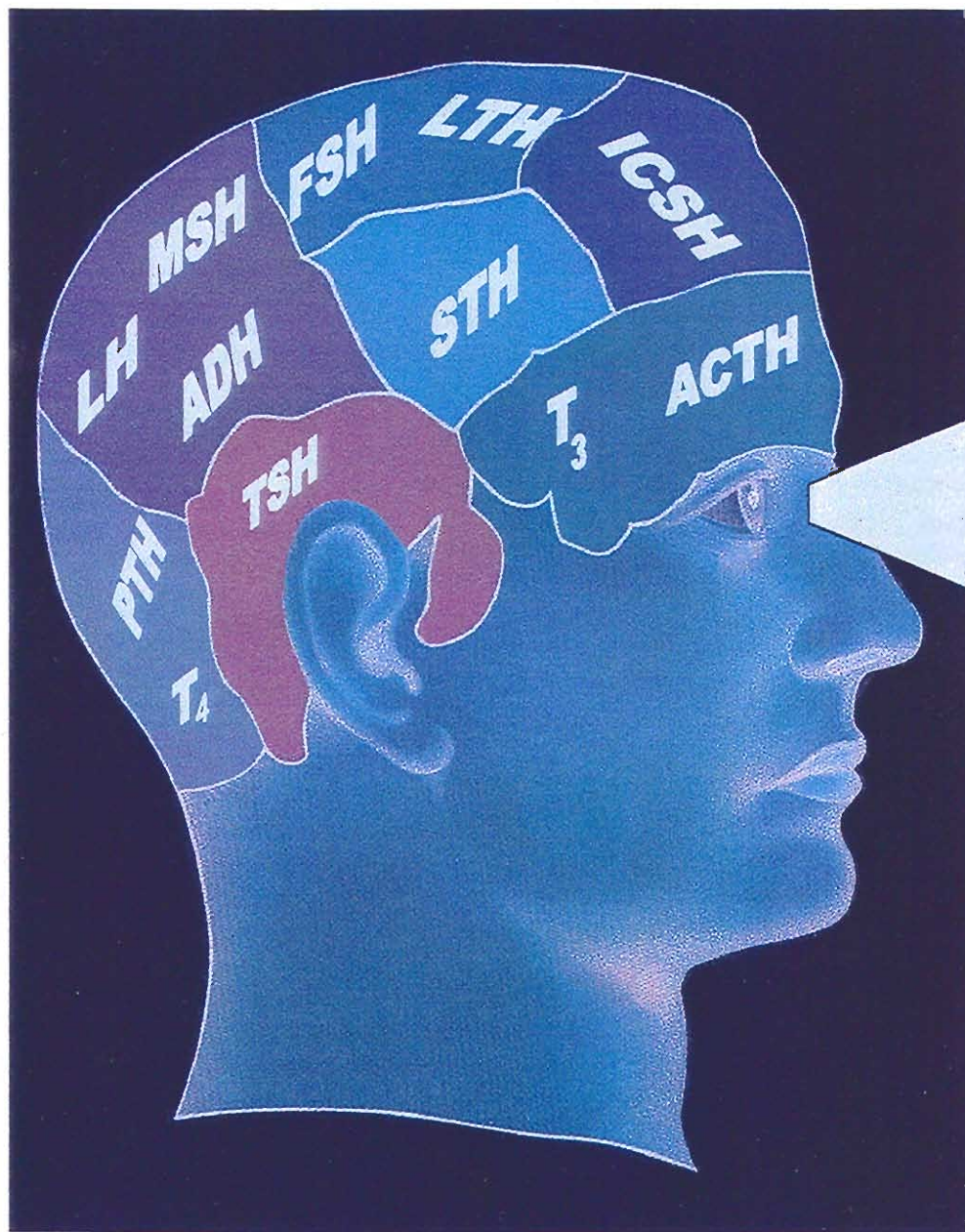


# Journal of Optometric Phototherapy



Combining Light  
and Acupuncture

Exploring the Biology  
of Phototherapy

Syntonics:  
Optometric Color  
Therapy for the  
Treatment of Acquired  
Brain Injuries

Lighting Up!

April 2001



# College of Syntonic Optometry



A NONPROFIT CORPORATION DEDICATED TO RESEARCH IN PHOTORETINOLOGY.  
THE THERAPEUTIC APPLICATION OF LIGHT TO THE VISUAL SYSTEM

## PRESIDENT'S LETTER

Dear Colleagues,

As the anniversary of John Searfoss's passing approaches we are dedicating this journal to his memory. John's contribution to optometry and Syntonics has been immeasurable. We have established a memorial fund in his honor to continue the research and education in the field of phototherapy that he loved. It seems such a tragedy to lose John at the prime of his life. I am sure I speak for most of us as we wish John's loved ones our deepest sympathy.

Due to our losing John, our newly elected secretary, and the resignation of some of our board members, this year's organizational goals have been unmet. We have sent requests to many of you to become Fellows of the College and help steward this wonderful work. The education committee will assure your success.

This year has seen increasing recognition of Syntonics by our colleagues in optometry and other professions as well. Ray Gottlieb, Sarah Cobb, and myself presented several hours of lectures at The International 2000 conference on Light and Sound Healing in Chicago last June and were wonderfully received. Many other color therapies are embracing Syntonics and also crediting Syntonics as the pioneer science in the field. Due to the Chicago presentations we have been invited to present them again at The 2001 Conference LIGHT-COLOUR AND SOUND, to be held in Cambridge England next July. Following the conference Ray Gottlieb and I will do a basic course in Syntonics in Birmingham England. This is being organized by Geoff Shayler and Bill Hay, optometrists in Great Britain. It will have attendees from throughout Europe and establish a European branch of The College.

Again we were represented by Frank Forgnoni at COVD and he had help from several of our members in promoting our work to their membership. John Searfoss's article co-authored with Ralph Garzia on visual fields was published in the COVD JOURNAL. A major review of the field of Syntonics written by Ray Gottlieb and myself is to be published this spring by OEP's Journal of Behavioral Optometry. An article I wrote "Syntonics and Stabismus" is also due out soon in OEP's curriculum series. This journal contains cutting edge material by James Oschman to which furthers our science.

This year's conference will do more of the same with the latest theories and research in energy medicine including presentations on Esoteric Medicine, HeartMath, neurofeedback, nutrition and color therapy, and a broad collection of lectures by our fellow practitioners. I think, without doubt, our meeting is one of the most thought provoking, leading edge conferences anywhere. I look forward to seeing you all in Niagara Falls.

Sincerely Yours,

Larry Wallace, O.D., FCSO  
President, CSO

# In Memoriam

Dr. John Searfoss

January 3, 1949 – May 10, 2000



Dr. John Searfoss (left) receiving the 2000 Spitler Award  
From Dr. Charlie Butts (right) with the following inscription;

*“Presented to John Searfoss  
for original and important contributions  
in Instrumentation, Methodology, Research, and Teaching in Phototherapy.”*

A memorial fund has been established. Contact Viktor Kuraitis Ph: 905-935-1440 Fx: 905-938-2249

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## LETTERS

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The opinions expressed in this section are those of the writers, and do not necessarily reflect the view of the *Journal of Optometric Phototherapy*. We reserve the right to edit letters for the sake of space. Address email to: Sarah Cobb, [eyeamsarah@hotmail.com](mailto:eyeamsarah@hotmail.com).

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Sarah, as I am re-reading these letters and bringing **my full attention** (As John says to do) to these long stored away thoughts, I now understand some of where John was in time and space. John was a product of his father, his grand - father and his great grandfather. All were in the optical field starting from a jeweler-optician to optometrist when optometry first became a profession in the USA. To his father an optometrist who graduated from optometry school and went off to war as a pilot, surviving the maximum number of bombing missions in a B-17 over Germany during WWII. Who upon returning to the USA picked up his life and his profession and learned the optometric functional vision techniques from the likes of Skeffington, and the other icons of that day. His father and his contemporaries that John knew first hand like Gettman, Jander, Streff, etc. John met these guys as a youngster. These are people that most of us just read their names in the history books. These folks were personal friends of his father and were a huge influence in John's life and his background optometric knowledge. John soaked all of his father's information into his being and took the Syntonic phenomena he saw work in his private visual training practice and synthesized a model of how it worked and why. John wrestled with the contradictions and the views that were expressed by many of the syntonists of the early days and the contemporary times to come up with a working model to suit his view of reality. John took a concept that his Father did not believe in and the other optometric leaders like Gettman did not give credence to and gave it a chance and saw it work first hand. He was determined to make sense of it all. I believe he had accomplished it. He seemed to have that ability to focus deeply on what was happening. Dr. Butts was a tremendous influence on John's beginning steps in this field.

Charlie helped him to give what seemed like a ridiculous concept a try in his visual training practice. John saw success and subsequently brought his full attention to this long overlooked and under rated subspecialty of optometry. I am personally amazed at his tenacity in this field. Had he lived I'm sure John would have been a prime mover in sharing this information to not only optometry but to the world. John has passed this baton on to those of us who are still here. Praise the Lord for the internet and the International Australian chat line that was going on during these early days of quick communications. The ability of the computer to send and store our written words so efficiently. This technology has brought John's words to life for all to read and understand his thoughts. As John would say; can we bring our ATTENTION to bear upon this subject of Color Therapy and use this God given treatment system for the benefits of our patients as well as our practices? Who among us can pick up the baton that John has handed us via his electronic messages? He has taken something that seemed so complicated and boiled it down to his message on ATTENTION. This explains the mechanism or philosophy of how this treatment system works. Fantastic. Sarah; I'm writing this as I read John's last e-mail sent about 2 hrs before he died. He was still working on the conference aftermath. Wonderful guy and a dear friend. I miss him a lot. I pray that he is now in God's hands and understands the wonderful creation that we all puzzle over and try to understand with our limited abilities.

*David Luke, O.D*

Dear Editor,  
I must admit that I miss John enormously. Syntonics just hasn't been the same for me since his untimely

death. I feel an enormous void since his departure. He was a stranger that I never met yet he was a dear friend, a soul mate. He and I had most wonderful email discussions, as you would have noticed. He questioned my beliefs: he laughed at me: he laughed with me but never did he make me feel inferior: he helped me to grow. I can still recall my first direct private email contact with him. He asked me who I was and what had I been doing with syntonics. I replied and asked, 'What have you done in syntonics?' Little did I know at that stage who I was talking to. He ignored me, which was probably the kindest thing he could have done. A most wonderful man.

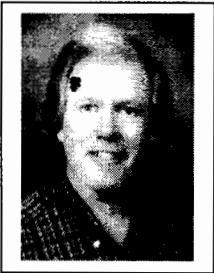
*Julius Liubinas, O.D.*

Dear Editor,

I first met John in 1990 when he presented a paper on narrow band filters. They had on display a syntonizer which he and his brother had designed using the narrow band filters. Our next association was on the syntonics email chat group. We got off to a shaky start at first not sure what he or I were really saying. But it didn't take long before the knowledge that John had began to reveal itself and his participation forced us to think out of the square with syntonics. Three other important things transpired over the year on the email group firstly John and Julius really clicked together to the point of nicknaming Julius as Melodious and then Melodious Riddler. The second thing was the name of the email group became the "Group Mind" reflecting the continual inputs by different syntonists and the melting pot for different ideas. Like a true teacher John didn't just make us think but he inspired and gave valuable insights to syntonic optometry. His colleagues will miss him dearly.

*Simon Grbevski, O.D.*

# Journal of Optometric Phototherapy



## **EXPLORING THE BIOLOGY OF PHOTOTHERAPY... Page 1**

Dr. James Oschman is a researcher, writer, and speaks internationally on energy medicine. His book is entitled, *Energy Medicine: The Scientific Basis*.

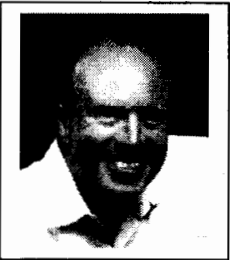
## **SYNTONICS: OPTOMETRIC COLOR THERAPY FOR THE TREATMENT OF ACQUIRED BRAIN INJURY..... Page 10**

Dr. Larry Wallace is the president of the College of Syntonic Optometry. He is an inventor, writer, and speaker on light and vision. His practice is in Ithaca, New York.



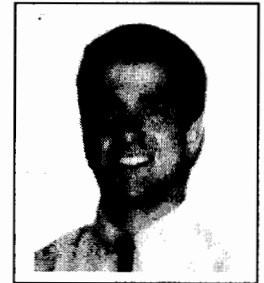
## **A CASE FOR SYNTONICS ..... Page 14**

Dr. Bruce Rosenfeld is the vice President of the College of Syntonic Optometry. He is a facilitator for the Peace Theological Seminary and practices in Pennington, New Jersey.



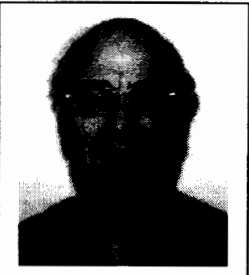
## **LIGHTING UP..... Page 15**

Dr. Frank Forgnoni is the Delaware State Director of the Optometric Extension Program and for the College of Optometrists in Vision Development. He practices in Newark, Delaware.



## **IS THERE MORE TO VISION THAN MEETS THE EYE? ..... Page 17**

Dr. Mosses Albasas holds doctorates in optometry, nutrition, homeopathy, and oriental medicine. He is also a licensed acupuncturist and practices in Los Angeles, California.



## **THE VISION OF HOMEOPATHY ..... Page 19**

Larri Richmond was an optometric vision therapist for fifteen years and currently practices homeopathy in Ithaca, New York.



## **COMBINING LIGHT AND ACUPUNCTURE..... Page 25**

Dr. Helge Proszak is an acupuncturist and international lecturer. She is collaborating on a book on the historical and currently emerging uses of light. She lives in Hawaii.



## **LECTURE SUMMARIES..... Page 28**

Sarah Cobb, editor of the *Journal of Optometric Phototherapy*, has invented numerous eye charts used in vision training. She writes, lectures and is a student of light.



# EXPLORING THE BIOLOGY OF PHOTOTHERAPY

By James L. Oschman, Ph.D.

*This essay is affectionately dedicated to the memory of John Searfoss, O.D., a distinguished pioneer in phototherapy and a very warm and enthusiastic colleague.*

*There exists a relationship which is largely predictable between light frequency, environment, and the restoration of health following departures from normal, which are still within the physiologic limits....*

H.R. Spitler, M.D., O.D.

**D**r. Spitler's observation that, within limits, health can be restored with specific light frequencies, poses a profound biological question: How can light "jump start" the healing process for a wide range of clinical problems, involving tissues throughout the body? An answer to this question would obviously have much medical significance.

Gottlieb, discussing the research of Tiina Karu in Russia, states the problem this way:

*How does light find the right places to work to heal the body? Normal tissue is much less affected by light than out-of-balance tissue. Starving cells are far more sensitive than well-fed ones.<sup>1</sup>*

Recent research is beginning to answer this question. This essay summarizes relevant discoveries and then follows a light stimulus through the network within the body to the places where structure and function have been compromised. The goal is a logical explanation of how the appropriate application of light can reach and benefit any part and any process in the organism.

## UNSOLVED PROBLEMS

Modern biomedical research has achieved many milestones, and

given us crisp images of our internal structure and physiology. In spite of this, a number of important theoretical and clinical problems remain virtually untouched. Our academic struggles and our intellectual myopias stem from our basic approach, which is to take the organism to pieces and study the parts, one-by-one. While much has been learned this way, there is a tendency to lose sight of the big picture. There is a tendency to focus on phenomena that are easy to study or measure, leaving more difficult areas unexplored. And textbook explanations are often taken as complete answers, even though they are not.

Research on consciousness is a good model for discussing whole-system inquiries such as ours, because simplistic and reductionistic hypotheses have only led to limited progress. Models of consciousness are also of interest to phototherapists who observe beneficial behavioral or psychological changes in their clients. Of key importance is the realization that what we have referred to as *mind* and *body* are one and the same, indistinguishable, inseparable, intertwined. The idea that mind and body are *connected* is erroneous and misleading. It is impossible to

connect something to itself. While we might agree on this point, it is only recently that we have begun to understand its real significance.

In terms of phototherapies, the eye is obviously the window to the brain. It has therefore seemed logical to focus on neurophysiological models as a basis for phototherapy. But the nervous system actually plays only minor roles in injury repair and defense against disease. The real actors are cells and the medium in which they reside, the connective tissues.

