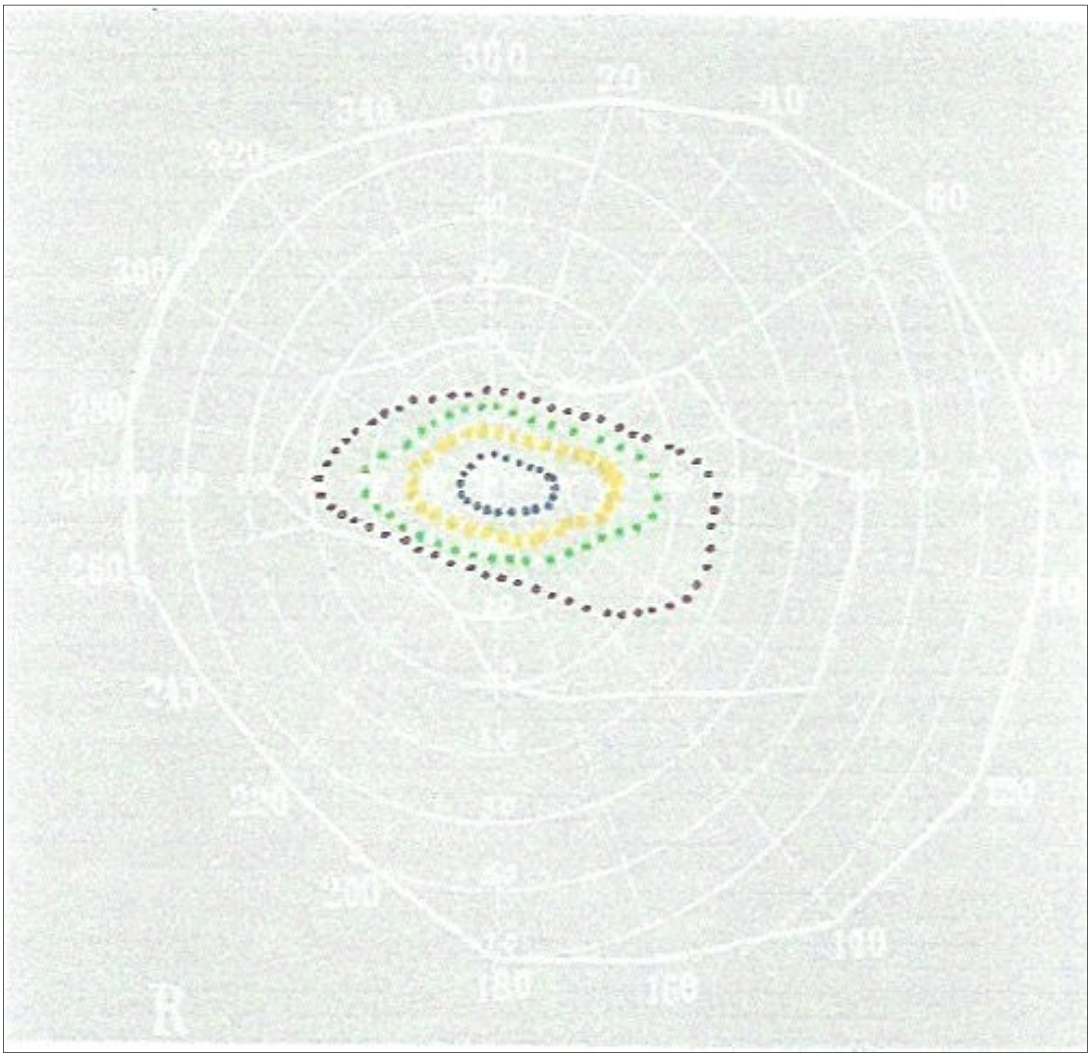
Journal of Optometric Phototherapy

April 2017



Freud Charcot Visual Field - Right Eye. These are four colors in order from outer to inner white red, green, yellow, blue. The widest circle is the border of the field - a line that they seemed to use to define the size of field. (Provided by Denise Hadden, FOA [SA], FCSO.)

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 # 2 COC (Color Coach)

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 # 3 COB (Color Boy)

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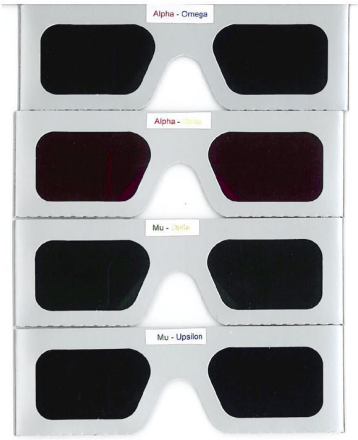

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College of Syntonic Optometry

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THE THERAPEUTIC APPLICATION OF LGHT TO THE VISUAL SYSTEM

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The President's Message

Let Us Grow!!!

***"Share the Light"* - Mentorship and Fellowship**

I am excited to hear and witness the increasing interest in Optometric Syntonics. And with this interest comes the need to support and educate. This is the essential mission of the College to educate and grow the discipline of Syntonics. In that mission I invite you to our 2017 conference in Pittsburgh with a specific intention for Mentorship and Fellowship. In addition to our basic 101 course on Wednesday and Thursday we will have a **Thursday evening Syntonic Grand Rounds**. Here we will discuss real cases with the attending optometrist. Also, we will have a special social and educational opportunity by taking a "class" field trip Friday afternoon in a large bus. We will explore Frank Lloyd Wright's world famous vacation home **"Fallingwater"** in the Mountains of Western Pennsylvania. Frank Lloyd Wright was a genius in blending technology and nature into beautiful expressions of form and light in his architecture.

