

The American Institute of Stress

HEALTH AND STRESS

Your source for science-based stress management information

Volume 25 Issue 10

October 2013

A LOOK AHEAD:

The revised edition of
*Bioelectromagnetic
Medicine*

Coming Soon!



Subtle Energies:

What are they?

How do they affect our health?



The mission of AIS is to improve the health of the community and the world by setting the standard of excellence of stress management in education, research, clinical care and the workplace. Diverse and inclusive, The American Institute of Stress educates medical practitioners, scientists, health care professionals and the public; conducts research; and provides information, training and techniques to prevent human illness related to stress.

AIS provides a diverse and inclusive environment that fosters intellectual discovery, creates and transmits innovative knowledge, improves human health, and provides leadership to the world on stress related topics.

HEALTH AND STRESS

We value opinions of our readers.

Please feel free to contact us with any comments, suggestions or inquiries. Email: editor@stress.org

Editor In Chief:

Paul J. Rosch, M.D., FACP

Associate Editor:

Helen M. Kearney, Ph.D.

Creative Director: Kellie Marksberry

\$20 per issue or \$120 annual subscription rate.

Free with membership in AIS.

Stress and Health is a monthly newsletter with news and advertising designed exclusively for AIS Members. However, it appeals to all those interested in the myriad and complex interrelationships between stress and health because technical jargon is avoided and it is easy to understand. Stress and Health is archived online at stress.org. Past issues can be purchased in the AIS Marketplace. Information in this publication is carefully compiled to ensure accuracy.

Copyright © 2013 the American Institute of Stress (AIS). All rights reserved. All materials on AIS' website and in AIS' newsletters are the property of AIS and may not be copied, reproduced, sold, or distributed without permission. For permission, contact editor@stress.org. Liberal use of AIS fact sheets and news releases is allowable with attribution. Please use the following: "Reproduced from the American Institute of Stress website [or newsletter], © AIS [year]."

AIS Board of Directors

Chairman:

Paul J. Rosch, MD, FACP

President:

Daniel L. Kirsch, PhD, DAAPM, FAIS

Distinguished Members:

Robert Bisaccia

Holger Wrede, Esq.

Tracey B. Kirsch

BIOELECTROMAGNETIC AND SUBTLE ENERGY MEDICINE

by Paul J Rosch, MD, FACP

Editor-in-Chief

I was approached in 2002 by Russell Dekker, CEO of Marcel Dekker, Inc., to see if I would be interested in editing a second edition of *Modern Bioelectricity*. There had been numerous advances in the 15 years since it had been published, the previous editor was not available, and a mutual friend suggested that I might be willing to undertake this. I was very familiar with the book, which was targeted primarily to physicists and basic science researchers. Chapters ranged from the hazards of ambient electromagnetic fields as well as their use as navigational aids in mammals and fish, the electronic properties of biological membranes, ion selectivity in channels and how direct current affected bone growth, to electrical silver antisepsis, altered skin resistance at acupuncture points and the effects of electromagnetic fields on nerve regeneration and immune system function in laboratory animals.

I agreed that some of these chapters needed to be updated, and while all were important, many involved topics about which I had little or no knowledge. My major interest was in the clinical applications of electromagnetic therapies, and I described several cutting edge presentations that had been featured at

our annual Montreux International Congress on Stress in Switzerland, such as: Björn Nordenström's successful treatment of pulmonary metastases based on his theory of an "electrical circulatory system", Demetrio Sodi-Pallares' magneto-metabolic therapy for end stage cardiomyopathy and advanced malignancies and Boris Pasche's Syntonix Low Energy Emission Therapy for stress related insomnia and anxiety states. I thanked Russell for his invitation and gave him the contact information for two authorities I felt would be much more capable of assembling a second edition. He seemed intrigued by the Montreux Congress examples and asked if I might consider serving as co-editor to include chapters dealing with clinical applications. I told him this would depend on several factors but promised to send him copies of several Newsletters and articles dealing with advances that might be considered.

I heard nothing further until two or three weeks later, when Russell visited me with a new proposal. He had abandoned the idea of a 2nd edition of *Modern Bioelectricity* and now wanted me to edit and contribute to a new book entitled *Clinical Implications And Applications Of Bioelectricity*. I would have carte

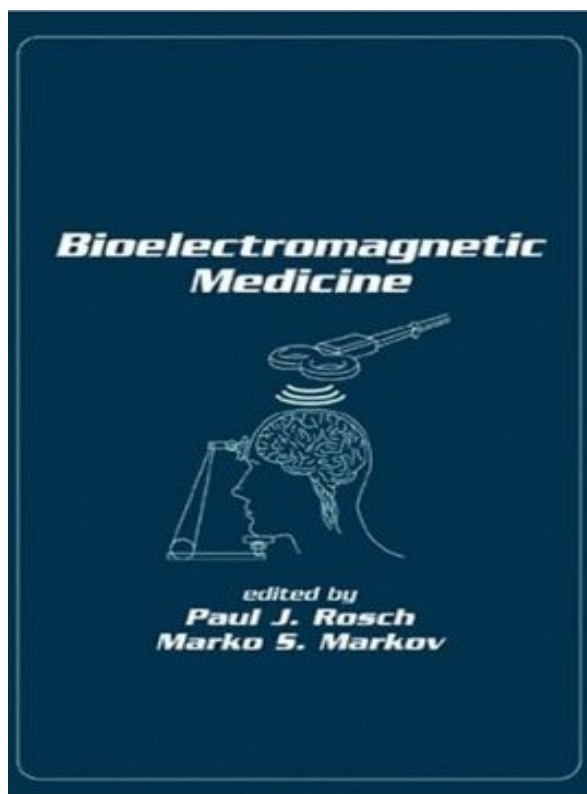
blanche with respect to the selection of topics and authors and was under no obligation to include anything from *Modern Bioelectricity* or to even refer to it. I explained that I needed to think about it since it would be time consuming and difficult to decide on what should be included from the large menu of items to choose from. It was likely that there were many other developments I was unaware of that should be considered, which would necessitate extensive research. In addition, based on his suggested title, there were several relevant issues that required some discussion, such as the potential hazards of cell phones and Wi-Fi and the ability of feeble or nonthermal energies to have significant biological effects. It would also be necessary to explain mechanisms of action involving these and other fiercely debated topics that were beyond my area of expertise.