Our obsession with the brain and neurons has been addressed brilliantly and concisely in a recent paper by Stuart Hameroff: *The neuron doctrine is an insult to neurons.*<sup>2</sup>

*The neuron doctrine, currently in vogue, is based on the assumption that brain = mind = computer. This view leaves us almost completely ignorant about how the brain produces mental life. The expectation is that consciousness emerges at some critical level of computational complexity in the self-organizing networks of synaptically connected neurons. However, there are no testable predictions arising from such an emergence model. We can only wait for consciousness to happen.*

*The neuron doctrine is a bluff.*

These problems are recapitulated at the cellular level:

*The neuron doctrine, currently in vogue, is too watered-down to explain how the brain gives rise to mental life. Neuroscience is not being applied deeply enough. The neuron doctrine considers only certain activity at neuronal surfaces, ignoring internal features, including the fact that neurons are living cells. Each neuron is treated as a "black box," ignoring internal activities. The present characterization of the neuron is a cartoon, a skin-deep portrayal that simulates a real neuron much as an inflatable doll simulates a real person.*

#### A TURNING POINT

A British biophysicist, Mae-Wan Ho, has taken us to an important turning point in our inquiries:

*I believe that the impasse in brain science is the same as that in all of biology: we simply do not have a conceptual framework for understanding how the organism functions as an integrated whole.*

Ho has developed a *quantum coherence* model that is simultaneously the basis of living structural and functional organization and the key features of conscious experience.<sup>3</sup> Her work gives a framework for approaching many unsolved problems related to the biology of the healing process and the mechanisms involved in phototherapies.

#### WHAT CELLS DO

Hameroff implies that there is more to a neuron than we have been led to believe. So let us open the cellular "black box."

In terms of injury repair, the neuron is not very important. The nervous system is a marvel of communication and musculoskeletal control, but it actually plays a small role in injury repair and defense against disease. Its main role in healing is in the conduction of pain, a process that is poorly understood.

We begin our consideration of cells with a basic biology lesson that is often overlooked. If we trace the cells that make up the human body

back through evolutionary history, we arrive at the primitive motile bacteria and protozoa. The biology lesson is that such single-celled organisms, lacking any trace of nerves or brains or muscles, can swim gracefully, avoid predators, find food and mates, and have sex.<sup>4</sup>

In terms of injury repair and defense against disease, the evolutionary descendants of these remarkable organisms are our white blood cells, fibroblasts, pericytes, stem cells, satellite cells, and so on. These cells are capable of sensing where they are needed in the body to make repairs or remodel tissues or destroy unwanted pathogens or cancerous growths. These cells move about swiftly, silently, and intelligently, without the benefit of what we usually think of as nerves, brains, or muscles.

Some of these cells, such as the satellite cells in muscle, are relatively fixed in position, and can remain in a quiescent or resting state for many years, until they are called upon to replace or repair damaged tissues. Others continuously wander about within the body, following prescribed routes, on patrol and ready to act quickly when and where needed.<sup>5</sup> Still others, called myofibroblasts, differentiate from fibroblasts and are responsible for wound contraction.<sup>6</sup>

#### REGULATING REPAIR

The repair process is a marvel of regulation:

*Any disease or trauma sets off an intricate cascade of physiological activities and adjustments. If the disturbance is severe, both local and systemic responses are initiated, and all of the systems in the body can be involved. Each organism and each injury and each disease is unique, and the body's response must be precisely appropriate if full restoration is to be achieved.*

*A variety of kinds of cells migrate toward a site of trauma. For example, platelets release clotting factors; waves of white cells move in to fight infection or resorb "non-self" materials; epithelial cells, fibroblasts, and osteoblasts crawl into position to replace damaged tissues and to*

*form scar tissue. These events are triggered by a variety of messages, both chemical and electrical, that radiate from a site of disorder.*

*A range of stimulating and inhibiting factors activate and integrate repair, and then wind down the process when healing is complete. An intricate web of whole-body feedback and feed-forward regulatory pathways can be involved. Some activities persist for weeks after an injury. Vital processes must be maintained during repair. This may require temporary shifting of functions to other parts or systems or pathways.<sup>7</sup>*

Given the intricate matrix of regulations involved in restorative processes, it is not surprising that some injuries or diseases heal slowly. All of clinical medicine aims to understand this and provide interventions that accelerate the healing process. In some cases, the repair mechanisms themselves, or the communication systems that integrate them, are in need of repair.

#### CELLS HAVE TO BE SENSITIVE, INTELLIGENT, AND HIGHLY MOBILE

Cells sense their surroundings with receptor molecules extending from their surfaces. On the inside of the cell, these receptor molecules connect with the *cytoskeleton*. This is a system of relatively stiff elements called microtubules (the "bones" of the cell), contractile filaments called microfilaments (the "muscles" of the cell), and a connecting system microtrabeculae, intermediate filaments and other fibers (the "connective tissue" of the cell).

Taken together, the continuous network within the cell can act as a sophisticated microscopic cellular "nervous and musculoskeletal system." The cytoskeleton processes information, responds to stimuli, makes decisions based on past experiences, initiates movements, and carries out a variety of activities such as protein synthesis, secretion, contraction, and phagocytosis.

One of the most important realizations in the history of cell

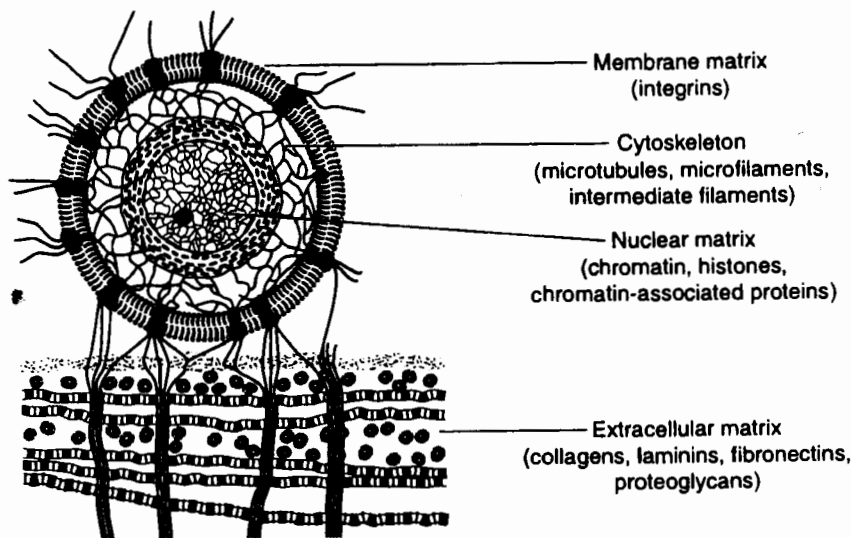


Figure 1

The living matrix is the continuously interconnected network of extracellular, membranous, cytoskeletal, and nuclear fabrics. Many components of the living matrix are highly ordered, liquid crystalline arrays of molecules. Every fiber is associated with water molecules that play a key role in conduction of information throughout the matrix. From Oschman, J.L., 2000. *Energy Medicine: the scientific basis*. Harcourt Brace/Churchill Livingstone, Edinburgh.

biology is that the cytomatrix or cytoskeleton of every cell in the body is linked to specific membrane molecules called *integrins* that extend across the cell surface and into the immediate cellular environment, where linkages are formed with the connective tissue or with neighboring cells (Figure 1). Also, deep within each cell, the cytoskeleton binds in specific ways with the nuclear envelope, nuclear matrix, and genetic material.

The whole arrangement, connective tissue, cytoskeletons, and nuclear matrices, is a structural, mechanical, energetic, and informational *continuum*. I call the whole assembly *the living matrix*. It is a semiconductor network, an integrated circuit.<sup>8</sup>

In many parts of the body the molecules are locally organized into highly ordered arrays that resemble crystals.<sup>9</sup> Technically they are liquid crystals, materials that have properties of both liquids and solids. The retina is a virtually crystalline arrangement of cells, the lamellae within the outer segments of the rods and cones are organized in crystalline arrays, cell

membranes and connective tissues are liquid crystals, as are the arrays of actin and myosin within muscle cells.

Key links in the system, the integrins, regulate most functions in the body at a fundamental level.<sup>10</sup> Integrins are being recognized as focal points in disease processes. It is the integrins that anchor cells to each other and to the substrate. These anchorings can be labile—under appropriate conditions they dissolve to allow cells to detach and move about.

To summarize, the basic work of injury repair and defense is done by individual cells that must sense where they are needed, move there, and then carry out specific activities. When repair processes are impaired, for whatever reason, it is either because the relevant cells are not functioning properly, because they are not receiving important messages, or because they have difficulty moving through the terrain through which they must migrate. The terrain, of course, is mainly the connective tissue in its various forms: fascia, tendon, ligament, bone, cartilage, basement

membranes.

Ultimately, if light is to activate injury repair, the light must in some way affect these cells. There are two obvious choices. Either light stimulates the cells directly, or it opens up the channels by which the cells communicate with each other. The information to be presented next points toward the second mechanism as being a primary effect.

#### FOLLOWING A PHOTON

The retina is the most remarkable and thoroughly studied sensor in nature. The standard picture of photoreception begins with the interaction of a photon with the visual pigment, rhodopsin. The 1967 Nobel Prize research of George Wald and others showed precisely how rhodopsin in the retinal rod cell can absorb the energy of a single photon.<sup>11</sup> A conformational change in the rhodopsin molecule initiates a cascade of chemical reactions, the flow of millions of sodium ions across the rod cell membrane, and an electrical signal that is transmitted by the optic nerves to the brain. In essence, the energy contained in a single photon is amplified many times to produce a nerve impulse.<sup>12</sup> From many such impulses the brain constructs our image of the world around us.

But there is another story to be told. This other story is not meant to replace the standard textbook description of photoreception and visual image formation. The neurobiology texts are not wrong. But when we look inside the rod cells, the nerves, and the other cells associated with them, we find another pathway by which the body becomes “aware” of the photon. This pathway *includes* the nervous system, but is not limited to it. This pathway conducts information far faster than nerves. This pathway is not slowed by synaptic delays. The pathway is inside the cellular “black boxes” and connects to the connective tissue in which the cells are embedded.

We will look at this pathway to see if it can help us understand how phototherapies have their remarkable system-wide effects.



## CILIA, FLAGELLA, AND MICROTUBULES

In 1973, Jelle Atema from the Woods Hole Oceanographic Institution published an important theoretical paper about the cilia and flagella that are components of many mammalian and invertebrate sensory cells.<sup>13</sup> Cilia and flagella occur in mammalian retinal rod cells. They are also present in olfactory receptors and in the acoustico-lateralis system that senses gravity and sound.

In both rods and cones, light absorption occurs in the outer segment, which contains hundreds of flattened membrane discs or lamellae that store the light-absorbing pigments. The outer segment is connected to rest of the photoreceptor cell by a narrow stalk containing a typical ciliary axoneme (Figure 2). Careful study of the development of photoreceptors has revealed that the lamellae are formed from the ciliary membranes.<sup>14</sup>

Cilia and flagella enable single-celled organisms to sense their environments and respond by moving appropriately (Figure 3). To understand how this is possible, Atema and others have suggested that *sensory systems may be movement systems working in reverse*. The same molecular mechanisms that convey sensory information into cells can also produce movements, and vice versa.

This is a truly remarkable concept. It provides a simple mechanism for sensation and movement in single-celled organisms and in the cells responsible for repair of tissues, and has many implications for mammalian sensory and motor physiology.<sup>15</sup>

To be specific, the sensory cilium in the retina and in sensory receptors found throughout nature may act as *motile* structures working in reverse, responding to stimuli by initiating structural changes that are propagated through the cytoskeleton and thence through the entire living matrix. In principle, such structural changes could be propagated *anywhere* in the body.

In other words, sensitivity to the environment, i.e. the *reception* of energy/information, evolved in close

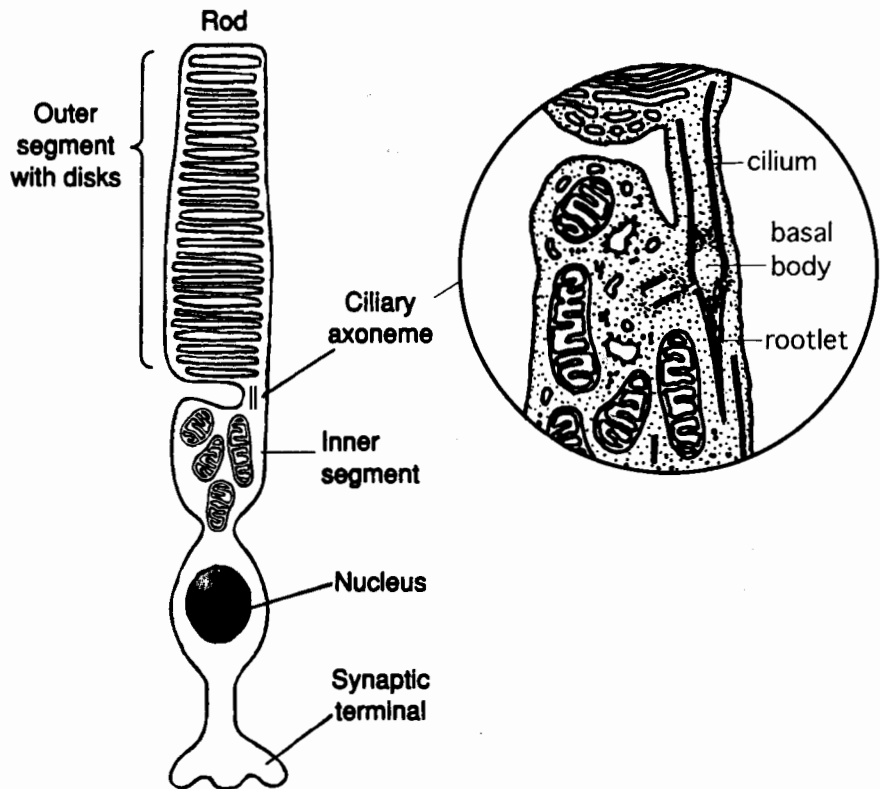


Figure 2

In both rods and cones, the outer segment is connected to the inner segment by a narrow stalk containing a ciliary axoneme. Developmental studies have shown that the photoreceptor lamellae are derived from the ciliary membranes. The illustration of the rod cell is modified from Kleinsmith, L.J. and V.M. Kish, 1995. *Principles of cell and molecular biology*. Harper Collins, New York, P. 768. The inset is modified from Lentz, T.L., 1971. *Cell fine structure. An atlas of drawings of whole-cell structure*. W.B. Saunders Company, Philadelphia PA. p. 381.

functional relationship with locomotor mechanisms, i.e. the *production* of movement or kinetic energy. Therefore when we apply a stimulus to any cell, we are speaking to an evolutionarily ancient and intelligent system designed for sensing the environment and producing actions appropriate for survival. This system evolved *before* nerves and muscles.

Cilia and flagella in mammalian and invertebrate sensory endings have in common a 9 + 2 core arrangement of microtubules (Figure 4). In sensory cells of higher animals, the microtubules connect within the cell to the cytoskeletal matrix, which is composed of additional microtubules as well as microtrabeculae and microfilaments. This living matrix pathway is

described in Chapters 3 and 4 in *Energy Medicine*.<sup>16</sup>

Atema proposed that the ciliary microtubules in sensory cells receive environmental information and transmit it via *propagated conformational changes* in the microtubule proteins.

The microtubules, and the entire living matrix are thus active, functional components in the reception and transmission and processing of sensory information. Waves of conformational change initiated in the *retinal lamellae*, for example, can be propagated into the microtubules and thence through the cytoskeleton of a rod or cone cell, across the cell surface via specific membrane molecules (integrins), and thence into neighboring cells and the fibrous system of the connective tissue.