As much as Syntonics is a science, the clinical application is an Art. As clinicians we are also "*artisans"* in the application of our discipline to our individual patients. Hence the theme for this year's conference is ***"Light and Art".*** Fellowship is essential in our growth as individuals and the discipline as a whole. Mentorship is vital in supporting the novice Syntonic Optometrist towards clinical competence. After this conference we hope to offer some **basic online instruction** to facilitate the CSO Fellowship process coupled with the 101 clinical workshop and individual mentorship. So as we anticipate our **85th Annual International Conference on Light & Vision** may we take to heart the scripture from Hebrews 10:24-25:

> *"And let us consider how to stir up one another to love and good works, not neglecting to meet together, as is the habit of some, but encouraging one another, and all the more as you see the Day drawing near."*

As your new President, I look forward to welcoming you and sharing with you in Pittsburgh. As we gather, may we be mindful of the wonderful blessings received from our *"visionary"* predecessors in the College of Syntonic Optometry and *"Share the Light - Become a Fellow"!* See you in June.

Your Humble Servant,

Hans F. Lessmann, OD, FCOVD, FCSO

Please join us for the **85th International Conference on Light & Vision**!

(See Back Cover for more details.)

Mild Traumatic Brain Injury, Visual Fields and Light Therapy

Ray Gottlieb, O.D., Ph.D., Dean of the College of Syntonic Optometry

Mild traumatic brain injury (MTBI) is one of the most common of all neurological disorders, and the most under diagnosed. Only recently are we becoming aware of the true extent and cost of MTBI. According to the Center for Disease Control (CDC) publication, Heads Up, Facts for Physicians about MTBI, approximately 1.5 million Americans sustain traumatic brain injuries each year. These range from mild to severe. About 75 % of reported traumatic brain injuries are classified as mild. An estimated 5.3 million Americans -- 2 % of the population -- currently live with lasting disabilities resulting from traumatic brain injury. In 1999 the CDC estimated the annual costs of traumatic brain injury at $56.3 billion and of MTBI at $17 billion in the United States. These are low estimates because only reported hospitalized patients were included. People examined in emergency and sent home, who saw their private physician, and those without medical care were not counted. It is likely that millions of MTBI's are hidden.

The severity of the injury does not always predict the severity of the symptoms. A seemingly minor injury can cause serious and lasting disability. Symptoms at one year are equally common for mild and severe head trauma. About 15% of patients have disabling symptoms one year after injury. Disturbances still present at one year are at high risk of being permanent. Emotional and cognitive behaviors are especially vulnerable. Dizziness, headache, sensory hypersensitivity, impaired attention, poor memory, anxiety, and reduced executive functioning can be more disabling at one year than just after the injury.

Even "fully recovered" patients may suffer from fatigue, cognitive dips, emotional swings, or symptoms after modest alcohol consumption, sleep deprivation, extended travel schedules, and high work demands. They typically complain that they lose things, have difficulty concentrating, forget what they are doing or saying, can't organize their environment or activities, and are overly irritable, depressed, nervous, discouraged, or angry.

Many patients with post-concussion symptoms suffer without knowing the cause. Subtle changes may first appear many weeks post-trauma and gradually increase over months. Parents may become aware of changes in their child's behavior but not link them to last month's minor head bump. Adults might not suspect their headache, irritated mood, chronic fatigue, indecision, depression, reading difficulty, or poor memory is due to a mild head injury. Caretakers may not attribute a sudden increase in Alzheimer's symptoms to a MTBI.

For these reasons, health workers play a key role in the identification, education, and care of brain-injured

Signs and Symptoms of MTBI

Cognitive Symptoms	Physical Symptoms	Behavioral Changes
• Attention difficulties	• Headaches	• Irritability, mood swings
• Difficulty completing tasks	• Dizziness	• Depression
• Memory problems	• Insomnia	• Anxiety
• Orientation problems	• Fatigue	• Sleeping disturbances
• Reading/studying problems	• Uneven gait	• Eating disturbance problems
• Mental slowing	• Nausea	• Play
• Planning and decision making deficits	• Blurred vision	• Violence
	• Body/neck pain	• Emotional outbursts
	• Seizures	• Loss of initiative at work, school, or home

patients. This professional responsibility is similar to and as important as the identification, education and treatment of hypertension, diabetes, or glaucoma in patients who present themselves for routine examination with no complaints. We must keep in mind that any patient with a post-concussive pattern of symptoms is a possible MTBI survivor. Unexplained symptoms or behavioral alterations should alert us to ask about possible MTBI.

Patients should be educated about the importance of wearing protective headgear and avoiding unnecessary risk of a subsequent brain injury. A second MTBI sustained after months or years can result in cumulative neurological and cognitive deficits. Another mild brain injury occurring hours, days, or weeks after the first can be catastrophic or fatal. Athletes at all levels of competition are especially vulnerable as they frequently suffer cerebral concussions. Approximately 300,000 sports-related concussions are estimated to occur annually in the United States. Recent rules governing school sports require that, even with no loss of consciousness, any child with a single neurologic sign (e.g. disorientation, slurred speech, confusion) lasting for more than 15 minutes must not be allowed to return to play.

Literature for physicians and patients can be downloaded or ordered from the CDC website at:
http://www.cdc.gov/ncipc/pub-res/tbi_toolkit/toolkit.htm

Another source of information is Brain Injury Source, the Brain Injury Association of America's magazine for professionals in the field of brain injury. Abstracts can be read at:
http://www.biausa.org/pages/source.abstracts.html

Post-Concussion Tunnel Vison

Positive identification of a mild traumatic brain injury etiology is not always easy, especially if patients don't immediately recall an occurrence. Brain edema and hypoxia may be present but not show on brain scans, evoked responses, and other EEG measures. Common post-concussion symptoms such as headache, insomnia, fatigue, anxiety, stress, depression, visual discomfort, and impaired information processing are not unique to head injury and therefore have reduced diagnostic specificity. Fibromyalgia, chronic fatigue, neurosis, headache, toxic exposure, depression, anxiety, and other conditions may present with similar complaints. Chronic fatigue syndrome patients, for example, suffer from photophobia, irritability, difficulty in concentrating, mental fog, and depression.