Nevertheless, the offer was attractive and I accepted it with the provision that Dr. Marko Markov would serve as co-editor. In addition to being a highly respected biophysicist, he was very familiar with pertinent international research, and especially Eastern European publications. I had previously worked with Marko and knew that I could rely on him to give an accurate and objective opinion on issues I was not familiar with. I drew up a

lengthy list of topics and possible authors and asked him to do the same, and we eventually whittled this combination down to 50 chapters that we both agreed on. The result was a huge, heavy book with 851 pages titled *Bioelectromagnetic Medicine* that was published in 2004. The reviews were very favorable and one referred to it as the "Bible" in the field and it was used as a textbook

in at least one University. Most of the comments we received were also complimentary, although a few complained about the price tag of almost \$200.00 and the lack of any discussion of cell phone safety and the adverse health effects of electromagnetic pollution. However, we could not include everything and as I had explained in the Preface, "Such effects may depend on dosage, duration of exposure, genetic and other influences. It is not likely that any clear conclusion about ad-

verse electromagnetic effects can be reached until more information had been obtained from long term studies that focus on these factors." The huge 10-year Interphone study of cell phone health risks involving 13 countries was in progress but the results would not be available until 2010 or later. In addition, cell phone safety was a fiercely debated issue and any chapter devoted to this would likely have shed more heat than light on this contentious topic.



Why A Revised Edition Of *Bioelectromagnetic Medicine* Is Now Necessary

That was ten years ago, and in the interim, innovative cutting edge bioelectromagnetic therapies have been developed that are much safer, and more cost effective than drugs. Others have improved or now have additional indications. New explanations have emerged that may provide a rationale for the alleged benefits of homeopathy, acupuncture and other non-traditional practices that are riding the crest of a tidal wave of interest in alternative and complementary medicine. As a result, I have been invited to do an updated paperback version of the book aimed at a lay audience and there have been several inquiries as to whether a second edition of the book was being planned.

Such a decision would depend on several factors, the most crucial being the demand for such a revision and what it would include. There are certain landmark chapters that would have to be retained, and in some instances, the authors had passed on or would no longer be available. In addition, the copyright for these and other chapters is owned by Marcel Dekker Inc., which was sold to CRC Press in Florida very soon after the book was published. Because of this, promotional activities fell through the cracks and it was not displayed as planned at key conferences or advertised in pertinent journals. CRC Press was subsequently acquired by Taylor and Francis, which is based in the U.K. and is now owned by Informa, a huge multibillion-dollar Swiss conglomerate with more than 8,500 employees in 43 countries.

There seemed little doubt that there was a need for a second edition and that it would be profitable if properly promoted. It also seemed likely that the new owners of the copyright were in a much better position to market this than their predecessor. However, identifying whom to contact was a challenge since none of the Dekker personnel I had been involved with were available. When I called CRC Press, I was referred to Taylor and Francis, and after discussing what I had in mind with individuals in various departments there, was referred back to CRC or Informa. I also spoke with a medical editor at another large publishing house, who was actually familiar with the book. He doubted there would be a problem in obtaining permission to reproduce any of the chapters and invited me to submit a proposal that he promised to expedite. I subsequently heard back from a senior CRC editor and was advised to complete their standard new book proposal form, which would eventually reach the appropriate commissioning editor either there or at Taylor and Francis. I thought this was a more prudent way to proceed and have been pleased with the outcome.

While all this was going on, I continued to collect material about advances that provided insight into mechanisms of action and information on new technologies that should be considered. But when these were added to others on the list I already had, which included reproducing at least six chapters and updates on a dozen others from the first edition, it was apparent that this book would be very much larger than its predecessor. I had been warned by the publisher that anything over 1,000 pages would require

two volumes, which would make its price prohibitive. This had also increased substantially, since it would now be necessary to include color illustrations for some of the chapters. Trying to determine which chapters to delete was akin to deciding how much of an arm, leg or other appendage to remove since this depended on criteria such as length and relative importance of the content as well as the qualifications and stature of the author.

I quickly realized that it would be impossible to be completely current since new possibilities kept popping up. I decided I might simply describe these and others that could not be included in my Preface. What started to emerge when I reviewed the chapters I wanted to retain, was that those with the highest priority dealt with might best be referred to as "subtle energy" medicine. Thus, in many respects, this new book will be a tribute to Ross Adey and Jacques Benveniste, both of whom were pioneers in this area and had to fight the establishment. Ross Adey was the first to show that there were "biological windows" and that nonthermal energies could have significant physiological effects. This was subsequently corroborated by Carl Blackman, Abe Liboff and others. Adey's chapter was the last paper he ever wrote and I considered it to be so important that it was the first one in the book. Jacques Benveniste had proposed that water could retain certain information regardless of how many times it had been diluted and that this "memory" could be digitized, transmitted, and reinserted into another sample of water containing the same active qualities as the original sample. Since

this seemed to support the practice of homeopathy, he was vilified and his funding was terminated. He complained to me at one of our Congresses that others who had reproduced his findings were afraid to publish their results because they would be subjected to similar retribution.

Other chapters that will be retained or updated include Bill Tiller's "Subtle Energies And Their Roles In Bioelectromagnetic Phenomena", showing how intentionality (the power of the mind)" can influence the pH of a solution, increase ATP to speed up larval maturation and how such mental forces could be transferred to a computer chip to exert the same effects at a later date and different location. In "The Energetic Heart: Biomagnetic Communication Within And Between People", Rollin McCraty demonstrated that the heart's electromagnetic field extended a foot or more from the body and could influence the EEG of someone close by even in the absence of physical contact. Boris Pasche's "Low-Energy Emission Therapy: Current Status and Future Directions" showed how radiofrequencies in the CB range were effective in treating insomnia and anxiety states in double-blind crossover studies using the Symtonic device. Jim Oschman also illustrated the powers of such feeble forces in his chapter "Recent Developments in Bioelectromagnetic Medicine." All of these authors will be submitting new chapters confirming other significant biological effects of subtle energies.