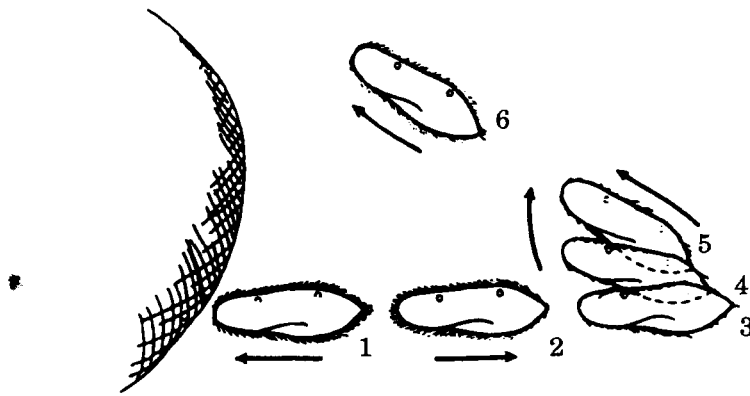


Figure 3

Cilia and flagella enable single-celled organisms to sense their environments and respond by moving appropriately, even though these organism lack structures resembling nerves, brains, or muscles. From the website of Stuart Hameroff, <http://www.hameroff.com>

#### A DIRECT ROUTE FROM THE RETINA TO EVERY PART OF THE ORGANISM

The main point is that there is a theoretical basis for sensory information being conveyed rapidly and *directly* into the body, bypassing or parallel to the neuronal circuitry. This provides for a very rapid response to light, a *response that reaches into every part of the body.*

In terms of phototherapy, the actual sensation of a color may not be the most important part of the process. I am proposing that healing responses are initiated by mechanisms that involve the *entire* living matrix, not just the neuromatrix. Light transduced by the retina into nerve impulses is processed by specific optic fibers in the nervous system, whereas light-induced waves of conformational change entering the living matrix are, in principle, capable of being rapidly conducted to every nook and cranny of the body, even to the nuclear matrices and genes located in *every* cell, not just nerve cells. It is a way for light to generate a message that reaches everywhere, not just where nerves go. This makes sense because, as we have seen, the most important cells involved in any repair process are not in direct communication with neurons.

A dramatic application of phototherapy is in brain injury. This gives rise to a question: how

can the application of light to the retina revitalize or regenerate neural pathways? To answer this question, it is important to recognize that the organization of the neuromatrix is primarily determined by activities of the perineural connective tissues, composed of astrocytes, glia, oligodendrocytes, and so on. Recently it has been discovered that these "supporting cells" actually form a communication system of their own, with synapse-like connections to the neurons proper.<sup>17</sup> Light produces signals that reach all of these cells--it affects all parts of the matrix.

A look at the anatomy of the retina reveals a likely site for photoreceptor signals to connect to the perineural connective tissue system and thence to all parts of the body. Light microscopists identified a dense-staining line called "the outer limiting membrane" lying between the photoreceptor layer and the outer nuclear layer of the retina. Electron microscopy has revealed that this is not a membrane at all. Instead, it is a precisely aligned planar array of densely spaced plaque-bearing junctions with bundles of actin filaments attached to them. This distinctive row of adhering junctions, now called "the outer limiting zone," attaches the photoreceptor cells to the Müller cells, which are neuroglial connective tissue cells. The junctions have an

obvious architectural role in keeping the photoreceptors in position. The junctions are composed of particular set of proteins that form an intricate and novel kind of cell-cell junction.<sup>18</sup>

Now we look closely at the nature of the conformational changes conducted through the living matrix continuum.

#### THE SOLITON

At the time Jelle Atema was suggesting that sensory information is conducted by conformational waves in microtubules, little was known about how these waves could be propagated. However, in a series of important studies beginning in the same year that Atema wrote his theoretical paper, 1973, A.S. Davydov and his colleagues, at the Institute for Theoretical Physics in Kiev, developed an explanation of energy transfer along  $\alpha$ -helical protein molecules. Conformational changes are conducted as a special collective excited state called a *soliton*.<sup>19</sup> The soliton is a singular or solitary wave.

Our familiar experience of solitons in nature is the tsunami or tidal wave, which can be propagated for long distances across the ocean without loss or dispersion. Solitons have enabled the development of modern high speed multiwavelength optical networks used in the telecommunications industry--the internet for example. Soon all of the major inter-city fiber-optic links will be soliton-based.

The soliton is a robust coherent wave with remarkable "self-focusing" properties that enable the propagation of a narrow, stable pulse over long distances without any distortion or energy loss. Solitons are self-sufficient carriers of energy and information--they hold themselves together as they travel through cells and tissues. Rapid advances in the speed of fiber optic communications have been due mainly to learning how to manipulate solitons. There is an opinion, which makes sense, that all successful technologies were actually "invented" by living systems long ago in our evolutionary history. The soliton is one of these biological inventions.

The soliton is not an esoteric or ephemeral or theoretical academic

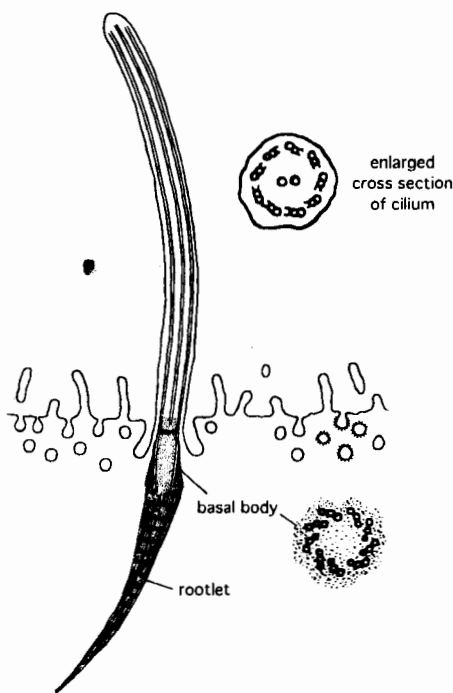


Figure 4  
Cilia and flagella in mammalian and invertebrate sensory endings have in common a 9 + 2 core arrangement of microtubules. From Lentz, T.L., 1971. *Cell fine structure. An atlas of drawings of whole-cell structure.* W.B. Saunders Company, Philadelphia PA. p. 4.

or new age construct--it is a phenomenon that is widely recognized in physics, biology, and engineering. For example, a dozen leading experts from the U.S.A., USSR, Japan and Western Europe held a week-long international symposium on solitons. The proceedings were published in *Physica Scripta*.<sup>20</sup> Solitons have been utilized to explain many phenomena in different fields of nonlinear optics, the physics of the condensed state, field theory, gravitation theory, plasma physics, and other sciences. The biomedical importance of solitons is documented in 503 papers listed at PubMed, the database of the National Library of Medicine. Sixty eight of those papers were published in the year 2000.

Davydov proposed a role of solitons in muscle contraction.<sup>21</sup> Soliton conduction through proteins

is at least 10 to 20 times faster than nerve conduction. By utilizing fast soliton transfer, which can approach or even exceed the speed of sound<sup>22</sup> movements could be generated prior to perception by classical neuronal cognitive processes. I have referred to this as a *Continuum Pathway* from sensation to action. It is a continuous pathway in living systems for sensory, energy, information and action that includes but is not limited to nerves.<sup>23</sup>

Exploration of the soliton concept has major clinical significance for brain and spinal cord injury as well as for human performance, the study of cognition and consciousness, and for understanding a variety of phenomena in energy medicine and the martial arts.

#### QUANTUM COHERENCE

What is emerging is a biophysical model that encompasses both light and related processes taking place throughout the organism. In her brilliant paper, *Quantum coherence and conscious experience*, Mae-Wan Ho describes this system:

*The extracellular, intracellular, and nuclear matrices together constitute a noiseless excitable electronic continuum for rapid intercommunication and energy flow permeating the entire organism, enabling it to function as a coherent and sentient whole.*<sup>24</sup>

Now we summarize the phenomenon of quantum coherence. For a detailed and readable account, see Mae-Wan Ho's book, *The Rainbow and the Worm: The Physics of Organisms*.<sup>25</sup>

*Coherence in ordinary language means correlation, a sticking together, or connectedness; also, a consistency in the system. So we refer to people's speech or thought as coherent, if the parts fit together well, and incoherent if they are uttering meaningless nonsense, or presenting ideas that don't make sense as a whole. Thus coherence always refers to wholeness. To appreciate the implications of*

*coherence for the living system, we have to look at its quantum physical description.*

An important step in the application of quantum mechanics in biology came about when Herbert Fröhlich, a leading quantum physicist, became fascinated with the huge electrical fields across cell membranes. Cell membranes are extremely thin ( $10^{-6}$  cm), yet support enormous electrical fields, amounting to some  $10^5$  volts per centimeter. Ordinary materials will not sustain such a huge voltage--they will break down and sparks will jump across them. For cell membranes to maintain such enormous fields they must be made of an extraordinary material with remarkable properties. They are liquid crystals.

In the late 1960's, Fröhlich realized that highly organized molecular systems such as those found in cell membranes, connective tissues, and muscles will develop high frequency electrical oscillations. Because of their high degree of structural uniformity and regularity (e.g. Figure 5b), bioelectric fields will cause the components of these molecular arrays to vibrate strongly and emit stable coherent or laser-like electromagnetic radiation at specific frequencies. The oscillations are in the near visible and visible parts of the spectrum. These signals will move about within the organism and will be radiated into the environment.

This important prediction has been confirmed by a variety of researchers around the world.<sup>26</sup> Moreover, during the period when Fröhlich was developing his ideas about biological coherence, Davydov was studying the ways energy and information are conducted in proteins, and Atema and his colleagues were following sensory information through microtubules.

Hameroff has been a leader in recognizing that coherent signals moving through the cellular matrix have key roles in communication, memory, and information processing (intelligence). He has reviewed 13 models of cytoskeletal information processing.<sup>27</sup> Soliton waves traveling through neural and non-neural cells would leave in their

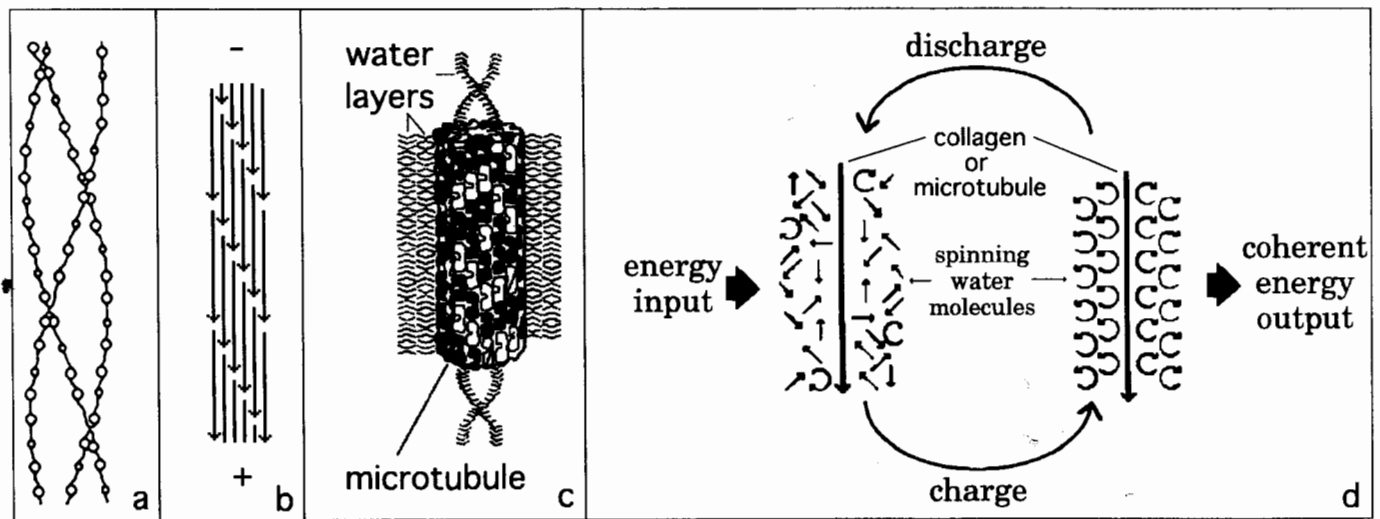


Figure 5

a) the collagen triple helix. b) an array of collagen molecules forms connective tissue. The whole system is electrically polarized, with the head end negative relative to the tail (Athenstaedt, H., 1974. Pyroelectric and piezoelectric properties of vertebrates. *Annals of the New York Academy of Sciences* 238:68-94). c) a portion of a microtubule showing the layers of water both inside and outside. d) the energetic structure of the microtubules and other proteins forming the living matrix oscillates back and forth between a highly excited and strongly polarized state to a weakly polar ground state. The formation of the polarized state (Davydov soliton) involves progressive coherence of the spins of the water molecules.

wakes *memories* in the form of patterns of cytoskeletal structure and/or vibrations. This information could be subsequently read out and utilized to make informed decisions for the regulation of cellular processes.

All of these phenomena come together in the following way.

#### THE LIVING MATRIX IS AN EXCITABLE MEDIUM

The entire living matrix, including the cytoskeletons of all cells and the fibers in the connective tissues, form a continuous excitable medium.

When we think of excitable media, we usually think of the neuronal membrane. But as Hameroff has pointed out, this is a "skin-deep portrayal" that leaves out what takes place *within* neurons.

Excitable materials oscillate between different states. The nerve membrane has a *resting state* with a large membrane potential. A stimulus electrically depolarizes the membrane, resulting in an action potential that propagates non-decrementally along the cell surface as a wave. In the wake of the wave, the membrane potential is

restored back to the resting level.

There are many kinds of excitable media, they are extremely important, and they have been widely studied.<sup>28</sup> Let us look at the living matrix as an excitable medium capable of conducting electromechanical waves.

Consider the Davydov soliton wave that can propagate without degradation along a protein molecule. Water plays a vital role in the process. Water molecules are able to *spin* about their axes. As a portion of a protein becomes energized or excited, there is a build-up of order in the spins of the water molecules. The water spins become organized, coherent, and aligned. This order in water structure coincides with the propagation of energy along the protein. In living systems, as in oceanic tidal waves, the soliton is a coherent *spin-wave*.

In the wake of the soliton is a collapse back to a less ordered or chaotic state. When the collapse takes place, a Fröhlich wave is emitted. The proteins forming the living matrix oscillate between a highly excited and strongly polarized state and a weakly polar ground state.<sup>29</sup> I have summarized the

oscillation between the soliton build-up and the Fröhlich wave emission in Figure 5d.

#### MORPHIC FIELDS AND PHYSIOLOGICAL REGULATIONS

The coherent Fröhlich emission has two components, an electromagnetic field with a frequency at or near that of visible light, and a massless particle called a Goldstone Boson.<sup>30</sup> This is a disturbance in the quantum vacuum that can be propagated everywhere virtually instantaneously. According to del Giudice and his colleagues in Milan,<sup>31</sup> what we see as "structure" is, in fact, a consequence of coherent focusing of polarized waves of energy. What we observe as ordered liquid crystal networks arise, in part, because of the alignment of rotating components such as water.

Fröhlich has described how light emitted by this process can be used to communicate between different cells and tissues, regulating cell division and a host of other vital processes. Coherent Fröhlich interactions regulate the orderly and efficient movements and actions of enzymes throughout the body. Fröhlich has developed a theory of

cancer based on this.<sup>32</sup> His work provides a basis for endogenous light playing a key role in a host of regulatory processes.

There are many advantages to the use of coherent light signals for biological communications and regulations. This has become a topic of intense research.<sup>33</sup> Cyril Smith, for example, discusses the ways coherence can protect electromagnetic communications within the body from interference from natural and artificial fields in the environment.<sup>34</sup>

#### A FIBER-OPTIC SYSTEM?

Some researchers have envisioned the protein fabric in the body as a fiber-optic system. Fascinating evidence has been published by Pankratov in Moscow.<sup>35</sup> Pankratov projected light on acupuncture points and found that it reemerged from other points along the same meridian. This fascinating discovery suggests that the meridians are the main channels through which light is preferentially conducted in the body. Pankratov cites work on plants that showed that they, too, have light channels.<sup>36</sup>

From the information available, the analogy between proteins and fiber optic wave guides may be an over simplification. It is true that microtubules and collagen fibers are long thin hollow tubes, and therefore capable, in principle, of serving as light pipes. However, we have seen that light probably gives rise to solitons, and these are the entities that are conducted through the tissues. Soliton propagation follows nonlinear rules as opposed to ordinary linear optics. Soliton conduction allows far more sophisticated signal processing to take place within the matrix.

So a testable explanation for the Pankratov results, as well as the effects of phototherapies including colorpuncture, is that light is converted into solitons in sensory cells. Since the light absorbing reactions are reversible, it is likely that solitons arriving at the ends of microtubules, such as in retinal cells, can be converted back into light. These hypotheses are worthy of further study.

#### CONCLUSIONS

The goal of this essay is to develop a set of hypotheses that can provide a basis for the Syntonic Principle. We would like to know how light can activate the healing process in diverse clinical conditions, and in tissues throughout the body. What has been presented is a non-neutral explanation of how light applied at one place, say the retina or at an acupuncture point, can produce effects that reach into every part of the body. The body consists of some 100 trillion cells, and the overall health of the organism, and its ability to heal itself, reflect the health and interconnectedness of all of those cells.