Visual field collapse after head injury has been discussed by leading neurologists in medical journals for more than 100 years. The literature is rich with interesting variations that included targets of differing colors, shapes, and simultaneous presentation of multiple targets. Field results were interpreted to indicate systemic, psychological, toxic, fatigue, and post-concussive diagnosis. Modern physicians are often ignorant of or discount this literature but a revival of interest may be in the wings.

Tunnel vision frequently results from head injury but may not occur until three or more months post injury. The degree of field collapse correlates well with post-concussion symptoms. The greater the field loss, the greater the likelihood and severity of cognitive and emotional complaints. Children and the elderly are especially vulnerable. Although constricted fields often spontaneously expand and symptoms can improve without therapy, tunnel vision may persist or worsen over time in a significant number of cases.

Kinetic visual field testing is the best method for assessing MTBI tunnel vision. Kinetic fields are motion fields; the test target is physically moved between seeing and non-seeing areas to plot the extent and quality of peripheral vision. Kinetic field testing is valid, repeatable, quick, and inexpensive. However, automated threshold visual field testing is the standard of care today. Here the target is not moved but is presented in brief flashes at set locations in the field. The intensity and position of the flashes is varied to determine the threshold of sensitivity at each location. A computer analyses, plots and prints the data. This works for diagnosing glaucoma, tumors and other field defects but not for MTBI tunnel vision.

Unfortunately, kinetic field testing is rarely done by contemporary eye care practitioners and visual field defects in millions of head trauma patients are not detected. Kinetic fields are best plotted on a campimeter. The campimeter positions the patient's head at about 25 cm from the target. One eye is occluded. Patients look at a dark gray paper marked with a central fixation target. Patients fixate the central target and told to attend to the periphery without moving their gaze. The usual testing probe is a 2 mm white dot at the end of a black wire that the clinician slowly moves from the periphery toward the central fixation point. Patients report when they first see the white dot. The clinician looks to insure that the patient gaze does not stray from the central target. Eight meridians are measured and the limits of the field are marked directly on the paper. Name, date, time, eye, target information, confidence level and other data are recorded on the chart and included in the patient's file.

Concentrically collapsed fields to less than 15º are not unusual in MTBI patients with chronic symptoms. Studies of normal samples of school children identify between 9 % and 20 % with tunnel vision collapsed to within 15° or less.. Some children have fields as small as a centimeter in diameter. These patients suffer significant cognitive, emotional and/or physical symptoms. Kinetic field testing can also detect scotomas (blind areas), enlarged optic nerve plots, and/or monocular diplopia (the test target looks double) following MTBI.

Syntonic Phototherapy

There is no consensus on the appropriate therapy for MTBI victims. The conventional wisdom is that symptoms are temporary and will disappear spontaneously. The usual medical advice after MTBI, "take a few days off," works well in most cases, but for a significant minority more care is necessary. In cases whose emotional and physical stress levels impact their quality of life, patients might be referred for pain management, psychotherapy, or for stress management counseling to teach them to avoid certain situations or activities. Rarely is direct therapy suggested. More and more frustrated by their disabilities and discomfort, patients are turning to alternative approaches.

For more than seven decades, optometrists have applied syntonic phototherapy -- colored light therapy delivered through the eyes -- for treating MTBI. These treatments usually result in full expansion of constricted visual fields, improvement of mental functioning, and elimination of symptoms. Therapy consists of a 20-minute light treatment 3 to 5 days a week. Eighteen treatments usually result in lasting recovery. Patients look into a syntonic device at a 2-inch diameter circle of colored light located 20 inches away. Blue/green light treatments are prescribed if symptoms, case history, visual field, and other visual signs suggest a MTBI within the past 30 months. Yellow/green light is used for more chronic conditions. Indigo treatments may be added for headache or pain reduction.

Fields taken on a Campimeter.

Syntonic protocol includes a progress evaluation of fields, symptoms, and other findings after 7 treatments. Typical findings include improved fields and symptom reduction but not total recovery. This validates the syntonic prescription but other colors may be prescribed and patients may be referred to their physician for additional tests if the results at his point are not positive. As a rule, after 18 treatments, visual fields measure normal and cognitive, physical, and behavioral/emotional symptoms are gone. Patients are happier, more social, and more functional following syntonic treatment. Vision therapy exercises may also be prescribed to help patients regain lost visual/motor/cognitive skills. Follow up testing at 3 and 6 months usually indicates lasting recovery. In less successful cases, therapy may be repeated with the same or different light frequencies after a break of a few months.

Admittedly, this is hard to believe. The expected questions come to mind.

• If syntonic treatment for MTBI is really so effective, how come its not well known? Until now, there has been little interest in color therapy. Instead there has been resistance to the idea and no financial support for institutional research. Most health insurance does not cover syntonics or optometric vision therapy.

• Is there peer-reviewed, double-blind proof? A few controlled clinical studies have clearly demonstrated field expansion, symptom reduction and cognitive improvement after syntonic treatments but these studies have not been conducted in mainstream research institutions nor published in peer-reviewed journals.

• Can this be explained scientifically? A scientific basis for phototherapy has been emerging in the last few years. Photobiomodulation research is now being published in the most respected scientific journals. Data from a wide spectrum of scientific disciplines continues to increase our knowledge and understanding of the potential usefulness of light therapy and why and how it works. Funding for basic and clinical research is starting. Mainstream thinking about the healing effects of light is changing.