Additional support comes from Nobel Laureate Luc Montagnier, who showed that when a solution of a

chemical compound such as a homeopathic remedy was sequentially diluted many times, that electromagnetic signals of the original substance remained in the water and retained their original effects. This was not an endorsement of homeopathy, but simply to emphasize that, *"High dilutions of something are not nothing. They are water structures which mimic the original molecules"*. He described Benveniste as a *"modern Galileo"*; since Galileo had also been persecuted and convicted of heresy for teaching that the earth revolved around the sun and was not the center of the universe. (It was not until 1992, almost 400 years later, that Galileo was officially vindicated by Pope John Paul II.) Brian Josephson, who received a Nobel Prize in Physics at age 33, agrees, noting, *"Simple-minded analysis may suggest that water, being a fluid, cannot have a structure of the kind that such a picture would demand. But cases such as that of liquid crystals, which while flowing like an ordinary fluid can maintain an ordered structure over macroscopic distances, show the limitations of such ways of thinking"*. He went on to describe how many scientists today suffer from *"pathological disbelief; that is, they maintain an unscientific attitude that is embodied by the statement 'even if it were true I wouldn't believe it.'"*

The existence of structured or "biological" water with such properties, including the storage of energy, has been proposed and demonstrated by Dr. Mae-Wan Ho, Director, The Institute of Science and Society in London, and Gerald Pollack, Professor of Bioengineering at the University of Washington in Seattle. They will also be contributing chap-

ters based on their books published earlier this year. For more information on these, see book reviews of *Living Rainbow H2O* and *The Fourth Phase Of Water: Beyond Solid, Liquid, And Vapor* at the conclusion of this Newsletter. The more I looked at how this second edition was shaping up and what the most important chapters were, it was apparent that subtle energies took center stage. As a result, I decided to change the title to *Bioelectromagnetic And Subtle Energy Medicine* to more accurately reflect its content. The first chapter will again be Ross Adey's "Potential Therapeutic Applications of Nonthermal Electromagnetic Fields", but will now be followed by Jacques Benveniste's "A Fundamental Basis for the Effects of EMF's in Biology: The Interface Between Matter and Function."

Exactly What Are Subtle Energies And How Do They Affect Our Health?

Subtle stems from *subtilis*, a Latin weaving term that is a contraction of the phrase *sub (beneath) and téla (the web)*. Subtle now refers to a material, remark or anything that is very delicate and may be difficult to discern. Energy comes from *érgon*, (Greek for work). Adding the prefix *en (at)* produced the adjective *energōs (at work)*, which implies something that is in motion, like the flow of kinetic electricity that provides heat and light or moves trains. But in addition to being kinetic, there is also stored or potential energy, as in a car at the top of a hill, starch in plants, glycogen in muscle and liver cells, or electricity in a battery.

All these types of energy are ultimately derived from the sun via fossil fuels (coal, oil, gas), wind or hydroelectric power, but primitive man was only aware that it provided heat and light. It is therefore not surprising that pagan cultures worshipped the sun. In ancient Mesopotamia, the sun god *Shamash* was a powerful deity who meted out justice, and 5,000 years ago, the Egyptians prayed to *Ra*, the king of Gods. The Greeks and Romans had Apollo, who was also the god of music and medicine, and the sun was revered and paid homage to in numerous other religions, including Hinduism, Buddhism, and Celtic Druids, Aztecs in Mexico, Incas in Peru, and Native American tribes. The ancient Chinese believed that some of this divine but invisible energy circulated through the body in the form of *Qi*

(*chi*), *prana* is the Sanskrit word for the cosmic energy believed to come from the sun in Ayurvedic medicine, and Coptic priests still breathe the Holy Spirit or life force into newborns.

Dynamic internal and environmental energies analogous to these have resurfaced over the centuries as Paracelsus' *archaeus*, Newton's cosmic aether, Mesmer's universal fluid and animal magnetism, the Odic force of Reichenback, Brunler's biocosmic energy, and Reich's orgone. These could purportedly be used to treat disease and enhance health, as could subtle energies that provided the benefits of faith healing, intercessory prayer, the laying on of hands, the "king's touch" and therapeutic touch that does not require physical contact. All of these self-



generated and/or ambient forces fell into disrepute or were rejected by Western Medicine because they could not be visualized or felt, much less measured, and there was no proof they existed. Any healing or other positive responses were assumed to be placebo phenomena. Yet, some that could be consistently demonstrated were difficult to explain, even when subjected to scientific scrutiny.

One of the first organizations dedicated to the scientific investigation of the existence and nature of such forces was The International Society for the Study of Subtle Energies and Energy Medicine (ISSSEEM), founded in 1989 under the aegis of Dr. Elmer Green. A pioneer in biofeedback therapy at the prestigious Menninger Foundation, Elmer's emphasis was on how such feeble forces could influence "the experience of consciousness, healing, and human potential."

Along with his wife Alyce, he did extensive studies of yogis who allegedly could consistently perform supernatural feats in many of these areas. A Himalayan yogi investigated at Menninger by a team of specialists, could predictably move needles 5-10 feet away by just looking at them. In another experiment in which he had stopped his heart, the supervising cardiologists became alarmed about his ECG and halted the study after 16 seconds. The yogi reassured them that he could stop his heart for 15 minutes if he had two days time for yogic preparation and fasting, but his request was refused.

At one of our Congresses, in which Elmer gave his Hans Selye Award lecture, "The Detection and Measurement Of Subtle Energies", he repeatedly demonstrated that a healer's energy could produce changes of 80 volts or more in EEG tracings of an invisible subject seated 10 feet away in an enclosed and shielded booth.