To summarize, the basic work of injury repair and defense is done primarily by individual cells that must sense where they are needed, move there, and then carry out specific activities. Ultimately, if light is to activate healing processes, the light must in some way speak to these cells directly, or to the pathways that enable the cells to "whisper" to each other, or both.<sup>37</sup>

From the biology of the situation, I suggest that the immediate effect of light is on the communication pathways. Specifically, it is proposed that light stimulates the flow of solitons, which are waves of energy and information that travel rapidly through the protein fabric of the body. The flow of solitons opens gates and switches and organizes dynamic living matrix pathways. Cells can then "whisper" to each other using their own "languages." These whisperings orchestrate the repair of traumas of all kinds. Light, electromagnetic fields, sounds, solitons, bosons, and chemicals are all part of vital communications, but there are undoubtedly others.

The soliton concept can therefore be added to the list of explanations for Syntonic effects summarized by Gottlieb in reference 1.

The manner by which light-stimulated soliton transmission can open up communications throughout the body is a topic for further research. Perhaps it is an effect on the integrins spanning cell membranes. Integrins are essential

components of the living matrix communication pathway and have been implicated in a wide range of disorders. Another hypothesis has arisen from the work of Guenter Albrecht-Buehler, who has developed concepts of "vision" at the cellular level, involving the microtubules acting as the "nerves" of cells. Albrecht-Buehler found that light alters the stability of the radial array of microtubules surrounding the centrosomes, which therefore appear to be the light "detectors" within cells. The centrosomes, in turn, are important in regulating cell division and other cytoplasmic processes. In any case, the diversity of clinical problems that approachable through phototherapy seem to indicate system-wide biological effects on the communications vital to the healing process.

#### ACKNOWLEDGEMENTS

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# Syntonics: Optometric Color Therapy for the Treatment of Acquired Brain Injuries

By Larry B. Wallace, O.D., F.C.S.O.

The application of syntonics color therapy for the rehabilitation of brain injury can be very dramatic but is often under utilized, although its use greatly enhances the speed, efficiency and success of vision therapy<sup>1,2,3</sup> Acquired brain injury may be related to traumatic brain injury, certain kinds of mild closed - head injuries, postconcussive syndromes, surgical trauma syndrome, cerebral palsy, stroke, and other kinds of cerebral vascular accidents. Essentially, acquired brain injury is a trauma to the brain that could result from a blow to the head or other neurological dysfunction, which produces anything from loss of consciousness to impaired cognitive or physical abilities. The injury may be mild or severe, but is often amenable to rehabilitation, especially with the use of phototherapies.

Vision is the dominant source of our information processing and is a learned or developed skill. Vision may be compromised in any trauma to the brain, resulting in changes in behavior, loss of memory, and changes in identity, learning and performance. Vision is closely tied to imbalance of the autonomic nervous system and the endocrine system, which support the visual system neurologically and chemically. Both systems are very amenable to rebalancing using color.

Because many visual problems are simply imbalances in the nervous system or endocrine system, treating the whole body through light application takes away the symptoms of these visual dysfunctions and brings not only the body but the visual system back into balance. In the case of head injuries of any type, the first thing that is upset is balance in the autonomic nervous system. Specifically, light into the eye has a profound effect by directly affecting the pituitary, pineal and hypothalamic pathways within the brain. Light shined into the eye also directly affects the blood, a living matrix system that connects all the vascular systems of the body.<sup>4</sup> Fifty percent of the blood in our body passes through the eye every 40 minutes and is directly visible through the pupil of the eye. Light shined into the eye can have a profound effect on the perivascular system and the blood flow, not only in the eye but through the whole body. Colored light shined into blood causes changes in pH and immune function<sup>5</sup>

There are also inherent electrical energy systems that control and drive the physiology of the body. There is not only a digital system of the central nervous system but also a direct current system that parallels this both anatomically and functionally. This too is directly under the influence of light input. Light into the eye can have effects on the treatment of ocular pathology, both locally through specific tissues and non-locally to address systemic imbalances<sup>6</sup> Light entry into the eye also affects the ocular functions changing the conditioned reflexes of eye coordination, focusing and eye movement skills. Specific frequencies of light can stimulate or relax the sensory motor systems of the eye by affecting electrical discharge in the hypothalamus. Light can affect endocrine function through direct neurological connection to the pituitary and pineal glands, automatically regulating much of the involuntary functions of our physiology. Frequencies of light also can affect the balance between the heart and the brain, changing the heart variability rate and also rebalancing the autonomic and limbic circuits which regulate our emotions. Colored light not only produces vision in the brain cortex but

energetically transfers information to the hypothalamus, the pineal gland, the pituitary and also the vestibular system, affecting posture as well. Light and color have a profound affect by activating the endocrine and autonomic nervous systems and their supportive functions such as vision, emotions, immune functions, cognition, and balance.

Diagnostic criteria for optometric phototherapy include a history that is significant for head trauma, but also things like fevers, infections, toxicity and stress. Clinically, one of the first signs of ANS imbalance is poor pupil responses: the inability of the pupil to sustain constriction under direct light, called the alpha omega pupil. Imbalances are reflected by reduced motility of the eyes, that is, jerky and erratic eye movements and inability to smoothly move the eyes together as a team. The analytical exam measures eye coordination, focusing skills, and the sensitivity of visual input and motor output. The keynote finding is visual field measurements especially noting general constrictions in the form, in color, sensitivity of the peripheral fields and enlarged blind spots.

Specific treatment uses frequencies of light that have general fields of action. For instance, red is known as a sympathetic or sensory stimulant; orange is known as a motor stimulant; yellow, as an intense motor stimulant; green, as an equilibrator or used to balance the physiological system; blue, as a sensory depressant; indigo, as a motor depressant; and violet being the most intense sensory depressant of all. Some of these color combinations comprise a strategy to treat the majority of imbalances in the autonomic and endocrine system and hence the visual system.

There are four basic syndromes treated.<sup>7</sup> One such combination is blue green "acute syndrome," which is used for symptoms such as pain, swelling and the need for palliation. Symptoms relate to infections, trauma, anoxia, stroke and high fever. Blue-green is primarily a parasympathetic activator, which serves to slow down sensory motor function.

Yellow-green is used in the "Chronic Syndrome," which relates to glandular, metabolic, or organic imbalances, toxemia in the system, and the general need for physiological balance. Yellow - green is used as a physiological stabilizer and detoxifier.

The red-indigo combination is termed the "Emotional Fatigue Syndrome," and those colors are used for emotional exhaustion, nervous stress and emotional trauma. It is common to find extreme fatigue and hyperirritability due to adrenal exhaustion.

The red-orange color refers to "Lazy Eye Syndrome" and is used for strabismus or amblyopia. Often seen as a requirement for higher sympathetic arousal. Individuals often exhibit over flexion in their motor systems.

In general, the red end of the spectrum serves to stimulate or activate the sympathetic branch of the autonomic nervous system, while the blue end or the violet-indigo end of the system tends to activate the parasympathetic branch of the autonomic nervous system and its support to various visual functions.

Most commonly, the autonomic nervous system acts in what is called a coupled reciprocal mode; when one branch of the autonomic nervous system is activated, the other is more depressed in its function acting as somewhat of a balance board effect between the two rising the action of one while depressing the action of its antagonistic branch. However, the autonomic nervous system can also be coactivated or coinhibited; that is, there is mutual antagonism where the branches of the autonomic nervous system can be both activated or both depressed. This is a common response to trauma.

A third basic action of the autonomic nervous system is unilateral where only one specific branch of the nervous system is affected. The dominance of the autonomic nervous system differentiates specific emotions and is mediated biologically by certain hormones. For instance, ACTH mediates the sympathetic nervous system, or cortisol mediates the parasympathetic nervous system. Chronic stress can coactivate both systems by accelerating or inhibiting both equally. Or there is unilateral activation of one branch of the autonomic, which has specific localized effects on our physiology such as under- or over activation of neurological pathways. Balances or imbalances in the autonomic nervous system also have significant effects on the regulation of our emotions.

In a landmark book, *The Affect Regulation or the origin of Self and the Neurobiology of Emotional Development*, author Alan Shore discusses at length how imbalances of the autonomic induced by head injuries and head trauma can affect the whole body physiology by rewiring the neurochemical events which mediate our behaviors.<sup>8</sup> Shore discusses the hypertonicity of both the sympathetic and parasympathetic following some kind of trauma to the head, affecting our psychobiology. This includes imbalance between the orbital frontal cortex and the limbic structure's dual pathways.

The limbic structure of our brain stores implicit and explicit memory while the brain stem stores motor stress. Trauma blocks the normal neurological feedback systems of biochemistry and behavior resulting in maladaptations such as posttraumatic syndrome, TMJ syndrome, myofacial pain and posttraumatic vision syndrome. Orbital frontal trauma can reset our limbic system and reset the procedural memory of our central nervous system so that we are conditioned into a state of dysfunction. Trauma can imprint or freeze itself into our motor and sensorimotor systems by conditioning imbalances in the autonomic nervous system, resulting in overreaction or constriction of emotions. Shore speaks about the right orbital frontal cortex being the master regulator of the brain and the body. The frontal orbital cortex is the specific anatomical center where the autonomic nervous system is coupled with the dual limbic pathways of our lower brain stem. This area is highly susceptible to hematomas and contusions, which can result in soft tissue damage not picked up in general MRIs or CAT scanning procedures.<sup>10</sup>



Imbalances in the frontal orbital cortex result in biochemical electrical damage that pass through our whole brain, resulting in a shattering of our self-concept, and hyperreaction to stress, which puts us out of control in relation to environmental input<sup>11</sup> This poor autonomic regulation also results in compromises to the immune function, peripheral vision, and the electric coherence of the brain. Seizure activity following trauma is one artifact of poor regulation. The use of color can restabilize the nervous system and should be one of the first steps taken following a head injury, before any other therapies are begun.

Because the autonomic are so easily upset, a whole sequella of events usually follows a trauma. The most common in the field of optometry is called posttraumatic vision syndrome.<sup>12</sup> The first sign of posttraumatic vision syndrome is decreased visual acuity, a lack of sharpness of vision, both far and near, resulting in symptoms such as blur and mental confusion.

Exophoria or exotropia is the second most common sign. This means that the eyes go into a divergent pattern, turning outward at both far and near, resulting in decreased depth perception, double vision, diminished concentration, diminished organization and visual memory.

Next is decreased convergence, or the inability to turn the eyes inward, to localize things in visual space relative to ourselves. Convergence is the ability of the eyes to turn inward, to localize objects in space relating to ourselves. When convergence is decreased we have blurred vision, may have closing of an eye, headaches, pain and reading problems.

Next is decreased blink rate, again an imbalance in the autonomic nervous system. This often results in a mild seizure-type activity of staring, which symptomatically produces dry eye and light sensitivity due to the pupil's inability to stay constricted under direct illumination. Posttraumatic vision syndrome also creates spatial disorientation with hallucinations, vertigo and memory loss.

Because the visual system is so intimately related to our self-image, often we will have distortions in body image with symptoms such as postural warps, right-left confusion, loss of spatial judgment and shifts of our midline in space relative to our body.

Another sign is decreased accommodation, which is the inability to sustain focus and keep detail clear at various distances. This results in the symptoms of reading problems, blur, and headaches. Decreased ocular motility, poor fixations and pursuits is another sign of posttraumatic vision syndrome. This means the inability to move the eyes smoothly through space and localize things not only with the eyes as a team, but with each eye individually. Symptoms of this dysfunction are nystagmus, reduced depth perception, skipping words and losing our place when we are trying to read.

And finally, the most significant sign is visual field defects, which can be total loss of our visual field in certain sections; congruous losses, where each eye loses the same part of visual field, incongruous losses where there are different losses in different parts of space; altitudinal losses where we lose visual field perception either upper or lower, or enlarged blind spots. Symptoms of visual field defects consist of bumping into things, poor night vision, poor ocular motor skills, reduced visualization skills, postural warps and neuromotor distortions.

Symptoms of posttraumatic vision symptom are often overlooked, especially during initial treatment of the injury. Because these problems are sometimes hidden or neglected it prolongs and impairs the rehabilitation process. Vision consists of many subsystems requiring integration to create the flow of processing information to the brain. When information processing is disturbed, not only a whole host of vision signs and symptoms are produced, but also imbalances throughout the individual are produced, seen as compromises in function of emotional, physical and mental health. The treatment of these imbalances can be accomplished by using specific frequencies of light into the eye using specific instrumentation. Instruments use specific frequencies or filter combinations. Generally, treatment consists of light shined into the eye for 20-minute intervals three to five times per week. This treatment is comfortable. It has very low risk, as light is basically an energy modality and has almost no side effects. Every six to eight sessions, a progress evaluation is done which consists of remeasuring certain aspects of the visual field and the visual analysis, as well as monitoring the patient's signs and symptoms. These measurements allow the treatment to be modified to enhance results. The frequencies that are used to treat binocular and sensory motor imbalances also result in improvement in visually related attention and memory disorders, focusing and eye coordination problems, ocular pathology, eyestrain and headaches, and restoration of visual field constriction and defects.

A study was done at Neural Rehab, a clinic devoted to rehabilitation of head injury in Rochester, New York. A total of 46 patient records were reviewed. Of these, 28 had head traumas resulting from auto accident or falls, 18 had cerebral vascular accidents such as strokes or aneurysms. Of the 46, 40 people had decreased visual fields with general constrictions and enlarged blind spots; 39 had accommodation or focusing insufficiency; 24 had binocular deficiency including strabismus or convergence problems; 20 had exophoria, exotropia or hypertropia. Twenty of the individuals had general ocular motor dysfunction; 19 had reduced vision in one or both eyes; and six had hemiaopsia. The basic frequencies used in treating these conditions were primarily blue-green and blue-indigo, with other colors used in specific cases. However, out of 75 treatments, 52 used blue-green and blue-indigo. The results were that 32 out of the original 46 had increases in their visual fields from 20 percent to 500 percent. All 46 showed significant improvements in other areas

of visual function. This color therapy was done in conjunction with a multidisciplinary approach to rehabilitation including physical therapy, occupational therapy, speech therapy, and 13 psychotherapy among other modalities<sup>12</sup> Syntonics and optometric vision therapy are very powerful tools which need to be included in the treatment of acquired brain injury.

In conclusion, the use of color therapy and phototherapy through the eyes is a primary method to rebalance the autonomic and endocrine systems as well as the electrical and biochemical systems of the body. The pathways for this energetic application are well established. Light and color have specific effects on emotions, body physiology and nervous function. These systems are almost always out of balance as a result of acquired brain injury. Through the use of light and color, the individual can be made neurologically ready for other treatments as well, with a rebalancing neurologically which sets the individual in a more receptive mode for learning new behaviors and learning new skills as a part of the rehabilitation process. Use of energy medicine such as light is one of the futures of medicine. Energy application such as colored light have very few if any side effects and can serve and support many other kinds of therapies. At this time, energy medicine is not a final and unified model but is basically a matrix of different kinds of energies including kinesthetic, bioelectrical, electromagnetic, gravitational, thermal, light and sound<sup>13</sup> Energetic medicines can address traumatically blocked brain function by also allowing the living matrix in our body to extract the information needed to rebalance our biological systems. There are not one but many pathways where this could occur. In syntonics phototherapy it may be the retinal hypothalamic pathway, through the retinal vascular, and even acupuncture points. These applications are the future of medicine and healing. Syntonics is a time-honored and clinically proven modality of treatment and has a major role to play in the rehabilitation process.

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# A Case for Syntonics

BY

**Bruce Rosenfeld, O.D., F.C.S.O.**

One of the hallmarks of syntonics is the way it evaluates, monitors, and effects visual fields and all that it means. The following case is interesting in that the white fields were fairly normal, but the color fields, were noticeably constricted. Color fields are more sensitive indicators of imbalance than white fields alone. If the color fields had not been performed, the correlation of symptoms and findings would not have been as apparent. All fields should be evaluated routinely.

The blue field (in this case the smallest field in both eyes), is traditionally considered to be related to a heart reflex. Given the patient history of a two-year treatment for clinical depression, this diminished blue field can represent another correlating factor. Mrs. K. was a female Caucasian, age 45.

**HISTORY** - Mrs. K's son received Accomotrac vision training and wanted to know if she was a candidate. She wanted her "eyes/vision more comfortable." She reported visual difficulty with night driving; eye fatigue in general and when shifting her focus. Full time daily RGP (rigid gas permeable) wearer, acuity good, lenses comfortable, didn't use spectacles. Upon questioning it was revealed that Mrs. K was being seen by a psychiatrist for depression. For about 2 years she was receiving and taking antidepressant medication. At this time the medication was Prozac, 20 mgms, and was being diminished.

