byrd's research was replicated a decade later by a group led by Dr. William Harris.<sup>28</sup> Nine hundred and ninety patients were included in the Harris study, which followed the same statistical protocol as the Byrd study. The results were essentially the same; that healing prayer was associated with lower CCU course scores. The conclusion of the Harris group was that prayer may be an effective adjunct to standard medical care.

Other studies reported in the Dossey article include studies of the effectiveness of prayer in kidney dialysis,<sup>29</sup> bloodstream infection,<sup>30</sup> AIDS,<sup>31</sup> and skin warts.<sup>32</sup> These studies do not raise the issue of the nature of effective prayer. They choose the "pray-ers" on an anecdotal basis as being "serious" in their prayers. The very fact that there are positive results is indicative that some of those praying were praying with "*kavanah*." Repeating these studies focusing on people praying with *kavanah*, i.e. in a meditative state, would be an interesting test of the hypotheses of this paper.

28 William S. Harris, PhD; Manohar Gowda, MD; Jerry W. Kolb, MDiv; Christopher P. Strychacz, PhD; James L. Vacek, MD; Philip G. Jones, MD; Alan Forker, MD; James H. O'Keefe, MD; Ben D. McCallister, MD, "A Randomized, Controlled Trial of the Effects of Remote, Intercessory Prayer on Outcomes in Patients Admitted to the Coronary Care Unit," *Archives of Internal Medicine*, 159 (1999): 2273-78.

29 W.J. Matthews, J.M. Conti, S.G. Sireci, "The Effects of Intercessory Prayer, Positive Visualization, and Expectancy on the Well-being of Kidney Dialysis Patients." *Alternative Therapies in Health and Medicine*, 7, 5 (2001): 42-52.

30 I. Leibovici. Effects of Remote, Retroactive Intercessory Prayer on Outcomes in Patients with Bloodstream Infection: A Randomized Controlled Trial, *British Medical Journal* (2001): 1450-51.

31 J.A. Astin, J. Stone, D.I. Abrams, et al., "The Efficacy of Distant Healing for Human Immunodeficiency Virus – Results of a Randomized Trial, *Alternative Therapies in Health and Medicine*, 12, 6 (2006): 36-41.

32 E.F. Harkness, N.C. Abbot, E. Ernst, A Randomized Trial of Distant Healing for Skin Warts. *American Journal of Medicine*, 108 (2000):507-508.

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## XI. QUESTIONS, QUESTIONS, QUESTIONS

To summarize: Rabbi Yosef Caro, a practicing kabbalist and mystic, mandated *kavanah* in the recitation of the *Amidah*. Rabbi Aryeh Kaplan defines *kavanah* as a form of meditation, and shows in his writings that the historical development of the *Amidah* was as a meditation. Dr. Herbert Benson's measurement of the physiological effects of meditation on the body and Dr. Andrew Newburg's research on the effects of meditation on the brain are part of a very extensive scientific literature. The results of the research at the Princeton Engineering Anomalies Research Project indicate that meditation does have an effect outside of the body. Finally, there is a body of research studies that indicates that group prayer does have a positive effect on healing. This, however, only marks a beginning.

The practicing Jew asks what is *kavanah*? How can I learn to pray with *kavanah*? What is the effect of a *minyan*? How do we know when we are praying with *kavanah*? Can we truly effect healing with our prayers?

The religious scientist now has experimental designs to use for research studies to answer these questions not only qualitatively but also quantitatively. If one can measure *kavanah*, then one can begin to understand more fully what *kavanah* is and prepare curricula to teach it. If, for example, we can measure the synergistic effect of a *minyan* with the proper decorum, and compare it with one without the proper *kavanah* using a portable REG device,<sup>33</sup> we can learn what it is to pray with a *minyan* and how it should be done. Finally by extending the designs used to measure the effect of healing prayer, we can bring to bear one of the most powerful therapies available to modern man.

This is, perhaps, the true relationship between science and religion.

*Ki lekah tov natati lakhem, torati al taazovu.*

33 Psyleron, Inc. was founded in 2005 by two former PEAR interns, Herb Mertz and John Valentino, with the help and support of the PEAR staff, to develop beneficial applications of PEAR technology and insights, and to make consciousness-related research and technology more widely available. The goals of Psyleron are to continue PEAR-type experiments and to provide interested researchers and the general public with the tools to explore a world of phenomena that have profound implications for almost every area of human life. A Psyleron REG-1 Random Event Generator, which comes with a USB Cable, Windows Software for FieldREG and Basic PK-Type experiments (games and the standard PEAR experiments), an interface to upload data to the web and share it with others, and the "Psyleron Basics" training manual can be purchased for US\$335 and can be ordered on-line from the "Products" page of the Psyleron website: [http://www.psyleron.com/info/products/REG\\_order.asp](http://www.psyleron.com/info/products/REG_order.asp).