At a prior Congress honoring Dr. Yujiro Ikemi for his studies of spontaneous remission in cancer and other deadly diseases, the audience was amazed at

... "class of phenomena beyond the four fundamental energies that we already know and accept."

how *Chi Gong* masters could raise the temperature of water, change the taste of scotch, and repel anyone approaching them without any physical contact, merely by focusing their *chi* energy. We also learned that Japanese scientists were using electron microscopy, very sophisticated imaging and novel sensing techniques to determine the mechanisms that mediated these phenomena and why these exceptional powers are highly

developed in certain individuals. The question was asked, "Do these talents lie dormant in each of us, and if so, how can we learn to activate them?"

Conventional physics maintains that all the phenomena of the universe can be explained by four forces: the strong and weak nuclear forces, electromagnetic forces and gravitational forces. Professor William Tiller disputed this in a 1993 article titled "What Are Subtle Energies", which he defined as a "*class of phenomena beyond the four fundamental energies that we already know and accept.*" His major objection was that the

current model did not take into account mental powers such as the remarkable feats of strength and endurance seen during hypnosis, or with Akido, Zen and Yoga disciplines. He cited well documented remote viewing studies showing that *"people can (a) perceive and accurately describe objects placed several miles away from them, (b) be given the longitude and latitude coordinates of a location on the Earth and accurately describe the terrain of that location even though it is thousands of miles away and (c) tune in to a specific individual and view a remote locality through that individual's eyes."*

Another example was clairvoyants who could *"observe the 'auric' fields around patients and thence describe their state of physical and mental health. These auric fields appear to the clairvoyant as patterns of light of different colours extending out from the body. Some clairvoyants can perceive the patterns with their eyes closed or in total darkness. Thus, these patterns are not composed from physical light and thus cannot be photographed with present day techniques."* Tiller also noted that we could not explain the beneficial effects of homeopathy but that all of the above enigmas were consistent with an emerging paradigm of quantum physics. Chapters in this new book do provide a plausible basis for homeopathy as well as acupuncture based on discoveries of the power of biological or "structured" water. Another will include impressive color pho-

tographs of energy auras surrounding the body that vary in intensity and distribution depending on physical health and emotional status obtained by gas discharge visualization technology.

The Subtle Energy Of God, Nature, Religion, Faith And Weird Or EZ Water

Tiller went on to explain, *"By subtle fields or energies, here, I do not mean weak fields or energies. To paraphrase*

"I believe in Spinoza's God, Who reveals Himself in the lawful harmony of the world, not in a God Who concerns Himself with the fate and the doings of mankind."

Einstein, 'Subtle is the Lord' does not refer to the Lord being weak." This may appear paradoxical since Einstein frequently derided conventional concepts of God and any reliance on the Bible or religious beliefs. In contrast, he had tremendous respect for the power and mystery of Nature as evidenced by the following, "Try and penetrate with our limited means the secrets of nature and you

will find that, behind all the discernible concatenations, there remains something subtle, intangible and inexplicable. Veneration for this force beyond anything that we can comprehend is my religion. To that extent I am, in point of fact, religious". He also wrote, "I believe in Spinoza's God, Who reveals Himself in the lawful harmony of the world, not in a God Who concerns Himself with the fate and the doings of mankind."

Baruch Spinoza was a 17th century Jewish-Dutch philosopher, whose ancestors fled to Amsterdam following the Spanish Inquisition. He had a tradi-

tional Sephardic Jewish upbringing and was described as a star pupil on the fast track to be a rabbi. However, after his elder brother died, he stopped his religious training to go into the family business of grinding lenses. He subsequently studied philosophy and became so critical of the Bible, that he was ostracized by the Jewish community and his works were put on the Catholic Church's *Index of Forbidden Books*. Spinoza argued that no group or religion, Christian, Jewish or Muslim, could claim infallible knowledge of the creator's partiality to its beliefs and ways. He was deeply concerned about the dangers of religious intolerance and the influence of clerics in government who insisted on their version of the truth as the only one. Spinoza's profound influence on Einstein is illustrated by the following:

The word god is for me nothing more than the expression and product of human weaknesses, the Bible a collection of honourable, but still primitive legends, which are nevertheless pretty childish. No interpretation no matter how subtle can (for me) change this....For me, the Jewish religion like all others is an incarnation of the most childish superstitions. And the Jewish people to whom I gladly belong and with whose mentality I have a deep affinity have no different quality for me than all other people. ([Letter to Eric Gutkind](#) January 3,1954)

As he had explained in his magnum opus *Ethics*, Spinoza believed that God and Nature were synonymous names for a

fundamental and infinite force or agency that determined everything in the universe. All cause and effect relationships were governed by one set of rules, and mind and body were inextricably intertwined. In contrast, the French mathematician and scientist René Descartes insisted that mind and body were completely separate. He believed that man was created in God's image and that only man had a mind (soul) and a spoken or written language. Plants and animals were machines and there was "*no difference between machines built by artisans and objects created by Nature alone*". God's role in creating man was similar to that of a clockmaker — once the clock's parts had been properly assembled and set in motion, it could continue to run on its own.

Descartes also viewed the human body as a machine that operated much like a complicated clock. In his *Description of the Human*

Body, he argued that like all other devices that produced motion, the machinery of the body obeyed the laws of physics. Illness occurred when there was a mechanical problem and it was the physician's function to find and repair it. As with most other machines, this could best be accomplished by gaining a better knowledge of the body's smallest working parts. However, since mind/soul was a non-physical and motionless gift from God, it was separate from the material mechanics of the body and not subject to any known laws. Mental disorders were also a mystery and beyond human comprehension. They were often considered to be a pun-

***"no difference
between machines
built by artisans
and objects created
by Nature alone".***

ishment from God for some sin, or possibly even due to possession by an evil spirit that required exorcism. As a result, mental and emotional disturbances were more properly within the province of the Church and should be treated by priests rather than physicians. This schism prevailed well into the 19th century and persists in some parts of the world. Some would argue that doctors still don't know how to treat disorders of the mind, since in patients suffering from depression and PTSD, medications often do more harm than good.