**FINDINGS** - Acuity better with RGP lenses than spectacles. With RGP lenses 20/20- OD, OS and OU and J1 OD, OS and OU near. Blur in 12 inches. Pupillary test revealed a strong alpha-omega pupil and stereopsis #2 using stereo fly test. All other eye health appeared normal.

Mrs. K was advised that when her medication was diminished or discontinued we could look at doing training. (I was not comfortable to initiate training with her while she was medicated due to my perception of her fragile state.)

Mrs. K returned five weeks later having discontinued medication one-week prior to visit. Findings completed on 11-25-88 revealed: Convergence, ductions near and far reduced; phoria distance eso; recovery divergence ductions near reduced. Campimetry using 1 mm wand revealed white fields normal; color fields reduced; OS field smaller than OD and blind spot enlarged OU. RGP lenses were used for campimetry.

**DIAGNOSIS/PROGNOSIS** - Pupillary response (strong alpha-omega pupil); history (depression, medication, decreased vision night driving, eye fatigue); clinical findings

and reduced color fields with enlarged blind spot point to the value of syntonics treatment. Primarily, we intended to expand visual fields; rebalance pupillary response indicative of the system being better balanced. We could expect ductions to increase and phoria to posture outward.

**SYNTONIC Rx** -10 RU (ruby) 10 YG (yellow green) for 20 sessions possibility of 25 sessions; due to chronicity (approximately 2 years medication). YG due to ductions and chronicity; RU due to alpha-omega pupil/emotionality/depression. Both neurovisual stimulator and syntonizer were used on this patient.

**TRAINING** - Four sessions of 10 RU 10 YG for five weeks. No home training; just attitude and things in life to keep positive and build stable foundation in-patient for herself.

**PROGRESS** - Campimetry performed after 6 sessions - fields expanded nicely, OD greater than OS. I waited until after 6 sessions (usually every 4) to be certain a field change would be demonstrated for the patient. Mrs. K was somewhat withdrawn.

Session 8 clinical finding revealed 3 exo at distance, alpha-omega pupil minimal, and significant increase in recovery of near divergence duction. Mrs. K reported she felt very good with less internal anxiety and inner nervousness. She reported, "while shopping the other night everything seemed brighter and commented that at times, during various sessions, she felt warmth traveling up her spine."

One and a half hours were spent with Mrs. K assisting her to formulate a workable exercise program with which she could feel successful. She demonstrated order, focus and decision-making skills. These were some of the areas she had felt inadequate in for over two years. This positive change was pointed out to her and acknowledged by her.

Campimetry was performed prior to session 10. Her fields were beginning to restore themselves - some expansion; OD red and green decrease. In discussing these results with Mrs. K, she felt they were due to her emotional state. She felt she was greatly affected by her emotions in her life. She also reported "feeling energized after syntonics sessions" but had felt tired in general the two previous days.

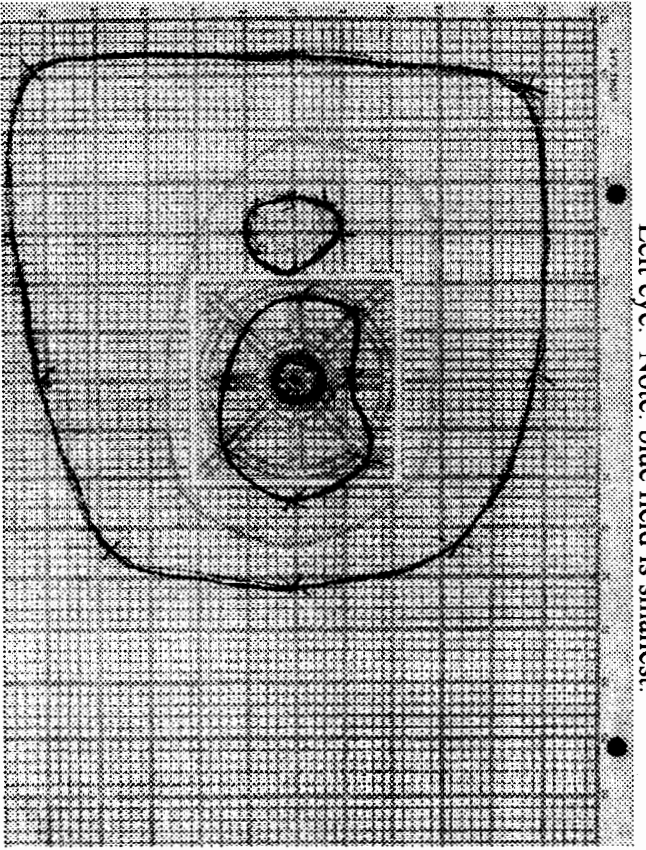
Campimetry performed session 13. Fields continued to *open*. After session 16 Mrs. K reported she was "feeling great." There was one week between session 17 and 18 when Mrs. K missed appointments.

Campimetry taken after session 18 revealed continued expansion of fields; inferior nasal blue and green showed no change. We continued to 24 sessions. Mrs. K started to put her home in order and was willing to start using affirmations.

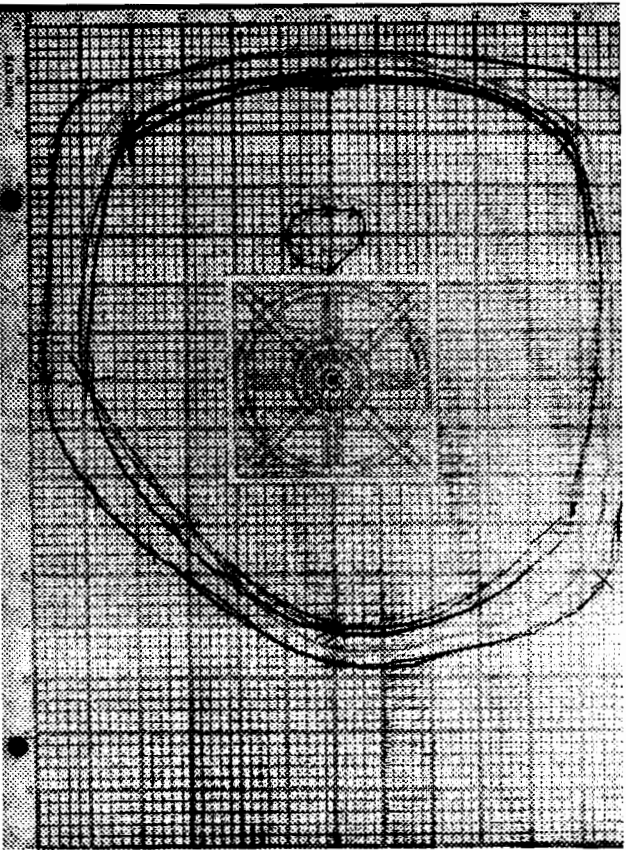
Campimetry performed after session 23 showed that the fields opened and blind spot normal OU. Clinical findings at session 24: phoria distance now 3 to 4 exo; convergence duction distance improved; ductions near improved and stereo #6 now reported.

After completing phototherapy Mrs. K reported that she felt more balanced and in sync with her life. In the following months, she enrolled in a local college to reactivate her teaching certification and was excited about returning to her former profession.

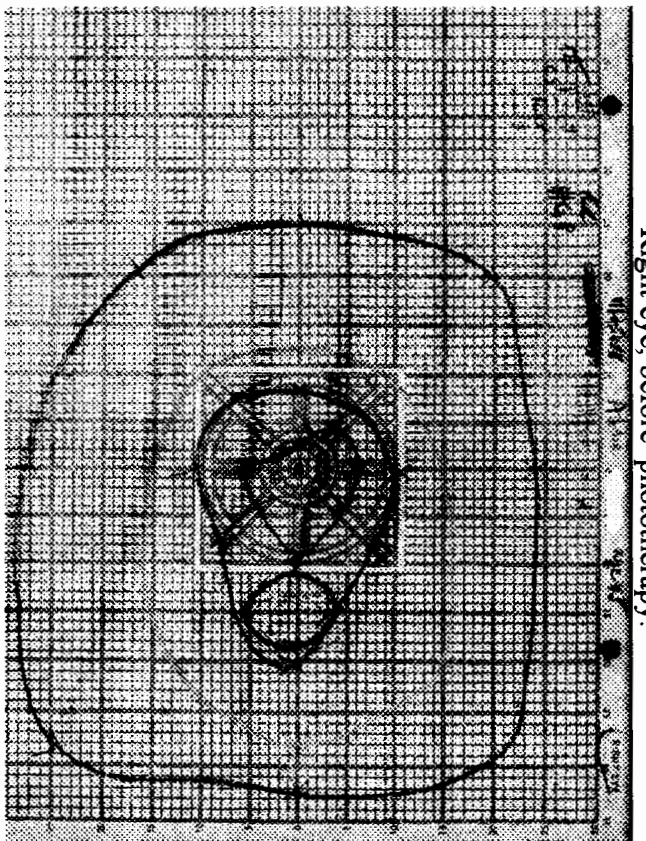
Left eye. Note: blue field is smallest.



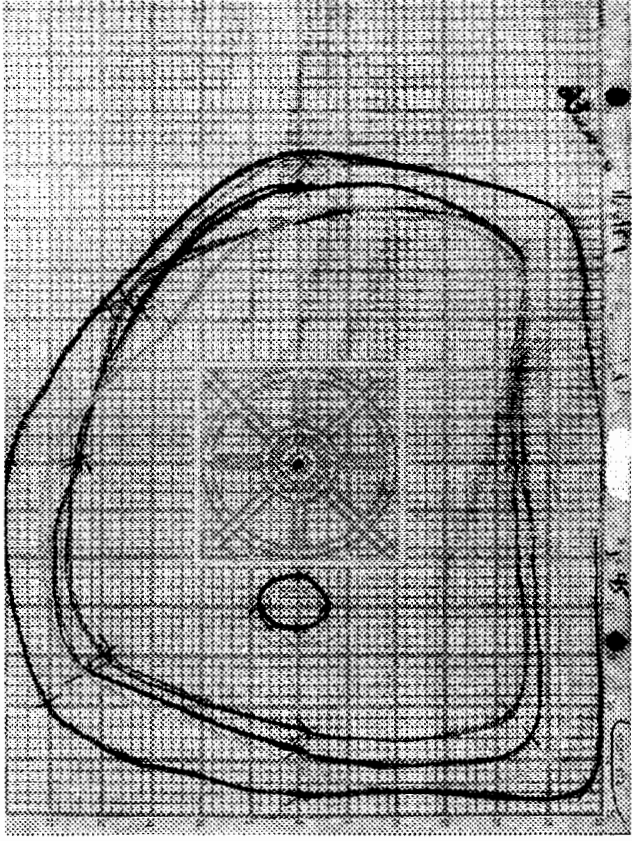
Left eye with color fields expanded.



Right eye, before phototherapy.



Right eye after phototherapy.



# Lighting Up

By Frank W. Forgnoni, O.D.

At the time I received my doctorate in optometry, I had never heard of syntonics -*the therapeutic application of light through the visual system*. Thankfully, a few months later I was blessed to sit next to Ray Gottlieb, O.D., flying home from the 1996 College of Optometrists in Vision Development (COVD) annual meeting. Ray started a very interesting conversation about syntonics and the College of Syntonic Optometry (CSO). At first I thought the whole idea was sort of wacky but shortly afterwards I was able to observe Ellis Edelman, O.D., and Steve Gallop, O.D., utilizing syntonics for their patients. Then Leonard Krachman, O.D., provided some helpful mentoring tips. But it wasn't until two and a half years later that I "jumped in" and started syntonizing for my patients and myself.

I now believe my syntonizer is one of the best purchases I have made to benefit my patients in their vision therapy program. In reading Spittler's *The Syntonic Principle*, Liberman's *Light Medicine of the Future*, and the CSO "Blue Book" manual I am truly amazed by the power of light. I am convinced that optometrists need to be the single most proficient practitioners of syntonics.

Two major insights at the 1999 CSO annual conference had a profound impact on me. First, hemoglobin within the blood of animals is almost identical in chemical structure to the chlorophyll of plants. And second, research indicated that in treating patients who were diagnosed with seasonal affective disorder (SAD), better results were achieved in those individuals given a full-spectrum light through their eyes with the rest of their skin covered, compared to those who were exposed to the light source on the majority of their skin, but their eyes were covered. Dan Oren, M.D., Ph.D., and researcher for

Yale University and the National Institutes of Health (NIH) presented these facts. The title of his presentation was "Blood - A Light Information Carrier." Later, I also learned that 50% of the entire blood volume in the body passes through the eyes in 40 minutes. If the biochemical mechanism of light involves hemoglobin within the blood, then the eyes are the perfect portals into the artery and venous systems, especially if the eyes have intact, visual axes with no major opacities, such as cataracts or blood in the vitreous.

Seasonal Affective Disorder is relatively well-known due to increasing media attention and clinical treatment within the psychological community. It is a good "entrée" into speaking about light. I've learned to use SAD and full-spectrum light therapy as a means to talk about the application of the visible spectrum: the red, orange, yellow, green, blue, indigo, violet; or "ROYGBIV" of the electromagnetic spectrum. I try to steer my patients into the use of syntonics with a vitamin analogy. Even though they may be taking multivitamins/full spectrum potency, if they have a cold they often know to boost a portion of that full spectrum, namely vitamin C and the other antioxidants. Likewise, even if a person has good full spectrum light exposure, (and they often do not), if they present with a visual dysfunction (which of course often goes along with emotional, physical and spiritual dysfunctions) a treatment of specific portions of the full spectrum of light utilizing syntonics is wonderfully therapeutic. Syntonics does not replace the importance of full-spectrum lighting. I often encourage the use of full spectrum light, mostly the technique of "sunning" in which a person faces the sun with eyes closed and moves the eyes around in a gentle fashion for 5-20 minutes, once or twice a day. For me, it is often a good "pick-

me-up" in the morning, especially since I don't drink coffee. But remember that syntonics is different. Syntonics involves the manipulation of specific frequencies of visible light to treat specific dysfunctions to bring about a therapeutic effect.

"Reversing Macular Degeneration" by Sarah Cobb is a powerful article. In it the use of syntonics is mentioned as a major therapeutic to help restore optimal visual health. Her article is in Working with Seniors, which is available through the Optometric Extension Program Foundation. I gave the article to one of my patients with early age-related macular degeneration (AMD). Three months later on follow-up, she reported taking all of the vitamins mentioned in the article to the exact specification of dosage in addition to a generic multi-vitamin. She reported some improvements with memory and overall vitality, but she was still worried about increasing difficulty with reading. Most distressing, she complained of quickly fatiguing while reading. Then I suggested a home syntonizer utilizing filters in the blue-green spectrums, which are mu-epsilon in the Greek CSO terminology. I prescribed the use of the unit and filters in 20-minute intervals for a minimum of 3 sessions per week. She was very enthusiastic and very compliant. She faithfully started doing 1 to 2 sessions every day. Within 2 weeks, and after only 13 home treatments, she started noticing improvements in reading. Objectively, I measured improvements in both her color threshold visual fields and utilizing Frequency Doubling Technology (FDT) computerized threshold visual fields. After about 1 month, additional color filters were added to improve attention while reading. The new filters consisted of 10 minutes of wavelengths in the red-blue spectrums, which are alpha-omega in the Greek CSO terminology; followed

by 10 minutes of yellow-green, which is mu-delta in the Greek CSO terminology. I asked her to alternate days using the blue-green for 20 minutes one day, and the red-blue and yellow-green combinations the next day. At that time, I also suggested a few minutes a day of sustained convergence therapy, although she was already able to converge to her nose for 10 seconds without diplopia or asthenopia. After a total of only 38 home sessions, her subjective and objective improvements were even more noteworthy. She reported: "My reading is less cumbersome with each day, and it's easier to look at the computer screen. My reading attention has markedly improved since I first began...I feel I have improved eyesight and will continue both the light and antioxidant therapy." Clearly the syntonics light therapy helped this patient's quality of life in a truly unique way. Her next follow-up visit is in March 2001.