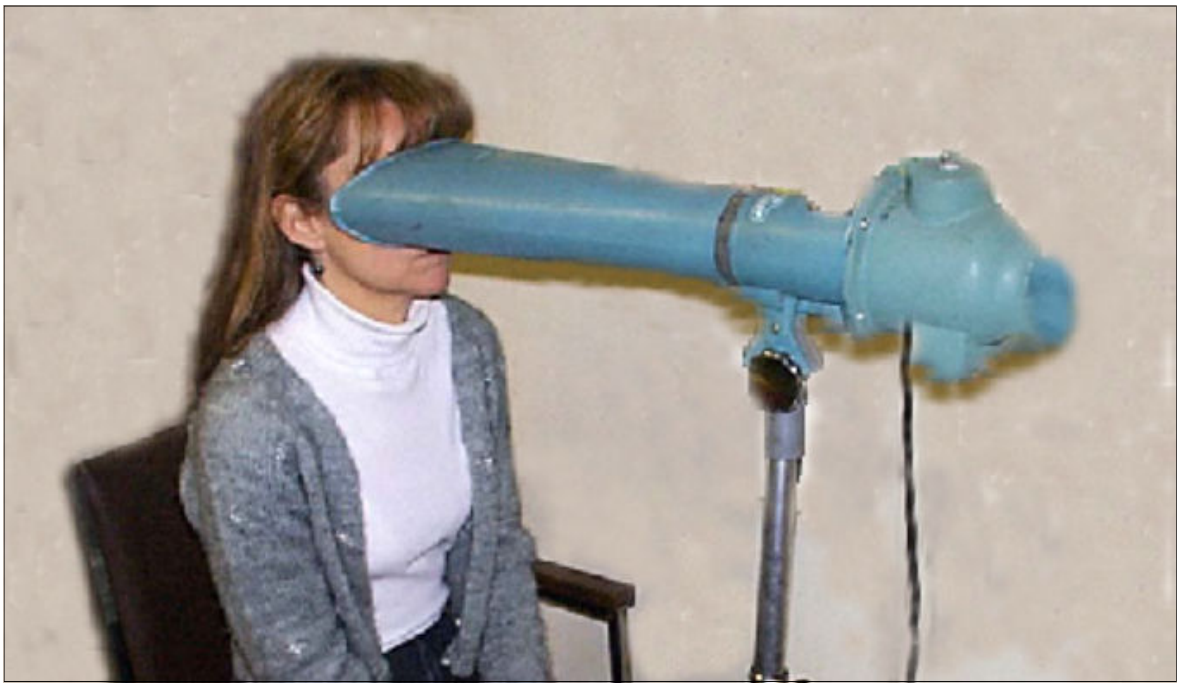
The history of modern phototherapy might be said to have begun on December 10, 1903, when the second Nobel Prize for physiology and medicine was awarded to Niels Ryberg Finsen, MD, of Copenhagen. The prize was given in recognition of his work on the treatment of diseases, in particular of lupus vulgaris, by means of concentrated light rays. The following is quoted from the Nobel acceptance speech: "This method represents an immense step forward and the work of Professor Finsen has led to developments in a field of medicine which can never be forgotten in the history of medicine." (He was absent from the ceremonies due to illness.) This event stimulated research and clinical approaches by physicians in the US and abroad until the second war. Syntonics is an outgrowth of this.

Thirty years ago, researchers in the USSR and former eastern block countries began investigating the use of laser for promoting the healing. They discovered that at certain wavelengths, within a limited low intensity range, light stimulation increased healing of hypoxic, ischemic, infected, or slow healing wounds. Weaker and stronger stimulation reduced or reversed this effect. The International Society for Optical Engineering, SPIE, has sponsored several conferences on the Effects of Low-Power Light on Biological Systems. Transcripts of these meetings are available for purchase from SPIE and abstracts can be read on their web page at -- http://www.spie.org/web/abstracts/2600/2630.html -- More information about the subject can be obtained at -- http://www.laser.nu/lllt/therapylink.htm.

A study published in the Proceedings of the National Academy of Sciences (PNAS, 3/18/03, vol. 100, no. 6, pp. 3439–44) reported that bathing rats' eyes with 3 brief (150 seconds long) light treatments at 5, 25, and 50 hours following methanol dosing protected them from the blinding effects of methanol toxicity. Similarly dosed control rats without light treatment were blinded by the methanol. The authors suggest that "light therapy may represent an innovative and novel approach used in retinal injury and retinal diseases, including age-related macular degeneration, glaucoma, diabetic retinopathy, Leber's hereditary optic neuropathy, and other diseases in which mitochondrial dysfunction is postulated to play a role."

NASA scientists have become interested in light's effects on wound healing after determining that normal healing is compromised in zero gravity environments. This has led federal and other funding agencies to support investigations of clinical uses of Light Emitting Diodes for healing, especially for healing stubborn diabetic lesions. In 2002-03 articles about light and color healing appeared in mainstream publications including Newsweek.

The exact mechanism to explain how light works to reduce MTBI symptoms is not yet fully understood. MTBI symptoms most likely result from chronic hypoxia due to an early immune response in which neutrophils in the blood clump together inside the venules of the injured tissue thus restricting blood flow and lowering oxygen. In this condition, plasma cells are likely to leak into the tissue to form focal pockets of edema. Hypoxic nerve tissue may still function but with sluggish responses, higher thresholds, and slower adaptability. This weak link in a functional brain network can be more disturbing to a patient than a severe injury wherein total tissue destruction yields to the growth of substitute pathways.



Therapy using the Syntonic Phototherapy Instrument.