Tiller emphasized the power of the mind and intentionality as an example of subtle energy but where is the mind located? Many view the mind as being synonymous with the brain but where in the brain does this energy come from? Can it be visualized with sophisticated imaging or other techniques? For Descartes, brain and mind were separate entities. Brain was physical matter and decayed after death, whereas mind (soul) was immortal and not a material substance. He reasoned that the soul was located in the pineal body, a small pinecone shaped gland in the center of the brain between the two ventricles, because we only have one soul and the pineal is one of the few structures in the brain that is not paired. Since he had maintained that only humans had souls, he mistakenly assumed that only humans had pineal glands. He believed that the pineal was also where all thinking, reasoning, imagination and other cognitive functions resided. As he wrote in *Treatise*

Of Man, "My view is that this gland is the principal seat of the soul, and the place in which all our thoughts are formed".

He was partially correct, since, as will be explained in a chapter devoted to this, we now know the pineal is an energy transducer that regulates neuroendocrine activities, and modulates immune system function and circadian rhythms. It also represents the mysterious "third eye" that is the source of wisdom and extrasensory perception in Hinduism and Eastern religions and appears on The Great Seal of the United States.



This can be seen on the back of every one-dollar bill on top of an unfinished 13-step pyramid (representing the strength of the 13 united colonies). The eye is surrounded by the Latin motto ANNUIT COEPTIS, meaning that providence (God) favors our undertakings. The framers of this and our Declaration of Independence were all deeply religious men, and Benjamin Franklin and Thomas Jefferson had originally suggested a picture of Moses parting the Red Sea, since the victory over the British was seen as a similar miracle.

Whether one believes in God or not, there is little doubt about the power of a firm religious faith. The same hold true for a strong faith in anyone, such as a physician, shaman or witch doctor or anything, like an amulet or sitting under a pyramid. We may refer to these as placebo effects, but this still does not account for their well-documented dramatic effects on health and physical function. How can a 96-pound elderly grandmother suddenly have the supernatural strength

to lift someone weighing much more from the railroad tracks to avoid an approaching locomotive? Can science explain any of these phenomena? Einstein, who was an agnostic, nevertheless acknowledged the importance of religion, and tried to show that it did not conflict with science in his famous statement "*Science without religion is lame, religion without science is blind.*" As he went on to explain :

A person who is religiously enlightened appears to me to be one who has, to the best of his ability, liberated himself from the fetters of his selfish desires and is preoccupied with thoughts, feelings and aspirations to which he clings because of their superpersonal value. It seems to me that what is important is the force of this superpersonal content ... regardless of whether any attempt is made to unite this content with a Divine Being, for otherwise it would not be possible to count Buddha and Spinoza as religious personalities. Accordingly a religious person is devout in the sense that he has no doubt of the significance of those superpersonal objects and goals which neither require nor are capable of rational foundation. In this sense religion is the age-old endeavor of mankind to become clearly and completely conscious of these values and goals and constantly to strengthen and extend their effect. If one conceives of religion and science according to these definitions then a conflict between them appears impossible. For sci-

ence can only ascertain what is, but not what should be.

Although he acknowledges that there may be some inscrutable observations science may never be able to explain, there has been progress in understanding what goes on in the brain that provides insight into some of these enigmas. By coincidence, Einstein has unwittingly contributed to some of this. His mental faculties were so astounding that his name has become a synonym for genius and his brain was preserved for posterity. It was no larger than normal, and 240 carefully prepared specimens from different sites in the brain were sent to leading neuropathologists around the world to see if they differed from males the same age and health status. There was no enlargement of the pineal, as Descartes might have predicted, and the only finding after 30 years of tedious investigation was a slight increase in the glial cells that help neurons function. Ten years later, another scientist reported that his parietal lobe was 15% larger than normal. This is not surprising since it is the portion of the brain that assists with three-dimensional and spatial reasoning and mathematical skills. Einstein excelled in these areas, but not as a youth, so it was not clear whether this was cause or effect.

A major breakthrough did not occur until just last month, almost 60 years after his death. Researchers who meticulously analyzed 14 newly discovered photographs reported that Einstein had an unusually thick corpus callosum. This is a wide, flat bundle of over 200 million nerve fibers that connects the two hemispheres, and is a relatively recent structure, since it is found only in mammals

with placentas. It plays an essential role in facilitating communication between the two frontal lobes, which are responsible for problem solving, decision-making and planning, and between these lobes and other parts of the brain. As the authors noted in a [September 24 online paper](#) in *Brain*, this enhanced connectivity helps to explain Einstein's unparalleled skills and achievements. This and similar discoveries have led to the assumption that everything that goes on in the mind and mental disorders will eventually be linked to demonstrable changes in some area of the brain or alterations in brain neurotransmitters.

There have been reports that special imaging studies or brain wave tracings can also identify differences in certain brain sites in psychics, faith healers, clairvoyants, remote viewers, *chi gong* masters and others who presumably generate or utilize subtle energies. I am not aware that any of these claims have been confirmed, nor have any differences in brain structure or function been demonstrated in such individuals. It had previously been widely believed that emotions and thoughts came from the heart, rather than the brain, and support for this comes from the observation that the electromagnetic field of the heart can affect the EEG of someone in close proximity. As indicated in

prior Newsletters, there is also evidence that the heart and gastrointestinal tract have their own brains. The enteric nervous system in the wall of the gut has many more nerve cells than the spinal chord, and while we think of the brain as influencing gastrointestinal function, 90% of the signals that pass along the vagus nerve are to the brain rather than from it. This additional gut brain produces the same neurotransmitters, including more dopamine, and accounts for 95% of the serotonin in the body, so it is no surprise that we have "gut feelings". Mind-heart-gut signaling may also take place via subtle energy pathways that have not yet been delineated.

In that regard, there will be a chapter proposing the existence of a bio-electrical circulatory system (BECS) that may be relevant. It provides insights into acupuncture meridian pathways, *yin* and *yang*, herbal therapies and other aspects of traditional Chinese Medicine. Blockage of the flow of energy in this system results in a variety of diseases, which can be successfully treated with what the author refers to as bioresonance electrical technology (BRT). This is



reminiscent of the concept of *chi*, which the Chinese sage Lao Tzu, called the "Father of Taoism", described as follows:

**Look, it cannot be
seen - it is beyond
form**

**Listen, it cannot be
heard- it is beyond
sound**

**Grasp, it cannot be
held - it is intangible.**

Lao Tzu recognized that other aspects of Nature were also beyond human comprehension, such as the properties of water.