AMD patients need behavior optometrists to share with them the safety and efficacy of syntonics in treating their disease. In my opinion, syntonics is far superior to the new verteporfin therapy (Visudyne TM) used by ophthalmologists. According to a December 2000 *Optometric Management* article: *Verteporfin Therapy: Step-by-Step*: "...only 13% of patients in the clinical trial demonstrated measurable visual improvement...and that vision loss occurs in about 20% of patients who undergo this (verteporfin) treatment." Furthermore, the article continues "...a possibility of permanent vision loss as a result of this treatment remains...(and) severe skin burns can result if direct sunlight exposure occurs within the first few days after treatment...The FDA labeling recommends that patients avoid direct sunlight for 5 days." Also, the use of such intravenous therapies, including the fluorescein angiography used during the diagnostic testing prior to use of verteporfin, may result in death by anaphylactic shock.

Another case report involves a 6 year-old learning-disabled child who was helped significantly with the primary use of syntonics. Interestingly, his mother is an occupational therapist who understood the importance of optometric vision therapy to improve functional vision.(I have also included a copy of her

testimonial letter at the end of this paper.) In the summer of 1999 I diagnosed her child with visual efficiency deficits involving convergence, pursuits and saccadic tracking, and accommodation. Various visual perceptual delays were previously diagnosed by an occupational therapist at his school. After only one in-office vision therapy session with me, his mother was concerned that his self-esteem might drop if he perceived himself as different by needing weekly in-office therapy. She decided to withdraw him from in-office therapy, and she tried some basic home vision therapy instead.

Nearly a year later, my re-evaluation with him yielded almost identical objective findings. Notably his convergence was still reduced: both of his eyes deviated outward as a target was presented ½ inch from his nose. He had great difficulty separating eye movements from head movements: he quickly lost his place with pursuits tracking, and significant undershoots were present with his saccades.

With his newly gained success at a private school for learning-disabled children, his mother felt he was emotionally ready to begin an aggressive in-office vision therapy program. I suggested 30-minute in-office vision therapy sessions, 5 days a week for a month. The first 20 minutes of every session was light therapy followed by 10 minutes of a combination of various vision therapy techniques involving convergence, tracking, accommodation, fine and gross visual motor integration, and perceptual activities. The light therapy consisted of an initial 10 minutes of red-blue, (alpha-omega) followed by 10 minutes of yellow-green (mu-delta). Within that short month of time his subjective vision function markedly improved, and my objective findings were nearly all within normal limits. For example, he was then able to converge to his nose for 20 seconds, and he only occasionally lost his place while tracking. His mother also reported: "To me and my husband,s surprise, within the first week (of treatment) my son became more verbal...I also noted that my son was spending more time on the computer. Then came the clincher. My husband and I had repeatedly encouraged my son to take off his

training wheels, which had always led to tears. During the first weekend after treatment had begun, my son requested to have his training wheels removed....He removed the wheels and with a little practice became a two wheeling kid. His balance was remarkably better...These skills have provided a foundation for improvement in more functional tasks than I could have dreamed possible." Although he may need additional vision therapy in the future, his visual foundation is much better than when we first began.

Dr. Al Sutton, syntonizing optometrist, recently stated during a developmental vision presentation: "Go to the zoo and learn." One example he gave was monkeys practicing good visual hygiene with frequent blinking and looking off to the distance. They never seem to really focus intently at anything up close for any long length of time.

My two cats help bring the zoo home on a daily basis for me to observe them. I have noticed on sunny days they will face the sun and rest with their eyes closed. Instinctively they are syntonizing! They know they will continue to feel well if they do so. It's an interesting observation because they are fully haired animals; therefore they aren't getting much of the sun absorbed from sunlight coming in contact with skin, but rather it must be through their eyes! They will even follow the sunlight as it is projected to different areas of the house through the windows. And I don't think they are just doing it to get warm, because they will even bathe in the sun on hotter days of summer when the ambient temperature (sometimes using air conditioning) in our home is very comfortable for all of the other mammals present.

In conclusion, I implore you to investigate syntonics further. Attend the CSO annual conferences, talk with and observe CSO members in practice, read the references I mentioned and research the literature for a lot more. CSO mentors are available to help enable you to begin syntonizing with confidence. You can expand your vision therapy or general practice by effectively utilizing syntonics. And, with the use of new home units, there has never been a better time to syntonize. You have my best wishes for a bright future! Thank you.

# Is There More to Vision Than Meets the Eye?

By Mosses Albasas, O.D.

What do The American Optometric Association News, the author of this article, and a group of spirits expressing themselves as a group through a human who channels them have in common? Probably nothing if it were not for their definition of vision! My definition of vision, which I am sure was greatly influenced by my many contacts with colleagues and mentors, is:

*Vision is the response of an organism to an illuminated environment or to a state of mind which produces the same responses as an illuminated environment.*

Abraham<sup>1</sup>, a group of wise spirits channeled by Mrs. Hicks, says, "The universe does not know if the vibration you are offering is of what you are imagining, or because of what you are observing, in either case, it is responding."

The American Optometric Association News<sup>2</sup> under the title, "Study sheds light on mind's eye," reports research of the University of California at Los Angeles (UCLA) School of Medicine and the California Institute of Technology (Cal Tech). This research has uncovered evidence that single neurons, individual cells in the brain, are involved in recalling specific visual images to mind.

The firing rate of the neurons in the brain sharing vision and visual recall was similar, which indicates that the brain processes visual information and visual recall in a similar manner. I feel there is enough food for thought in all the previous information to ponder for many years!

Some questions that come to mind are:

- What is reality?
- Does reality exist in us, in the outside or in both?
- Do we create reality (1) or does reality create us (2)?
- Are both questions (1) and (2) possible or can only one be correct?
- Is it possible that none of the above questions are correct? Of course, we have to define what we mean by correct!

This article started with the title in a form of a question and it continues with more questions. It looks like it tries to stimulate thought but may be just an indication of the author's ignorance.

In a book titled, *The User's Illusion Cutting Consciousness Down to Size*, it is stated that we are consciously receiving about ten to forty bits of information per second through our visual system, but we actually process about 10,000,000 bits of information per second, and from the rest of the body, a little more than 1,000,000 bits of information per second.<sup>3</sup>

It is estimated that the brain has the capacity to process ten billion bits of information per second. If the above figures are correct, then Sigmund Freud's work and his ideas on the unconscious are not only correct but conservative! Helmholtz asserted that consciousness is a result of unconscious processes. We can see that there is more to Helmholtz than theories of accommodations, color vision, hearing, etc. Maybe Helmholtz's understanding of the unconscious was his most important contribution, although it was not noticed.

Visual information accounts for 90% of all the unconscious information we receive from the outside world to our body. Conscious visual information is like a drop in the ocean if we accept the previous information. It is like saying all the information in the computer is on the screen.

Vision seems not only to be related to what we see but to what we visualize. At the same time what we may visualize may be something that we perceived unconsciously.

I think vision is related to who we are as a species because it is related to the majority of the information we have consciously or unconsciously stored. In syntonics we use colors to improve peripheral awareness, but can we increase peripheral awareness by visualizing these colors? After all, the brain responds the same if we see or visualize something according to previously mentioned research. When we increase peripheral awareness with syntonics, do we increase processing of only conscious information or mainly unconscious information, or both?

Another question comes to mind: When visual fields expand with syntonics and/or visual therapy, does also the ability to see more possibilities and choices also increase? Does intuition increase?

I had at least one patient who insisted he got "psychic" abilities after vision therapy and syntonics. He was so convinced that vision therapy and syntonics helped him with his newfound abilities that he had a television station call me to be a guest on a show of how to help people become psychic.

Of course, I declined, and I explained to them that this is not what I do, and that particular patient has a "personal" experience not necessarily shared by other patients. Did this patient experience increased intuition as a result of expanded visual fields? Does the ability to follow through on your thoughts with actions increase with visual therapy? At least some of my patients volunteered that after visual therapy, they follow through with action more often than before vision therapy and/or syntonics. Does that mean that after vision therapy, the visual image of the task is stronger now?

Gregg Braden in his book, *The Isaiah Effect*<sup>4</sup>, quotes the Essene gospel of peace. "And one day the eyes of your spirit

shall open and you shall know all things." Are the eyes of the spirit more likely to open with vision therapy and/or syntonics?

It is said that we use 10% of our brain. Does this mean that we don't use 90% of our brain, or do we use it in a way we cannot measure it? After all, why should we have something we don't use? Why should we have a visual system that has the capacity to process 100 billion bits of information per second while we are aware of only ten to forty bits per second?

The title of this paper is, "Is There More to Vision Than Meets the Eye?" I hope the reader will agree that we can at least answer this question with a, "Yes, indeed!"

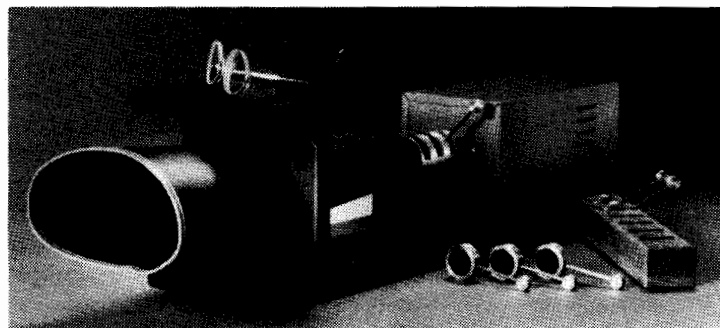
<sup>1</sup> Abraham-Hicks Publications, P.O. Box 690070, San Antonio, TX, *The Science of Deliberate Creations*, Oct., Nov., Dec. 2000, vol. 14, p. 24.

<sup>2</sup> *The American Optometric Association News*, Dec. 18, 2000, Vol. 39.12, p. 5.

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## Hancock Home Therapy Syntonics Unit



A light, portable, low heat/low temperature unit to complement the College Syntonics Unit. Designed by Professor Walton M. Hancock, Professor Emeritus, Department of Industrial Engineering, University of Michigan and Dr. Betsy Hancock, O.D., as a patient rental unit. This sturdily constructed unit uses the same glass filters as found on the College Unit which are numbered to correspond to a syntonics color for easy patient use. An instruction manual, which includes a patient instruction sheet and record sheet, is included.

To order please contact Dr. Betsy Hancock at [visdiff@ptd.net](mailto:visdiff@ptd.net).



# THE VISION OF HOMEOPATHY

## The Mental Symptoms of Vision Syndromes

By Larri Richmond

Within the larger field of optometry there are two overlapping subdivisions - behavioral optometry and vision therapy (the art and science of developing visual skills to achieve optimal visual performance and comfort).<sup>1</sup> that offer an interesting perspective on vision and the individual. Because these areas relate more to the individual as a whole, including lifestyle, behavior, history, personality type, etc., these modalities have an interesting relationship to homeopathy and offer a fuller and more in - depth look into the vision and eye sections of the repertory and materia medicae.

While optometry as a discipline that has existed for hundreds of years, the field of behavioral vision therapy is much younger - closer to sixty years. This expanded area of optometric practice looks at vision from a holistic point of view, working with changes in awareness, and alteration of both perception and behavior to affect lasting vision changes. Behavioral optometry tells us that the symptoms patients regularly report - headaches, blurred vision, tired, itchy or watery eyes or other vision-linked problems have more than a hereditary or pathological cause. These problems can be due to the various physical, psychological, postural or lifestyle stresses that are part of an individual's everyday life and can be changed through proper training and increased awareness. Like homeopathy, behavioral optometry sees each patient as an individual who manifests the imbalances in his or her life and system in a particular way and advocates that these imbalances should be addressed rather than "suppressed" by corrective lenses.

There are many disorders that respond well to behavioral vision therapy. Some of these include reading and learning problems, coordination or performance in sports, behavior problems in children, ADD/ADHD, burning, itchy eyes, eyestrain or visual fatigue (with no medical eye problems), traumatic brain injury, stroke, chronic fatigue, faulty convergence, and accommodation problems.<sup>2</sup>

With advanced techniques, the patient who begins to modify visual behavior, discovers that visual behavior is directly related to general behavior and that the whole system must be rebalanced in order to effect appropriate visual changes.

Psychology has been part of optometry for many years now, through interest in perceptual phenomena. The whole organism is involved in the act of perception and thus goes far beyond the physiology of the eye. Through specialized visual findings, the practitioner can find how the patient performs in space - in the real world.

It has been noted that the physiological optical mechanism of the eye will vary based on the problem-solving task, and it has also been noted that the prescription for an individual can change due to change in stress or to inconsistencies. It has even been observed that a patient having multiple personalities may need correction in one personality while seeing well without correction in another personality. These examples all show the importance of a holistic view of vision.

A psychological study shows that children with learning and perceptual problems manifest these problems as emotions (feelings of inadequacy and a general sense of insecurity and helplessness) through human figure drawings - another measure of the holistic nature of vision and perception.<sup>3</sup>

In the process of undergoing vision therapy, a person's psychological makeup, which may be both cause and effect of the visual problems, often undergoes basic changes. But it's not a one - way street: visual problems may cause psychological and emotional difficulties, and psychological disturbances could cause visual problems. In any event, they may reflect each other, but this does not mean that psychological problems are always linked to vision. But enhancing or expanding vision can, and often does, change personality and behavior -- it fits neatly into our understanding of how the body and mind operate as a single unit, with each sphere having an effect on the other.

The reason that vision, more than the other senses, plays such a crucial role in shaping personality is because, in man, the visual sense dominates. It is the way we receive between 80 percent and 90percent of our information about the world.<sup>4</sup>

In fact, almost 50 percent of the cranial nerves that emanate from the brain and control all bodily functions are for the specific use of the eyes. These eye structures influence our perceptions of life and most of the decisions we make - as well as the ways we play sports, choose careers, hobbies and mates, and use our vision - are influenced by these inner perceptions.

Because the eye is such a sensitive organ, and also because we are so aware of, and dependent on our vision, eyes can tell us a lot about what is going on in the rest of our body and about the general level of health of our entire system. For this reason, eye symptoms alone may provide an in depth picture of the individual and lead to imbalance or illness in other parts of the body.

The mind symptoms that go along with or help to engender these disorders will help us to flesh out a clearer constitutional picture.

Dr. Robert-Michael Kaplan writes in his book, *The Power Behind Your Eyes*, "From an eyesight and vision point of view, this dimension of vision, beyond the sensory state, probably includes the soul. When we limit our perceptions to just the senses, are we focusing through the eyes of personality? . . . I do know that when one of these perceptions has more control than the other, we are imbalanced and feel incomplete." These readouts, then, are another window into the mind section of the repertory and can give an unedited glimpse into the psyche of a homeopathic patient.

Optometrists classify patients by behavioral attributes into four visual temperaments: The esophoric myope, the exophoric myope, the esophoric hyperope and the exophoric hyperope (these terms will be defined and discussed in depth later in the paper). The temperaments can also be mixed, which leads to eight temperaments, including astigmatism, in the description. These relate specific visual findings to general behavioral approaches or perceptual styles.<sup>5</sup>

### **MYOPIA**

One of the most well - recognized and prevalent visual problems is nearsightedness or *myopia*. The medical description of myopia is the hereditary elongation of the eyeball, which leads to a blurry image being projected on the retina. There are other more in - depth and comprehensive explanations for this phenomenon, which we will look into.

Dr. Kaplan writes that nearsightedness is an accumulation of mind misperceptions that are constrictive in nature. Your eyes have been programmed by your mind to see the world as being closer than it is. This way of looking is overly focused and inner - directed.

Nearsighted patients tend to have dominant controlling, mental/intellectual influences that seem to stem from the mother's side of the family: a preponderance of fear - based patterns indicating that nearsightedness appears to be largely fear-based - fear of loss of love, fear of rejection or abuse, and fear of overbearing and severely disciplining parents.

Nearsightedness is a pulling - in of one's perceptual reality beginning with the thought "I don't know how to handle what's out there - my world is too confusing. I feel too much when I look beyond myself. I can't cope with what's out there. I feel safe when I focus mentally inward. I will feel less by thinking more. Give me a book to read. I'll master this computer program. I'll take courses at university. I'll excel at school" . . . The individual caricature of the intellectual, introverted and precise person springs to mind. Careers such as engineering, accounting, or computer science seem to suit the nearsighted personality.<sup>6</sup>

Myopia can be combined with various other syndromes or stand - alone. While it has its own listing in the repertory, there

are other factors to take into account besides visual acuity. Behavioral and personality studies on myopes and other visual types have been done since the early 1900s. Although they show a clustering of the same characteristics, they should not be taken as the gospel for every individual - nor is a single person likely to exhibit all of the traits.