Russian and Soviet literature since 1981 describes "photohemotherapy" -- light therapies that stimulate

photosensitive elements in the blood to induce healing in remote locations of the body via circulation. Three distinct methods are used: light shined directly into the circulating blood via light-pipe inserted into a vein; extracorporeal, achieved by extracting blood, irradiating, and then reinserting; and finally by transcutaneous stimulation via irriadation through the skin over a vein. Unlike local light therapy, systemic rather than local healing mechanisms are employed to increase the functioning of vascular, respiratory, immune and other systems and of the organism as a whole. For more information on photo-hemotherapy, see the article by Levon Gasparyan at: http://www.laserpartner.org/lasp/web/en/2003/0058.htm

Hypoxic tissue can recover if circulation and blood constituents are improved to normalize tissue metabolism. Research indicates that blue light irradiation of blood causes dilation of blood vessels, reduction of blood viscosity, and the reversal of inflammation and other effects of low oxygen. This happens rapidly and non-locally; that is, systemic changes take place at distances far from the point of light treatment. Constituents of hemoglobin and the complex of reactions and substances involved in tissue respiration have been shown to be light sensitive. Hemoglobin is very similar in structure to chlorophyll, the light absorbing molecule basic to photosynthesis in plants. It is also quite well accepted that bilirubin, the final product of hemoglobin breakdown is light sensitive. Bilirubin excess causes neonatal jaundice, the cure for which is light therapy. Blue/green light is the most effective to induce bilirubin cyclization.

All this suggests a plausible mechanism by which syntonic phototherapy using blue/green light might work to improve or eliminate post MTBI symptoms. Light shined into the eyes is absorbed into the large supply of blood circulating behind the retina. Only in the eyes do all visible wavelengths have direct access to the blood. The irradiated blood circulates throughout the body and into the brain, dilates the vessels, decreases blood viscosity, and increases oxygen in injured tissue. As inflammation and edema reduce, normal function returns. To learn more about syntonics and the College of Syntonic Optometry visit: http://www.collegeofsyntonicoptometry.com

According to literature distributed by the CDC, there is a minor epidemic of MTBI. Hopefully this article will stimulate health professionals to become informed about the subject and to quiz symptomatic patients about possible MTBI. Perhaps visual field testing will become more common practice in doctors' offices. Despite light therapy's success in treating neonatal jaundice and for treating seasonal affective depression, legitimate healing with colored light remains outside of mainstream medical thinking. Perhaps it is for this reason that it has not been explored more seriously. However, it is hoped that light mediated medicine will soon gain the credibility it deserves.

About the Author:

A UCBSO grad, he wrote "The Psychoneurology of Nearsightedness" (PhD thesis) and Attention & Memory Training (OEP 2005) & co-produced The Road Without Glasses Method DVD (Cambridge Institute for Better Vision) for presbyopia reduction.

Male Hysteria Discovered with Colour Visual Field Analysis

Denise Hadden, FOA [SA], FCSO

I have a passion and long-standing interest in the analysis of fields and so when the International Light Association group asked me to present comments on colour fields that had been discovered in Freud's notes in 1886, I was intrigued…a psychiatrist… who was passionate about perimetry was unusual indeed.

The reference was from an item in the Freud Museum London:

> *Item 100 refers to correspondence to Carl Koller 13th October 1886 in which Freud writes:'I don't work at home however, and thank you therefore very much for the microtome you mean to send me. If you want to give me something I need urgently, make it a perimeter [an instrument for measuring the field of vision]. Since as a clinician I depend more than anything else on the study of hysteria and one cannot publish anything nowadays without a perimeter.'*

Researching this unearthed some fascinating information on the origins of female hysteria. It seems that as far back as 1886, colour visual fields were found by Koller, Charcot and Freud to be the only diagnostic method that identified hysteria as an illness which afflicted both men and women.

It caused an uproar at the time, for hysteria was considered to come from the womb, and therefore – logically, could not possibly be a male illness. In fact, when Freud presented this to the Vienna Society of Physicians, he was scorned, ridiculed and laughed out of chambers.

From as far back as the 5th century, Plato, the great philosopher and Hippocrates, the father of modern medicine, presented theories on emotional imbalances as arising from the movement of the womb [hysteron]. This theory lived on into the early 1900's, spawning an entire industry of mechanical and therapeutic methods of treatment that would relieve doctors from the time-consuming consultations which were said to relieve this terrible condition.

The knowledge today that we all, male and female, have a 'belly brain', which guides us intuitively to sense danger and protect ourselves, is an interesting correlation to the images of a wandering and disruptive 'hysteron' belly described some 2500yrs ago. However, the symptoms attributed to hysteria were not confined to the abdomen alone. Interest in the array of symptoms, which included many visual dysfunctions, coincided with the rapid development of medical specialization which first emerged in early 19th century Paris as a necessary advance to the conditions of the time. The brain posed a unique anatomical problem in that it involved three very different specialties. Specialization required rigorous observation and proper classification, and ultimately led to the separation of symptoms between neurology, ophthalmology and psychiatry.

It is of interest that many discoveries in medicine and science were made during this period when there were fewer delineated boundaries to the tests that were undertaken by physicians. Perhaps it is as a result of this 'openness' in the medical profession of the time that the misdiagnosis of female hysteria was finally resolved.

My research article follows:

Discussion on Freud's Lecture to the Vienna Society of Physicians October 1886, entitled 'Study of an extremely hysterical man with Hemianesthesia'

Freud presented this patient as a case study from neurologist Jean-Martin Charcot's research, to the Vienna Society of Physicians in October 1886. The patient was described as an extremely hysterical man with Hemianesthesia. Case notes indicate that he was also a very intelligent man, and not a 'simulator'. The idea of male hysteria was an enigma at the time as hysteria was regarded as a female illness and only very rarely had this affliction been attributed to men.

In *Beyond the Unconscious - Essays of Henri F. Ellenberger in the History of Psychiatry* introduced and edited by Mark S. Micale, he wrote that the discussion around male hysteria was part of a much wider contro-

versy that had taken place in the field of neurology for several years in Germany, Austria, France, Britain and the USA.

During the previous decade, there had been a great increase in railway travel. This brought an increase in railway accidents and insurance claims relating to the diagnosis of hysteria. As a result, of the financial claims and necessity to define where the responsibility lay, a new branch of medicine developed - primarily with British physicians [notably Herbert Page], who concentrated their work on the distinction between 'nervous shock' and 'traumatic shock', and between 'railway spine' and 'railway brain'.