**Water is fluid, soft, and
yielding.**

**But water will wear
away rock, which is
rigid and cannot yield. As
a rule, what ever is fluid,
soft, and yielding will
overcome whatever is
rigid and hard.**

**This is another paradox:
what is soft is strong.**

(*Tao Te Ching*, 600 B.C.)

Others have also marveled at the mysteries of water. Leonardo Da Vinci wrote "*Water is the driving force of all Nature. . . . In rivers, the water that you touch is the last of what has passed and the first of that which comes; so with present time.*" In addition, the amount of water on earth and in our atmos-

phere, remains constant; there is never a drop more, never a drop less. All the water that will ever be is here, right now. Finally, Albert Szent-Györgyi, who received the Nobel Prize for discovering vitamin C, wrote:

Water, the Hub of Life.

**Water is its mater and
matrix, mother and
medium.**

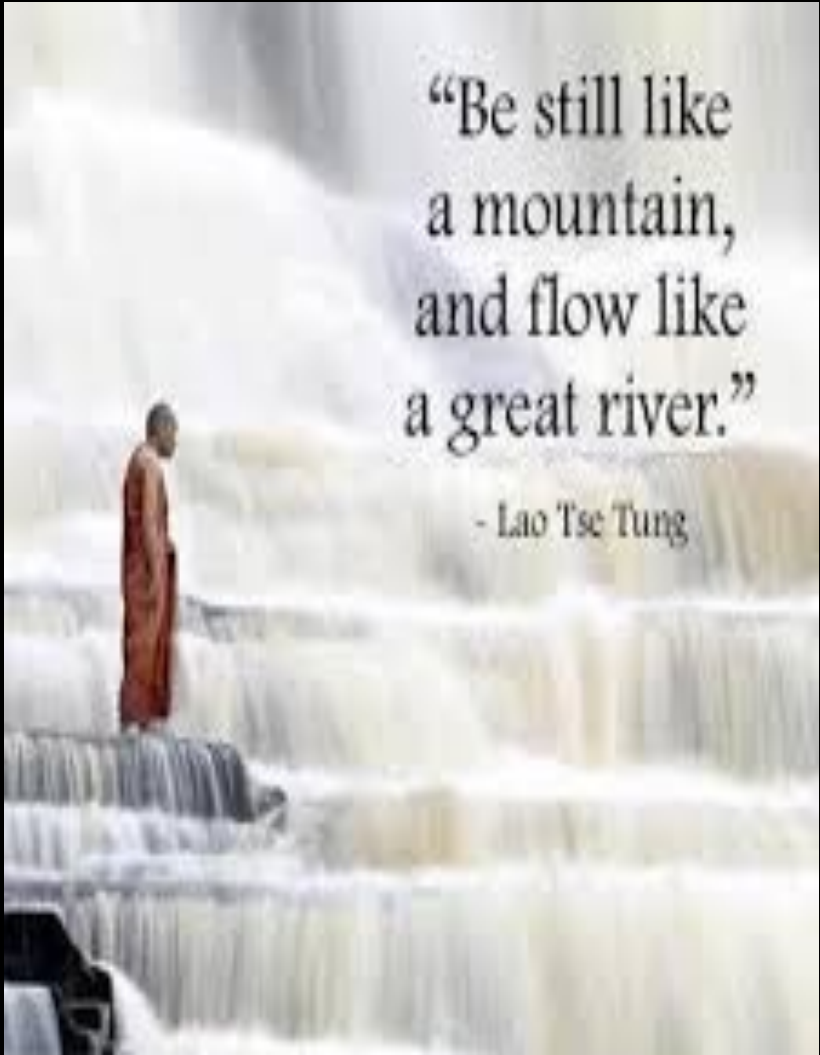
**Water is the most
extraordinary substance!**

**Practically all its proper-
ties are anomalous, which
enabled life to use it as
building material for its
machinery. Life is water
dancing to the tune of
solids.**

(*The Living State* -1972)

This remarkable description or prophecy has now been confirmed by the discovery of EZ (exclusion zone) water, as will be explained in the following book reviews. Both these authors will also be contributing updates, and for a peek into other chapters showing amazing advances in bioelectromagnetic therapies, see the remarkable results in [Parkinson's disease](#) and how patients can go home the same day and resume normal activities without any surgery in the [Operating Room of the future](#). - Stay tuned for more!!

Paul J. Rosch. MD, FACP
Editor-in-Chief



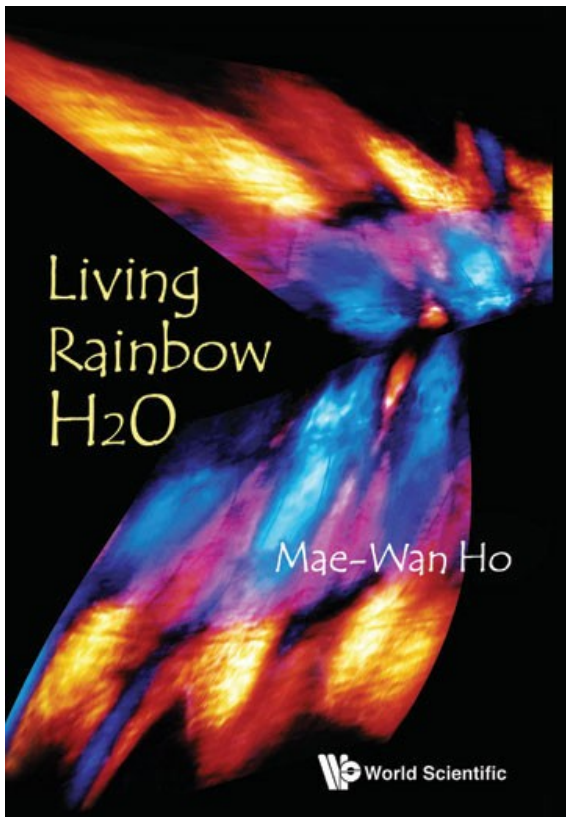
“Be still like
a mountain,
and flow like
a great river.”