Again and again, myopes have been found to be introverted, introspective, shy, meticulous (that attention to detail), disinclined to sports, and to have a marked preference for sedentary activities. They are self-centered, dogmatic, diligent and in control of their emotions. A typical myope, then, will do well in school, although some develop myopia in the struggle to achieve, but will only attain average grades. He will delight in his high test scores and, because his language skill is so highly developed, enjoy proving his point in the classroom. He will, of necessity, spend a lot of time by himself reading, studying and concentrating on what information means to him.

Taken out of that context, he will carry this introspection over into his social life, which is usually limited to a few friends of similar interests. They will spend a great deal of time verbalizing their recently acquired information, taking it apart bit by bit, analyzing it- and, along the way, analyzing themselves. Emotions, too, can be put under this introspective microscope for examination, rather than just being experienced. Thus they are seen in a light where they are intellectually interesting, something to be examined and analyzed, rather than requiring action. Of course, most myopes will not be the pure undiluted type described here, but will exhibit some of the characteristics and not others, or have them to a greater or lesser degree.

As far as body type, the myope tends to be tall and thin. It has been suggested that the myope is more sensitive to light than others, prefers a low level of visual stimulation, and may consciously choose to tone down his acuity to enhance this. It could also be the reason that many writers and scholars prefer the quiet of the night to do their most efficient work. At night you can control the visual stimulation with the flick of a switch, and the confirmed myope also is aware that to achieve results from intense, concentrated efforts he is going to have to push past the point at which his eyes send him the message they are tired.

### **HYPEROPIA**

Another familiar visual problem is that of farsightedness or *hyperopia*. This visual anomaly is defined by the medical community as a shortened or flattened eyeball, which causes a blurred image to be cast on the retina. As you may guess, optometry has more to say about the condition than that.

Dr. Kaplan says that hyperopia is a mental encoding that claims that your view of life is expansive and broad. Through your inaccurate perceptions you believe the world to be farther away than it really is. Farsightedness programming of your eyes means that you prefer to look ahead and deal with the future rather than the now.

Kaplan also says farsighted patients are dealing with unresolved anger in the family tree. The anger can be carried down in the form of unconscious tendencies toward angry behavior.<sup>7</sup>

Hyperopia varies according to our attention to detail as well as to emotional factors. The integrated way of dealing with

farsightedness is to examine the aspects of the person's intimate life, such as relationships to family and career. Examining farsightedness can enable a person to identify and deal with unresolved "close-up" aspects of his or her life such as anger and intimacy.

While evidence indicates that myopia is the result of environment, the causes of absolute hyperopia are much less clear. It may be linked to other congenital deformities, such as mental retardation, where hyperopia is prevalent. Other causes appear to be related to high fever and serious illness during early years.

The behavior associated with hyperopes is not the exact opposite of that connected with myopes, possibly because myopia is an aberration while a certain degree of hyperopia is not. Research has shown that moderately farsighted individuals tend to be more concerned about tomorrow than the here - and - now or the past:

Farsighted individuals are generally extroverted, need to know what others are thinking and that others are listening to their suggestions. Because of their gregarious natures, they will often be the center of activity - but on the playing field rather than in the chess club.

They like overall organization and structure but tend to gloss over details. For instance, in planning a trip, say a romantic second honeymoon to Bermuda, the hyperope will call the travel agent, make the reservations, pick up the tickets, arrange for the rental car, pack ahead of time, and get to the airport two hours early. Plenty of time to check in and have a leisurely drink. Since everything is already taken care of, the hyperope will sit back and relax. He will be so relaxed that he will not notice that all these people walking by are probably going to . . . Bermuda. And he will miss the plane by five minutes!

Hyperopes' need for change leads them to find studying and reading boring after a while, and thus they are less - dedicated students. However, there is no evidence that they are less intelligent than myopes; they just go about it differently.

They enjoy team sports, and later on this rah-rah group activity is transferred to occupational choices, frequently leading them to professions where teamwork is prized.

Because of the long hours of solitude demanded by pursuits in which individual achievement is critical, the farsighted person tends to end up in professions that do not have high status in our culture.

Since they tend to lose detail in the overall structures, hyperopes do not differentiate among people, places, and words as much as do myopes. Therefore they do not score as high on academic memory tests but have a good recall for personal events and feelings.

With their focus on similarities rather than differences, farsighted individuals may consider specific requests tedious and unnecessary, and be lax in complying with them.

### **ASTIGMATISM**

Close to 80% of the population have eyes, which are not perfect spheres. But it is only when the structure is so disproportionately out of shape that it causes focusing difficulty. Light rays coming in become bent at different angles, depending on the distortion of the particular places they strike the eye. These different angles scatter the focus, and the

brain can't decode the garbled message. Since information does not come to a single focus, reaching a decision about what is seen is less than simple.

Although the literature on how astigmatism relates to behavior is sketchy, in practice it has been observed that astigmatic people have a difficult time coming to a decision and then taking action. It is not simply that they see two points of view - they may know what they want to do, but focusing on it long enough to actually get moving seems difficult.<sup>8</sup>

Astigmatism is an unequal curvature or warpage of the cornea. It is an external printout of rigidity of perception. This perceptual distortion is a reaction to a non-presence in one or more parts of your life. Astigmatism is a perceptual discord between genetic reality and the way a person chooses to view current life experiences. The belief system built around these perceptions is a feeling of not fitting in. The most common variety of astigmatism is related to avoidance of being aligned with one's soul truth.<sup>9</sup>

### **STRABISMUS**

*Strabismus* is a condition of eye turning in which the eye can either turn in (*esotropia*) or turn out (*exotropia*). The crossed eye is a turning inward of that eye's perception; an eye that turns out is a wandering off of that eye's perception. Both conditions make it difficult for the patient's vision to stay integrated in a two-eye perceiving way. It is also important that the prescriber realize that, if the patient has had cosmetically ineffective corrective surgery, the turn of the eye may be different from what it was before corrective surgery was attempted.<sup>10</sup>

Because the mental symptoms that go along with the two types of strabismus are different, we will treat them separately.

**ESOTROPIA** - Studies have shown that 50% of strabismus patients showed postural deviations. There were also head tilts, shoulder tilts, and other bodily warps. It had been observed how strabismics functioned as if their particular problem also manifested itself in other areas of behavior: they were strabismics from the top of their heads to the bottoms of their feet. For example, if their eyes tended to turn inwards, they were often "knocked-kneed" and their feet turned inward (pigeon-toed).<sup>11</sup> Some of these children were academically hindered according to what extent their condition affected their near space world.

When we treat a person for crossed eyes, we look for the underlying cause. Often this problem is compounded by anxieties, near - point stress and emotional tensions linked with the autonomic nervous system. Any increase in activity could well affect focusing.

Strabismus - whether the eye turns in or out - is another way the eyes have of adapting to stress: high fevers, an injury to the eye preventing it from completing its learning process during the first six years, cataract in one eye, swollen lids which cover the eye for weeks or months, or something as seemingly innocent as having the crib kept against one wall. If the child is sedentary and does not move around, the eye next to the wall will not be used often enough to look out across the room. Consequently, that eye gets bored and turns in (or out).

In practice, it is found that these children whose eyes cross at an early age are often bright, articulate, intense and addicted to a ritualistic way of doing things. Many adult patients will

discuss the emotional problems they lived with at that age; their parents' divorce, death or serious illness.

Turning in the eye severely limits perception. A youngster may not want to deal with the world after a parent dies or leaves. He turns the eye in and tunes out. School may be too much, too soon. He gives up and turns out.<sup>12</sup>

**EXOTROPIA** - There are many similarities between strabisms (exotropes and esotropes). Turning the eye out is much less common, but it also suppresses vision, since with all the action going on at the edges of peripheral vision, one misses what is going on in front of his nose. It is not unusual for someone with an outward-turning eye to complain that his scope of vision has narrowed once his eyes are straight. The choice to turn out is a choice to turn away from something troubling – maybe the details of learning to read and write. This often occurs at age six or seven, when the youngster begins school.

This type of person is usually not as verbal as the one who turns an eye in, yet will be highly creative and intuitive – unless these attributes were discouraged during the early years. Such a person has difficulty focusing on one thing or completing whatever he starts – something else always distracts him.<sup>13</sup>

Since these conditions are two ends of a continuum, it is understandable that some of the same remedies show up for both (Buthus, Hyos, Op). Although in esotropia and exotropia the eyes turn in opposite directions, the problem in both is the dysfunction in control and posture of the eye on the horizontal plane. You could think about it in the same way as you would think about a remedy that has symptoms relating to certain foods. The patient may crave a certain food, but it is considered just as significant if the patient has an aversion to that food. Either way, there is an imbalance or issue associated with that particular area.

The last few conditions examined here are not discussed by the medical community because they are functional conditions; i.e., they do not show up as prescription changes or eye disease and require a thorough functional exam in order to be diagnosed. They are, however, relatively common and impact upon many areas of the patient's life. These diagnoses can stand alone or be combined with one or more of the previous or following conditions to make a more specific diagnosis. As you will see, there are more physical and visual symptoms than in the previous section so the analysis is a little different. Mentals were added whenever possible. The definition of the conditions as well as their symptoms can be found in: THE FACT SHEETS ON CONDITIONS OF THE VISUAL SYSTEM, Clinical Standards Committee, The College of Optometrists in Vision Development, 1997.

#### **ACCOMMODATIVE DYSFUNCTION**

Accommodative dysfunction is a non-presbyopic, non-refractive, sensorimotor anomaly of the visual system characterized by inadequate accommodative accuracy and/or stability, reduced accommodative facility and/or flexibility, reduced amplitude of accommodation, inadequate sustenance of accommodation, inertia of accommodation, or accommodative spasm. (For this paper we may say that accommodation is focusing ability).

**SIGNS AND SYMPTOMS:** The signs and symptoms associated with accommodative dysfunction are related to

performance of prolonged visually demanding near-centered tasks. They may include, but are not limited to the following:

- Transient blurred vision
- Diminished performance with time on task
- Asthenopia, difficulty sustaining near visual function, and difficulty shifting focus from one distance to another.
- Pain in or around the eye.
- Inaccurate/inconsistent visual attention, and distractability while performing visually demanding tasks.
- General fatigue.
- Avoidance of visually demanding tasks.
- Illusory movements

#### **POOR BINOCULAR FUSION**

The final two anomalies that will be discussed here fall under this broader heading. Poor binocular fusion results from the inability of the two eyes to work together and thus provide a clear and coherent image for the brain to use. Problems with fusion can cause a person to feel extremely uncomfortable in crowds because he feels that people are closing in on him. Shopping a week before Christmas will put him in a panic – and not just because he can't get waited on quickly. This feeling of spatial suffocation can come and go, because when he is sick, run down, depressed or upset, he cannot compensate for the problem as well as he can when he is happy and healthy.

As you will see from the list of symptoms, these anomalies are quite common in the general public and so, though lengthy, are important to consider.

The problem of binocular fusion can be of two types.

**EXOPHORIA** - Convergence insufficiency or exophoria is a sensorimotor anomaly of the binocular visual system, characterized by a tendency for the eyes to diverge at distance and near and/or by the inability to adequately converge or sustain convergence for visual tasks at near.

**SIGNS AND SYMPTOMS:** The signs and symptoms associated with exophoria and convergence insufficiency are related to performance of visually demanding tasks and/or making spatial judgments. They may include, but are not limited to, the following:

- Transient blurred vision.
- Difficulty tracking and/or following objects.
- Tendency to cover/close one eye.
- Need to use a marker or finger to avoid loss of place, loss of place, repetition and/or omission of words and/or lines of print while reading, and inaccurate/inconsistent visual attention/concentration and/or awareness.
- Inaccurate and/or eye coordination, inaccurate/inconsistent depth judgments, and spatial disorientation.
- Reduced efficiency and productivity, inconsistent work product.
- Diplopia
- Pain in or around the eye
- Incoordination/clumsiness
- Distractability while performing visually demanding tasks, difficulty sustaining near visual function, avoidance of visually demanding tasks.

- Difficulty sustaining near visual function
- Motion sickness and dizziness/vertigo – especially during/after sustained visually demanding tasks.
- Illusory movement
- General fatigue
- Diminished performance with time or task
- If an individual has convergence insufficiency (which means he has difficulty coordinating and concentrating on objects and people close at hand), he typically is going to want to maintain personal distance. He will stand back when talking to others and feel uncomfortable or threatened when someone closes in on him. He would rather talk to three people than one, because that keeps him distant from any one in particular.

The other anomaly that falls under poor binocular fusion in our discussion is:

**ESOPHORIA** -Convergence excess or Esophoria is a sensorimotor anomaly of the binocular vision system characterized by a tendency for the eyes to overconverge at distance and near.

**SIGNS AND SYMPTOMS:** The signs and symptoms have much in common with exophoria with the following differences:

- Photophobia added
- 

And the following symptoms taken away:

- Incoordination/clumsiness
- Need to use a marker or finger to avoid loss of place

Someone with too much convergence tends to move in close. He will not only stand near but seek relationships which are extremely intimate and drive persons with the opposite problem right up the wall.

### **GENERAL BINOCULAR DYSFUNCTION**

Most of the above fall under this category whose definition is: A category of sensorimotor anomalies characterized by the inability to efficiently, accurately, and comfortably utilize and/or sustain binocular vision.

This definition covers the above and any combinations of the above anomalies. These syndromes can stand alone or be combined with any number of other syndromes listed. The combinations of various symptoms could form different and/or more refined anomalies. Many of the remedies would be similar but there may be other smaller remedies that would come up and make for interesting investigation. The information presented here gives an idea of what is possible with this approach.

We have, however, seen from the anomalies presented how the mind and vision (as well as the physical and general) parts of the repertory can be used in a little different way to come up

with an interesting picture of a patient. This paper really only scratches the surface of a vast area of information that could be covered in more depth in the future.

### **CONCLUSION**

Vision therapy, as shown, is a complex and deep - reaching discipline that seeks to treat eye function in a much more holistic and inclusive way than more traditional vision care. By examining the patient's habits and history, we allow the person to become more aware of himself or herself on a deeper level and thus to change behaviors and imbalances in a more lasting way. It is a participatory growth process rather than simply a passive treatment. In this respect it is very similar to homeopathy. Both, as part of their process, attempt to help the patient gain insight into behaviors and ways of thinking that can shape health.

Homeopathy's aim, like that of vision therapy, is to treat imbalances in the entire person in order to bring about a deeper form of health. Homeopathy sees the behaviors and history of the patient as integral parts of the whole make-up of that person's disease or imbalance. The practitioner seeks to understand every aspect of the individual so as to treat in the deepest and most integrated way possible.

In case taking, if a homeopath were to become aware of extensive vision complaints during the interview, the descriptions above could help give ideas of remedy groups to keep in mind. The above descriptions might also give a further clue into the mental picture of the patient and help to obtain information that might be difficult to extract from a closed individual. If a homeopathic practitioner were to see a patient complaining of any group of the above mentioned symptoms, vision therapy along with homeopathy could help the patient to move along faster.

If vision training patients were to receive homeopathic treatment in conjunction with vision therapy, their treatment could move even faster and have a more profound effect. For example, if a myope were to be treated homeopathically at the same time as receiving vision therapy, a shift in behavior might happen as a result of the remedy. The patient might begin to feel a little less shy and introspective, or feel a little less cautious and fearful. These unconscious shifts could have a dramatic effect on the vision patterns of that patient. The resulting vision changes could make the patient feel even more comfortable in the world and encourage further change in a positive direction.

When a patient's unhealthy patterns are interrupted and new mechanisms of thinking and behavior are introduced, that patient has an opportunity to obtain lasting changes. When these patterns are addressed on an energy level as well as a conscious, awareness level, the patient is presented with the opportunity to affect greater change with no increase in effort. This makes the process move more quickly and so is more satisfying and fulfilling.

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## ABSTRACT

*Energy Medicine: The Scientific Basis*, by Dr. James Oschman. There is growing interest world - wide in the energetic therapies and in the roles of the various fields within the body in maintaining normal health and wellbeing. This in turn has led to interest in how these energies may be channelled to assist in healing and restoration to health. This book, written by a well known scientist with a degree in biophysics and a PhD in biology, Dr. James Oschman, brings together, for the first time, evidence from a wide range of disciplines that provides a stimulus for discussion among both the sceptics and those who are already convinced of the healing potential of body energy. One fascinating discovery reported in the book is

that energy therapists are able to emit pulsing biomagnetic fields in the same frequency range and strengths as those produced by medical devices used to aid in the healing of bone and other tissues which are not healing on their own. Oschman has collected recent research from a wide variety of fields and presented it in a concise, easy to understand, yet rigorous and well documented way. Hundreds of references to the scientific literature are provided so the interested reader can delve more deeply. The book will leave skeptics speechless and give healers and bodyworkers a scientific perspective on their art. It will also give scientists much food for thought, accelerating research in the field of human energy.