Sigmund Freud

There was widespread dissension as to the frequency of organic and dynamic cases of hysteria and the medico-legal insurance requirements further fueled this controversy. The determination of diagnosis required representation from the fields of psychiatry, neurology, ophthalmology, surgery and physiology and the eventual acceptance of a new disorder resulted in neurology releasing 'hysteria' to the domain of psychiatry. George Beard, an American physician, introduced the term neurasthenia in 1869. The core cluster of symptoms was insomnia, lack of concentration, depression, fears and irritability, physical and mental fatigue and muscle weakness. The diagnosis of neurasthenia disappeared after 1869 and it then became the province of psychiatry as a functional disorder and more widely as traumatic neuroses or environmental trauma.

A further significance of the intense debate and controversy around this issue was in dispelling the myth that hysteria was a predominantly female illness. By the late 1800's the interest in visual field diagnosis had become firmly established, and Charcot proposed that hysteria was a nerve disease, and not a sexual problem unique to women. Freud developed the theory that hysteria was rooted in unconscious emotional conflicts in both men and women, and not related to nerve disease. The apparently conclusive test that allowed a definitive diagnosis of hysteria was in fact perimetry and specifically, the colour visual field.

It appears that the disappearance of hysteria in 1886 as an illness and its replacement with the term neurasthenia coincided with the introduction of perimetry testing. The increase in environmental trauma and medico-legal battles spawned the need for more intense neurological and ophthalmic testing. As a result, neurologists and ophthalmologists were able to eliminate a diagnosis of structural nerve damage and the category of neurasthenia increasingly shifted towards the psychiatric domain. The striking disappearance of the categories of hysteria and neurasthenia in medicine has 'yet to be fully understood' [*Death of neurasthenia and its psychological reincarnation* The British Journal of Psychiatry Dec 2001, Ruth E. Taylor, 179 [6] 550-557; DOI: 10.1192/bjp.179.6.550].

Perimetry testing was primarily for the diagnosis of structural disease or damage, however it equally presents an image of the functional aspects of the Autonomic Nervous System. Hence it allows a combination of interpretations.

Of primary importance in any diagnosis pertaining to the visual system is the recognition that it holds vital information to every aspect of the body- physical and emotional. The skill is in how we look at the information – in other words – which specialist hat we wear in the diagnosis.

It seems appropriate now, to begin sharing the information within and between clinical specialties again. Medicine has evolved to include a far wider perspective on healing and has the scientific proof from psychoneuroimmunology that we possess a '*complete bidirectional immune to brain circuit'*. [Steven Maier, PhD, Neal Miller Lecture, APA 2001 Annual convention].

Robert Ader, PhD, is Professor at the Center for Psychoneuroimmunology, Dept. of Psychiatry, University of Rochester School of Medicine and Dentistry, Rochester, New York, and describes psychoneuroimmunology as the most recent convergence of disciplines that has evolved to achieve a more complete understanding of the adaptive processes and interactions among behavioural, neural, endocrine and immune functions. [ILAR Journal, Volume 39, Issue , Pp27-29.

Field Analysis

The comments below are my personal interpretation of the colour fields published in Freud's '*Sigmund Freud Gesamtausgabe in 23 Banden'. www.psychosozial-verlag.de*

Note: The fields were not published in colour, however the original text indicated each colour.

Analysis of the fields of patients using current diagnostic methods would describe this patient as a significantly physically traumatised and emotionally disturbed individual.

Scanning the fields shows that this man has experienced significant trauma both physically and emotionally. His physical functioning will be very diminished and his emotional state extremely so.

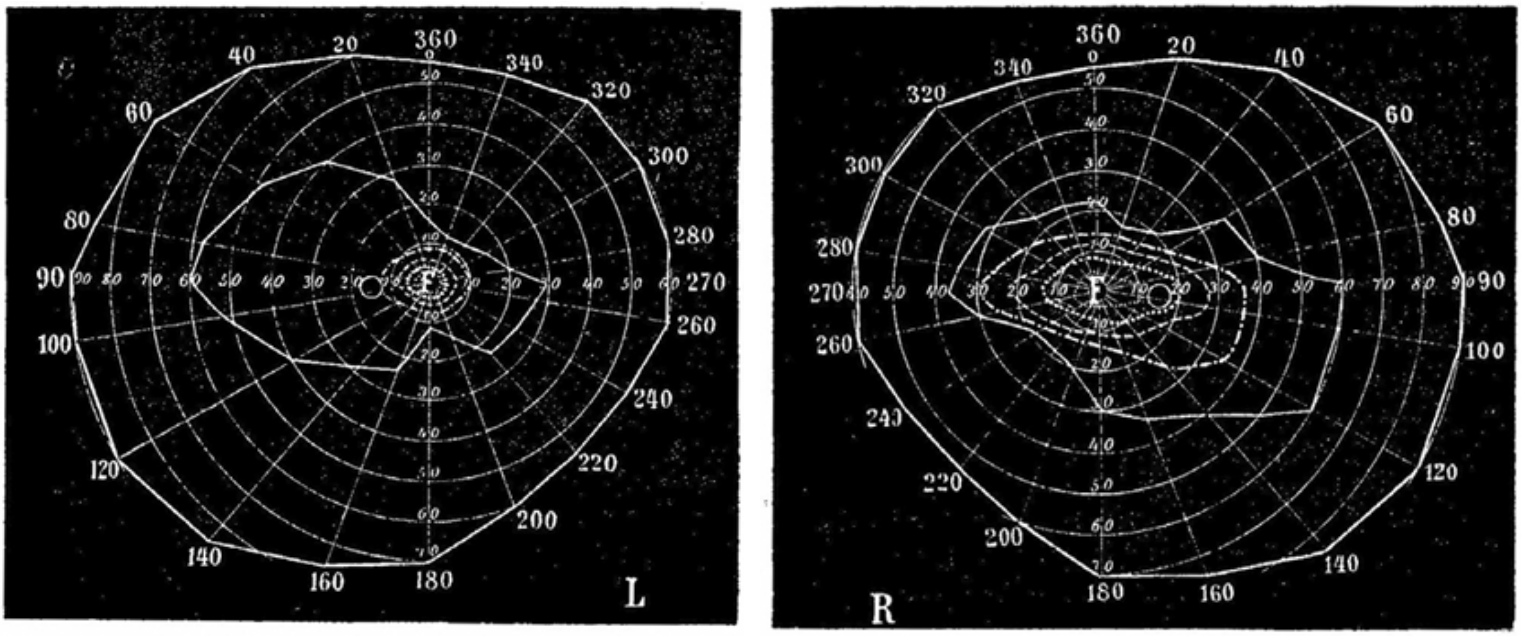
When visual fields are so diminished, we react very differently towards the outside world – and to friends and family. This may well be one of the reasons that physicians of the time found an increased benefit and improvement in symptoms by removing patients from their immediate home environments. Field improvement indicates that the patient is better able to reintegrate into normal life situations.