- Lao Tse Tung



BOOK REVIEW

By Paul J. Rosch, MD, FACP



**Living Rainbow H₂O by Mae Wan Ho.
World Publishing Co. Ltd. Singapore,
2012**

It is difficult to say anything about *Living Rainbow H₂O* without explaining that it is a sequel to *The Rainbow and the Worm, The Physics of Organisms*, first published in 1992. It attempted to answer questions posed four decades earlier by the Nobel Laureate, Erwin Schrödinger in *What is Life? The Physical Aspect of the Living Cell*. Often called the father of quantum physics, Schrödinger's most important question was "How can the events in space and time which take place within the spatial boundary of a living organism be accounted for by physics and chemistry?"

In Ho's opinion, the problem did not lie in physics, chemistry or biology, but rather that we study the relationship of these disciplines to being alive from

a mechanistic and reductionist Newtonian viewpoint. Her subtitle, *The Physics of Organisms*, did not refer to conventional biophysics, which insists on applying traditional thermodynamic laws to living systems. As she notes, life is not a material thing or structure, but a process that exists on a "spectrum based on organized and quantum-coherent energy". This can only be understood by minimally invasive observations that do not destroy tissue or disrupt function. However, we study living things by killing them and analyzing various components in a futile attempt to understand how they work in such a highly organized, coordinated and productive manner. She expanded on this in subsequent revisions by explaining that quantum coherence is a state of being whole that involves molecules acting in perfectly correlated ways. The result is a "pattern of dynamic flow of matter and energy that somehow makes the organisms alive, enabling them to grow, develop and evolve." Her last and much

enlarged 2008 revision included new findings on the crucial role of biological water in synchronizing living processes.

Living Rainbow H₂O picks up where this left off by reviewing subsequent advances in quantum physics and chemistry that explain why liquid crystalline water in the living matrix is "the means, medium and message of life." Such structured water provides the electricity that animates us and facilitates the rapid and efficient intercommunication that characterizes quantum coherent systems. Ho uses the analogy of "quantum jazz" to illustrate this, since while individual performers do their own thing, much like a cadenza in a concerto, it is still congruent with the ensemble, and the final whole is greater than the sum of its parts. As she explains, "There is no conductor or choreographer. Quantum jazz is written as it is performed; each gesture, each phrase is new, shaped by what has gone before, though not quite." Similarly, "Quantum jazz is the music of the organism dancing life into being. It is played out by the whole organism, in every nerve and sinew, every muscle, every single cell, molecule, atom and elementary particle, a light and a sound show that spans 70 octaves in all the colors of the rainbow."

Although each of the 23 chapters is a paean of praise to the remarkable properties and powers of water, they also explain the "thermal threshold" fallacy, ion cyclotron resonance, memory of water, and why homeopathy and acupuncture provide benefits. The author is careful to explain these and other complex topics and terms so that they are readily comprehensible to a lay reader. At the same time, her compelling narrative does not miss a beat as she simultaneously documents scientific details for those who want additional information or proof.

Instead of chasing rainbows, Ho has caught hers. It is "the rainbow within", because its liquid crystalline state enables water molecules to line up and move coherently together, which creates the colors of the rainbow when viewed with a polarizing microscope. It is impossible to do justice to this book in a few paragraphs, other than to say that anyone who reads it will find new and fascinating answers to questions that have puzzled scientists for decades.

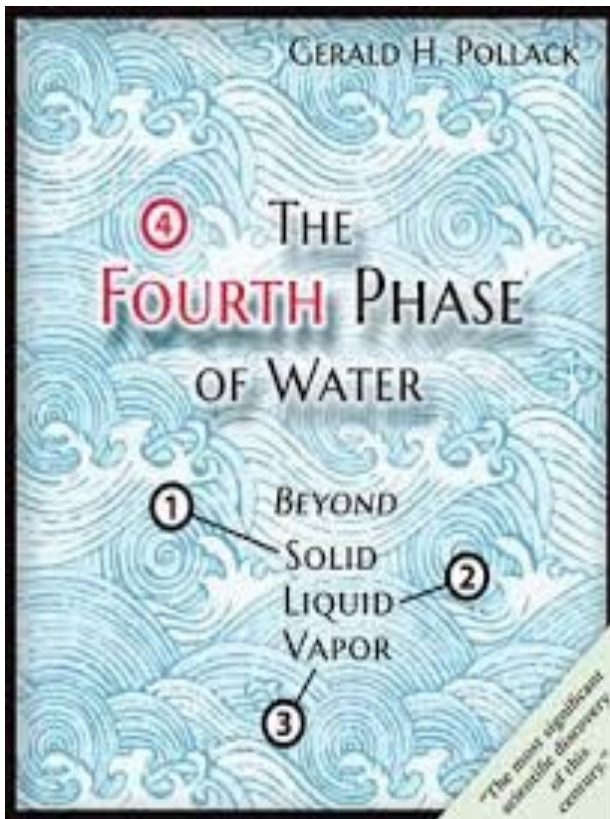


Freshly hatched *Drosophila* larva under the polarizing light microscope, which optimizes the detection of liquid crystalline phases based on interference colors. The colors indicate that essentially all of the molecules, including water molecules, are aligned; the particular colors depend on the orientation of the molecular alignment and their degree of birefringence. Photo to the left is From Ho M.W. *Living Rainbow H₂O* Page 2



BOOK REVIEW

By Paul J. Rosch, MD, FACP



The Fourth Phase of Water: Beyond Solid, Liquid, and Vapor by Gerald H. Pollack. Ebner & Sons, Publishers. Seattle, 2013

Water, thou hast no taste, no color, no odor; canst not be defined, art relished while ever mysterious. Not necessary to life, but rather life itself, thou fillest us with a gratification that exceeds the delight of the senses.