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# Combining Light and Acupuncture;

## Chi is Light is Life is Spirit

By Helge Prosak, PH.D, L.AC.

*Use the light that is within you to regain your natural clearness of sight –  
Lao Tzu*

When an Oriental medical practitioner meets a new client, one of the first diagnostic tasks is to "look over the spirit" to determine whether the client has "shen." Shen is the light that radiates out of the eyes. When a person is not present, and the eyes are dull and "dis-spirited," the prognosis is not so good.

Interestingly enough, we know today that the brain runs on electrical "chi" energy, and that the eyes are the "solar cells" of the brain. When there is no light shining through the eyes, most likely the brain is not functioning well, and neither is the body or spirit.

One of the reasons I was first attracted to Oriental medicine is this acceptance of a body-mind-spirit continuum. Another reason is the belief of inter-connectedness: humans are custodians of the earth, meant to live in harmony with other humans, with nature, plants and animals. We all reside between heaven and earth. We absorb light, chi and air - the yang energy of heaven. We are nourished by minerals, food and water, and the yin energy of the earth.

According to chigong master Ken Cohen, light has been understood as a correlate of chi from the beginning of history. Ancient chigong texts speak of absorbing light energy from the sun, moon, and stars and of the body radiating varying degrees and qualities of light depending on the individual's health and consciousness.

A contemporary and increasingly popular way of adding light to the eyes and to the human system is to input light from external sources, either through the

eyes or on the body - on acupuncture points or body zones. Treatment methods and tools have been developed that can directly harness heavenly transpersonal chi. Working with light is quick (light travels at 186,000 miles per second), noninvasive (light is nonmaterial and creates no interference), safe (bacteria do not travel on light), effective, and painless.

In the last three decades research has confirmed that light is a vital nutrient for all life on this planet. All living cells emit, receive and store light. Light is an organization and communication system for the body (Popp, Germany). Meridians guide light (Kajnatschejew, Russia; Popp, Germany). Acupuncture points are distinguished from the surrounding skin by increased bioluminescence (Injuschin, Russia; Inaba, Japan). Light on acupuncture points affects neurohormonal brain function (Scott, Campbell, US). Light, both intravenous or on the skin, alters blood chemistry (Samilova, Russia; Scott, Campbell, US). The brain and central nervous system mediate both acupuncture and light treatments (Cho, US). The brain runs on bio-electric energy (Syntonics, EEG research). The eyes are the solar cells for the brain (Syntonics). Today's indoor living does not provide enough energy for the brain to function adequately (Rosenthal). Indoor lighting does not replicate the spectral distribution of sunlight, so that many of us suffer from "malillumination syndrome" (Ott).

Another frequent cause for malillumination may be unresolved

traumatic experiences. For example, molestation at an early age may show up later as a woman not being able to tolerate the color red. Seeing red may evoke fear, anger or free - floating anxiety. And this woman may not actually see red and instead sees gray, or brown or a mixture of various colors. Her physical symptoms may include lower back pain, knee pain, gynecological problems or neck pain. Once the experience is brought to consciousness and resolved, her color perception will become clear and visible, and the physical symptoms often dissolve. An enlightened person is one who can see any color clearly, has metabolized traumatic experiences and can be fully present.

The term "light," is interchangeable with the term "color." Let us take a brief journey through the visible electromagnetic spectrum. Each color has a designated amount of photon energy and a designated wavelength. The shorter the wavelength, the greater is the photon energy. Red, for example, is the color with the longest wavelength and the least photon energy. Red benefits jing essence, resides in the legs and lower dantien, and circulates in the denser tissues like bones. Red, orange and yellow are yang colors that tonify, energize, and stimulate the sympathetic nervous system and sedate the parasympathetic nervous system.

Green is the color closest to neutral; just slightly yin. Dinshah Ghadiali's recommendation, "when in doubt, use green" is most useful to remember. Because green is so close to neutral, it

harmonizes gently and does not evoke the strong reaction that may occur with the extreme ends of the color spectrum, red or blue.

Turquoise, blue, indigo and violet are yin colors that sedate, relax, and stimulate the parasympathetic nervous system and sedate the sympathetic nervous system. Violet is the color with the shortest wavelength and the highest photon energy. Violet resides in the crown chakra. Blue and violet are high energy dynamic colors appropriate to work higher - frequency tissues like the brain, nerves and glands.

In China, both infrared and ultraviolet light are used for treatment, and are briefly written up in *Acupuncture: A Comprehensive Text*, the Shanghai text. Infrared penetrates deeply, tonifies deficiency, aids metabolism, removes stasis, and reduces pain. The commonly used infrared TDP mineral lamp has similar indications. Ultraviolet works with bacterial and viral infections, and chronic skin conditions. Both infrared and ultraviolet are beneficial for the immune system.

My method of treatment does not use the colors that are traditionally associated with the Chinese 5 elements. Instead I choose according to eight principal diagnostics, and according to my teachers and the systems that I have studied - Peter Mandel, Dinshah Ghadiali, the Indian chakra system, Neuro Sensory Development, psychologist Dr. Steve Vasquez.

I would like to introduce case studies to illustrate some treatment possibilities.

*Light can go where needles do not tread*  
- Pediatrics

When of my clients had brought his wife and children to observe, I noticed that the 18 - month - old daughter had a red, oozing, and inflamed eye; apparently, she had suffered from a clogged tear duct since birth. The Western treatment recommendation was eventual surgery. I offered to work on the child just briefly while the parent was on the table. With the AcuLight Pen I irradiated Liver 3 and Stomach 44 with yellow to enhance liver function and to establish a connection to the eye, GB 37 with red to energize eye function, CV 22 and Sto 12 with yellow bilaterally to

drain the lymph flow from the head. Then I gently worked directly over the eye in a small clockwise motion, and on Bl 1, Bl 2, GB 1, Sto 1, as well as extra eye points Yuyao and Shangming, first with blue to reduce the inflammation, stop the oozing, and astringe the area, followed by green to normalize eye function. I only worked on the child once, for about five minutes. The parents were happy to report back to me that the tear duct opened, and the inflammation stopped and did not return.

Treatment responses can be that simple. Young infants and children respond beautifully to the gentlest, least invasive treatments like light or homeopathy. They are too young for needles or pills. They have not yet accumulated the repertory of traumatic emotional experiences and malnutrition that may later distort their ability to metabolize colors. Young children change quickly with the gentlest, least invasive impulses. AcuLight is the treatment of choice for a wide range of pediatric conditions.

Early infant insomnia is a common pediatric condition that frequently makes new parents quite miserable. (A frequent side-effect of infant insomnia is parent insomnia.) Blue irradiation on the third eye, Bahui, Shenmen and occipital sleep areas can be most helpful, and may induce sleep that night or after two or three treatments, without relapse.

AcuLight is also an excellent adjunct to needles in most conditions related to vision for both children and adults. Whenever possible, my preference is to work with both needles and light, as the combination goes deeper and resolves issues much faster.

#### **Light to accelerate wound healing.**

Some years ago, Jim had a skiing accident and managed to jam a ski pole right into his frontal sinus. Years later, as a young adult, he had surgery to rebuild his jaw and sinus. A piece of bone was extracted from his hip and grafted into the upper jaw to rebuild the sinus. As this was a somewhat complicated, lengthy operation, recovery at home was expected to be rather slow and painful. I saw Jim the day after the operation, when he hobbled in. His hip was hurting at the bone extraction site and was inflamed around the stitches. His face was very swollen, black and blue, and his facial features were barely

recognizable on the surgery site. He was taking antibiotics and painkillers and was obviously uncomfortable.

I started with some distal needles, Liver 3, Stomach 44, Colon 5 and some ear needles for his hip, jaw and teeth pain. Then I used the AcuLight on some brain points - thalamus, hypothalamus, limbic system and corpus callosum- as well as yintang, Bahui, and ear shenmen to relax the patient and to calm and realign his spirit. Afterwards I worked a-shi, on the swelling, perpendicular and slightly above the skin, in small gentle clockwise circles. First with blue to draw out heat, to astringe and bring oxygen to the site to speed the healing. Initially he had a strong reaction to the color; it was uncomfortable for a few minutes. When I work on acute pain with light, the discomfort can be very strong, move occasionally toward a scary peak, but then ebbs away.

After there was no more reaction to blue, I switched to turquoise, a milder color for acute situations that also works well with skin. Then I did the same areas with violet, which deals more with the emotional component of pain. Finally, I worked with green. Green is the last color for acute situations. After the pain is removed, the healing of the area can begin. Jim's face went through a few changes during the treatment. The puffiness disappeared right before our eyes, the black and blue changed to yellow and green, his face looked more integrated, and Jim felt significantly more comfortable. I worked in a similar fashion on the hip. Jim left the office after an hour or so, feeling relaxed, realigned and much more comfortable. His recovery was effortless. The surgeon called a couple of days later to express his thanks and appreciation; he had rarely seen as smooth and rapid a post - surgical recovery.

After more than fifteen years of experience I can comfortably say that acupuncture combined with light stimulation has extraordinary potential to accelerate healing and minimize scarring in any acute situation, including first aid and post op. I have seen recent, non-contaminated wounds literally close in front of my eyes. Light does not replace use of antibiotics, but when they are necessary, it can still speed up the healing process.



I have also observed positive results with light-acupuncture for abrasion wounds, scrapes, stubbed toes, centipede bites, and one case of a breast cancer patient who was undergoing radiation therapy. In all cases I work locally, distally, and with brain coordination. Because I always work on the brain, one side effect of my pain treatments has occasionally been a shift in the client's consciousness. There is often a new feeling of peace and clarity of what they want in their lives.

Much of the early and contemporary laser acupuncture research has been done with wound healing, including diabetic post - amputation wounds. The laser and light - emitting diode instruments usually work with light in the red range. With lasers and LEDs the strategy is to effectively energize the area to facilitate the healing response.

Lasers have strict FDA regulations. According to some research in Russia and Hungary, the coherence of the light is not necessarily the most important healing ingredient. LEDs may be just as


effective.

**Light to enhance fertility.** At the age of 35, Veronica, a child therapist, wanted nothing more than a child of her own. She had tried, for nine years and three marriages, to become pregnant. Her latest gynecological tests indicated that one ovary was totally blocked, while the other had a lot of scar tissue. Thus her chances were slim. Otherwise Veronica was healthy, robust and active. When I saw her, I worked with needles to energize the lower dantien. I recommended a colon cleanse and prescribed Chinese liver and blood herbs.

I also worked with light. I placed three fiberoptic in orange on CV3 and a point about a chun out from CV3 on both sides. This is what Peter Mandel calls the kundalini treatment, to energize the Endocrine system in combination with yintang in blue. I then energized hypothalamus, pituitary and limbic system on the forehead with orange/blue, orange/blue and yellow, respectively. Finally, I added another Mandel

treatment, the transmitter relays, a treatment on the head to clear past traumatic memories. Within one month of once - weekly sessions, Veronica ecstatically announced that she was pregnant. She continued the light treatments once a month for the rest of her pregnancy adding a prenatal color treatment. I also gave her Chinese pregnancy herbs at three and six months. Her daughter was born easily and has become the joy of her parents' lives. All the children born to mothers I have worked on with light during pregnancy have been very alert, present, active, and self - confident infants.

I hope these case histories will give some idea of the broad range of conditions that can benefit from combining acupuncture and light treatments. I truly believe that any contemporary acupuncture practice can greatly benefit by the addition of light therapy to speed the healing process and to facilitate the integration of body, mind and shen.



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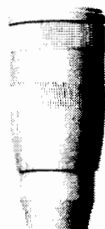
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# LECTURE SUMMARIES OF THE 2000 SYNTONIC CONFERENCE

By Sarah Cobb

**Dr. John Searfoss** hosted the 68th annual conference; attended by those he loved most - his parents, his daughter, his girlfriend, Ginny, and the members of the College. Often grinning, he pushed forward, always encouraging people to think. Dr. Searfoss' last lecture was entitled, **Functional Fields: Measuring "Vision Without Sight."**

Dr. Searfoss spent years testing and making observations about school children. He devised new testing methods that mimicked real space. Using teachers' observations, the doctor asked students visually related questions and then made correlations between performance and learning. He considered the rolls of visualization and attention. Some of his findings were:

- **Functional visual fields may be a measurement of attention.** Attention requires reach, grasp, and release. If this cannot be accomplished, the individual holds on to a central stimulus, losing peripheral information. Adept attention enhances the speed of visual processing.
- **Functional visual fields may diagnose attention deficit.**
- **Functional visual fields may measure accommodative, saccadic, vergence and ocular motor performances.** Attention guides the eyes to the new fixation point. If reach, grasp, release skills are poor, eye movement skills are poor.
- **Visualization seems to parallel field size.**
- **Functional visual fields tend to be in a continuous range from open and highly sensitive to a darkened field. Color fields collapse first and then the blind spot enlarges.**
- **Functional visual fields relate to M and P communication.**

Before syntonics treatments, Dr. Searfoss (in order to make his patients aware that they have control over their attention), repeatedly reminded them to attend to the light. This summary will end with the instructions he gave them. *"This is your time and place, your twenty minutes. There is no place you have to go, nothing you have to do. Simply pay attention to the light. If your mind takes you away to something you're going to do today or you did yesterday, just be aware of it. That's where your mind took you. Drop it and come back to the light. If you hear a noise outside the room and you're paying attention to that, be aware of the fact that there is where your mind took you. It's okay. Drop it. Come back to the light."*

Dr. Beverly Rubic, in a speech entitled, **"Energy Medicine: Fundamentals, Applications, and Future Prospects,** gave an overview of biological effects of low-

intensity electromagnetic fields on living systems. They included accelerated healing and tissue regeneration. Some interesting medical devices, such as a collar for bone mending and an electric tampon for uterine cancer, can deliver low-level energy to the body to accelerate the healing process.

The presentation on lasers pointed out that lasers are monochromatic, single wavelength and always polarized. They are usually applied to various places on the body such as acupuncture points, trigger points of muscles, and on wounds. The virtue of laser light is that it can go deeper into tissues than ordinary light. The infrared laser goes in five centimeters and is deeper than the red laser.

Effects of laser therapy are increased blood flow, increased epithelial cell activity, increased collagen production, and increased capillary blood vessel formation, edema reduction, increased soft tissue permeability, immune system stimulation, and skin rejuvenation. Although the therapeutic effects include pain reduction and reduced inflammation, the laser is not F.D.A. approved.

The systemic effects of laser light remain a puzzle. For example, the wound doesn't need to be treated directly for it to heal when laser is applied elsewhere on the body. Another global response to photo therapy is to promote drainage to the lymphatic system.

Although there are over two thousand reports of laser therapy worldwide, there is no agreement as to a standardized protocol for treating patients. The world association for laser therapy hosts an annual meeting and there is a website for photobiology on line. Check out [www.pol-us.net](http://www.pol-us.net).

Sarah Cobb, in a speech entitled, **Edgar Cayce on Light,** gave an overview of the medical intuitives ideas about healing with light. Cayce often blamed attitude for the endocrine imbalance that led to dis-ease. Both Cayce and Spittler came to the conclusion that the endocrine system was the physical mechanism by which the body could be balanced and healed.

In 437 cases in which Cayce suggested light as part of the healing regimen, 215 involved ultraviolet only, 102 added green glass, 42 were ultraviolet and infrared, 42 were infrared only, 28 suggested the violet ray (demonstrated during the lecture), and 6 included blue glass. Ultraviolet and infrared are intense sympathetic and parasympathic stimulants.

Infrared slows metabolism, relaxes the nervous system, is deeply penetrating, affects chlorophyll formation, dilates blood vessels, and increases leucocytic migration. Some of the effects of ultra violet are: stimulation of oxidation, exhilaration of the nervous the system, increase of muscle tone, improved calcium metabolism, and increase of systemic resistance to bacteria.

In most of the diseases charted, ultraviolet and infrared were used without color, with the exception of cancer cases. In the vast majority of cancer cases, green glass was positioned between the patient and the light source (usually ultraviolet) and usually applied to the spine. Green, Cayce said, *"...will be more effective than even that of a more penetrating nature, or even x-ray-that destroys tissue."*

*The College of Syntonic Optometry is a nonprofit corporation dedicated to research in photoretinology - the therapeutic application of light to the visual system.*

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ON

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CONTACT VIKTOR KURAITIS, O.D.

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15 WESTERN AVE.  
AUGUSTA, ME 04330