The reduction in the white field in both eyes to this degree is indicative of a head trauma and / or of chemical toxicity. The right colour fields are reduced in a similar area as the white. The red would indicate physical trauma to the lower back and to the abdominal organs as well. The other colours indicate the depth of the trauma. The very diminished upper fields are indicative of brain trauma – and because it runs through all the colours, it indicates that the depth of trauma affected his physical, emotional, mental and spiritual state. So, he would have lost his sense of purpose, reason to be, and be plagued by numerous debilitating mental and emotional symptoms. The left colour fields are so diminished as to give very little information –other than that the level of trauma and his loss of meaning in life was severe. The sizes of the left colour fields also indicate that his sense of self worth was severely diminished. His desire to live had almost disappeared.

The right colour fields are bigger but the oval shapes indicate a hyperactivity of his system probably resulting in symptoms of PTSD, anxiety and panic.

Treatment

The ability to diagnose using this simple, inexpensive and easily verifiable field testing process has profound implications throughout medicine. It becomes possible to determine – and appropriately treat individuals before



1886-04 Beobachtung einer hochgradigen Hemian.sthesie bei einem hysterischen Manne

Gesichtsfeld-Bezeichnung:

———— weiss, – – – – – roth, - - - - - - - grün, ... gelb, ... blau.

(White red green yellow blue)

they descend into the morass of self-annihilation and before the drug regimens currently in use increase the toxicity levels in vulnerable individuals.

But what is even more profound is that an equally simple, relatively inexpensive and rapid treatment process using light will change the entire course of these patient's lives.

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Denise Hadden is an optometrist, light and field therapist, visual coach and author. She holds a degree in Optics from Manchester University, UK, is a fellow of CSO and holds certificates in Life Coaching and Acupuncture. Formerly in private optometric practice, where she focused on holistic healing methods, Denise now resides in UK and offers private consultations, workshops and training on her continually expanding work with field interpretation. www.denisehadden.com

Action Spectrum in Photo-Biology

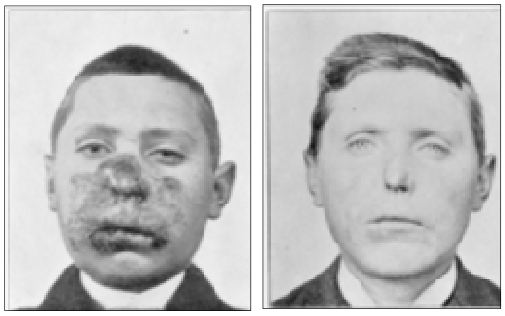
Alexander Wunsch, M.D.

Annual Conference on Light and Vision, 2016

Reviewed by Larry B. Wallace, O.D., Ph.D.

The action spectrum of light is the underlying mechanism in photo-biology. (An **action spectrum** is the rate of a physiological activity plotted against wavelength of **light**. It shows which wavelength of **light** is most effectively used in a specific chemical reaction. Some reactants are able to use specific wavelengths of **light** more effectively to complete their reactions.) The wavelength and frequency of light is being used to create specific biological reactions as a healing modality. As an environment, energy light can heal but also be a health hazard when certain wavelengths cause cell damage and dysfunction. Dr. Wunsch's presentation reviewed some historical aspects of photobiology and gave an overview of scientific applications of light and light's effects on our cells and our health.

In Europe in the 1800's Hershel and Ritter found that infrared and ultraviolet light affected plant and bacterial growth. Bacteria had with a preference for red and yellow but not blue or violet. This was further explored by Down and Blunt who found blue and ultraviolet killed bacteria in 1877. In 1903 Neils Ryberg Finson received the Nobel prize in medicine for using red light to treat tuberculosis and later blue light to treat Lupus Vulgarize, a severe skin disease.

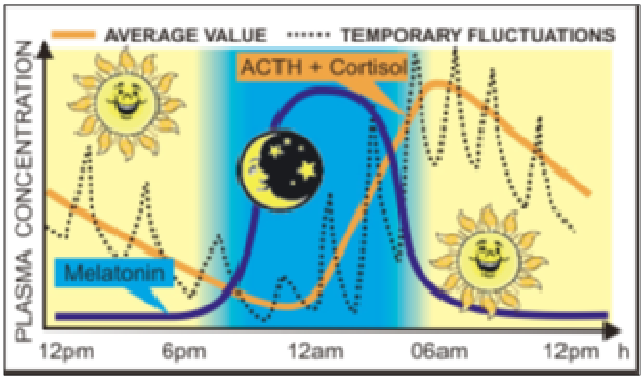


Lupus Vulgaris Patient.