—Antoine de Saint-Exupery *Wind, Sand and Stars*, 1939

As noted above and in previous quotes in this Newsletter, water is wonderful, but it is also mysterious, if not weird. Did you ever wonder why you sink in dry sand but can walk on the wet sand of a beach or use it to build sand castles and sculptures because of its adhesive properties? Why does water form droplets on some surfaces

but not others? How are some lizards able to walk on water when their weight should make them sink? Gelatin desserts are 90% or more water, so why doesn't it leak out? Why do raindrops fall faster than they should and provide more energy to plants and crops than bulk water? Why is ice usually slippery but sometimes sticky? Why does warm water freeze faster than cold water? Most things contract and become denser when they freeze, but when water freezes, it expands. That's why pipes burst and ice forms on the top of ponds and lakes where it floats on water. How does water get from the roots to the top of a plant or a tall tree?

These are some of the numerous questions answered in this fascinating book about the discovery of a new phase of water that is denser and more alkaline than H₂O. Its formula is believed to be H₃O₂, so it has a negative charge, and like a battery, can hold

energy and make it available when needed. Professor Pollack has named this EZ (exclusion zone) water, since his meticulous research shows it has a clearly demarcated zone that excludes even small molecules. Others have referred to it as "structured", "biological" or "living" water. EZ water is a crystalline stage that is necessary for water to be converted to ice and vice versa. It occurs in nature when snow, glaciers and icebergs are formed, which is why glacial melt is very rich in EZ water. It has been estimated that 99% of the molecules in the body are water, but most EZ water is intracellular, which may be why the body's cells have a negative charge. The energy in this water comes from light, especially in the infrared range, which may be why infrared saunas and exposure to the sun makes us feel better. Since EZ water has more oxygen, it might also mimic the healing effects of hyperbaric oxygen therapy.

As the author notes, much of this might have been discovered sooner were it not for the fact that during the Cold War in the 1960's, Russian scientists described a new kind of water with remarkable properties. It was difficult to freeze or vaporize, was unusually dense and behaved differently in capillary tubes. Scientists all over the world were intrigued because of the stellar reputation of the researchers, which included Russia's leading physical chemist. It was dubbed "polywater" because it seemed to act like a polymer, and there were fears that if it behaved like other polymers used to make plastics, a few drops of polywater in the ocean could polymerize and ruin the earth's water supply. It was not until the 1970's that it was finally discovered that all these anomalous activities were entirely due to impurities that had not been detected. But the damage had been done and research on water came to an abrupt halt, save for scientists like Jacques Benveniste. Two decades later, he proposed the existence of "memory" in water, and as previously noted, was so persecuted, that others who confirmed his results were afraid to publish them.

One of the most appealing aspects of EZ water is that it could explain how blood is able to circulate through the capillary system and defy gravity by traveling from the roots of a tree to nourish its branches and leaves at the top. While much of this seems like it would be tedious reading, the author has done a remarkable job in making complex issues readily comprehensible and explaining technical jargon in simple terms. All of this is significantly enhanced by copious illustrations and diagrams by Ethan Pollack, a very talented artist who happens to be the author's son. Sounds like this must have been fun to write and there can be little doubt that it is fun as well as fascinating to read.

Look for **The Seal.**



**ONLY THE AIS
SEAL OF CERTIFICATION**
assures you that a stress
management products or
services have been fully
tested and verified to be
effective by AIS.

What is AIS Certification?

Products and services that have been certified by AIS make truly significant strides toward providing the public with tools, training and techniques that reduce stress levels and improve the health and quality of life for consumers. The AIS seal indicates that this entity delivers on its claims as a stress management tool or training source.

Why Trust AIS?

The American Institute of Stress (AIS) is a non-profit organization that for over 35 years has set quality standards for stress research, and more recently stress management products and services. AIS Standards are recognized across the world as scientifically rigorous and are representative of excellence in the field.

GET INSIDE OUR HEAD

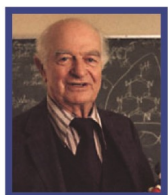
It's Not Our Credentials
That Make AIS So Impressive,
It's the Fellows That Go with Them.



The American Institute of Stress is a non-profit organization established in 1978 at the request of Dr. Hans Selye (the Founder of the Stress Concept) to serve as a clearinghouse for information on all stress related subjects. AIS Founding Fellows include:



Paul Rosch



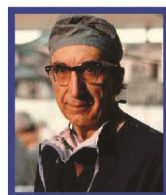
Linus Pauling



Alvin Toffler



Bob Hope



Michael DeBakey



Herbert Benson



Charles Spielberger

Join our prominent psychologists, physicians, other health care practitioners and health conscious individuals who are interested in exploring the multitudinous and varied effects of stress on our health and quality of life.

The American Institute of Stress invites YOU to enhance your credentials with FAIS and add your name to our Gallery of Distinguished Fellows.

Over the last 35 years, we've expanded our services and broadened our reach, but our dedication to science hasn't changed a bit.

Our four focus areas include:

1. Combat Stress
2. Daily Life Stress
3. Workplace Stress
4. Expanding Human Potential

We produce three e-magazines focused on different stress related topics...



We are always looking for new contributors to our magazines. If you would like to submit an article, email your idea to editor@stress.org

Join us in our mission to
Engage, Educate and Empower
the global community with science based stress management information, tools and techniques so people can live happier, healthier and longer lives!

Visit stress.org to download your
FAIS or DAIS application

The American Institute of Stress

This is to certify that

Imagine YOUR Name Here

Having satisfied the requirements for education, training and experience,

is duly qualified and has been elected to the status of

Fellow of the American Institute of Stress

and is entitled to all of the benefits deriving therefrom



Member Number: 5001
Expires: June 12, 2013

Daniel L. Kirsch
Daniel L. Kirsch, PhD, DAAPM, FAIS
President

American Institute of Stress
9112 Camp Bowie West Blvd. #228
Fort Worth, TX 76116

www.stress.org

USA Main: (682) 239-6823
Fax: (817) 394-0593
Email: info@stress.org

Want more AIS news delivered to your inbox?

Click Here



Subscribe Now
FREE



The American Institute of Stress
9112 Camp Bowie West Blvd. #228
Fort Worth, Texas 76116 USA

Phone 682.239.6823
Fax 817.394.0593
info@stress.org
www.stress.org

ISSN # 108-148X