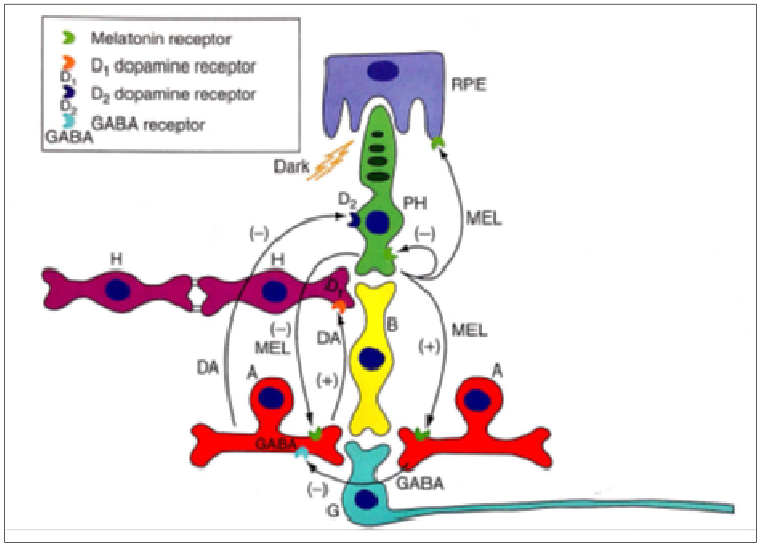
He also created carbon arc light therapy devices to treat thousands of patients. These scientists paved the way in Europe for modern light therapies.

It was found that molecules contained photo-acceptors for specific wavelengths of light or color called chromophores that we now know are in the skin, blood, nerves and muscles. Chromophores absorb photons which energize and signal biochemical reactions. These reactions are not local but are part of an action spectra that involves kinetic, electric, photo, and acoustic biological transformations.

Chromo-biological effects are extremely complex with cascades of reaction chains from genes, organs, hormonal glands, with varying reaction times depending on circadian rhythms and periodicities. This changes with geography and the seasons. The most significant periods are the dark/light cycles.



This includes the infrared and ultraviolet spectrum as well. For example, the body stress hormones decrease at night with melatonin production and increase in daylight with melatonin suppression. This hormonal system is also very dependent on temperature and wavelength. The blood just below the skin absorbs 60% of sunlight which in turn causes the adrenal gland to secrete cortisol and ACTH as stress hormones. Sunlight also regulates the production of vitamin D whose creation is especially de-



Melatonin, produced by retinal structures, control retinal regeneration cycles independently from pineal gland activity.

pendent on blue light. The shorter blue wavelengths also play a key role in retinal health.

The retina creates hormones within the retinal structures. This includes melatonin independently from the pineal gland. Melatonin in the retina controls retinal regeneration cycles through dopamine and gaba receptors.

This regeneration can be impaired with low melatonin due to blue light exposure. Retinal regeneration is crucial since 10% of the rhodopsin cells die daily and need replacement. Blue light also increases inflammation and reactive oxygen species(ROS) that can damage tissue. In excessive sunlight, exposure the ROS signals the skin to produce more melanin for protection. The exposure is most stressful for the skin from 260 to 448 nm wavelengths. With the eye, light from computers and VDT's at 460 t0 470 has the highest risk.

When ROS can cause damage, the cells can also create their own antioxidants. Mitochondria signal for more antioxidants for detoxification when excessive ROS is detected. This reaction occurs with ATP production that increases dramatically with exposure to red light. ATP peak production occurs from 610nm to 680nm.Therefore red light can prepare the body for high blue light exposure. These light driven action cycles occur throughout the body. One such had been studied extensively in the eye.

In the eye one can see this cycle in the photoreceptor regeneration as previously mentioned. The rhodopsin mediated cycle of regeneration is mediated by different wavelengths of light in each cycle. Blue creating ROS and increased nitric oxide, and red increasing ATP to reenergize the elimination process of replacing dead cells with new ones.

Source of flicker	Frequency range	Biological effect	Evidence
Sunlight through roadside trees or reflected from waves	Various	Seizures	Clinical histories (Harding and Jeavons, 1994)
Xenon gas discharge photo-stimulator	3-60Hz	Epileptiform EEG in patients with photosensitive epilepsy	Many clinical EEG studies e.g (Harding and Jeavons, 1994)
Malfunctioning fluorescent lighting	Large 50Hz component	Epileptiform EEG in patients with photosensitive epilepsy	(Binnie et al., 1979)
Television	50Hz and 60Hz (discounting 25Hz component)	Epileptiform EEG in patients with photosensitive epilepsy	Many studies eg (Harding and Harding, 2008; Funatsuka et al., 2003)
Flashing televised cartoon	~10Hz	Seizures in children with no previous diagnosis of epilepsy	Major incident (Okumura et al, 2004)
Normally functioning fluorescent lighting (50Hz ballast)	100Hz (small 50Hz component)	Headache and eye strain	Many anecdotes.
Normally functioning fluorescent lighting (50Hz ballast)	100Hz (small 50Hz component)	Headache and eye strain	Double-masked study (Wilkins et al 1989)
Normally functioning fluorescent lighting (50Hz ballast)	32% modulation	Reduced speed of visual search	Two masked studies (Jaen et al., 2005)
Normally functioning fluorescent lighting (60Hz ballast)	120Hz	Reduced visual performance	(Veitch and McColl, 1995)
Normally functioning fluorescent lighting (50Hz ballast)	100Hz (minimal 50Hz component)	Increased heart rate in agoraphobic individuals	(Hazell and Wilkins, 1990)
Normally functioning fluorescent lighting (50Hz ballast)	100Hz	Enlarged saccades over text	(Wilkins, 1986)
Visual display terminals	70-110Hz raster	Changes in saccade size	(Kennedy et al., 1998)
Visual display terminals	~70Hz Raster		Many anecdotal reports of prolonged photophobia
Normally functioning fluorescent lighting	100Hz and 120Hz	Phase-locked firing of LGN neurons in cats	(Eysel and Burandt, 1984)
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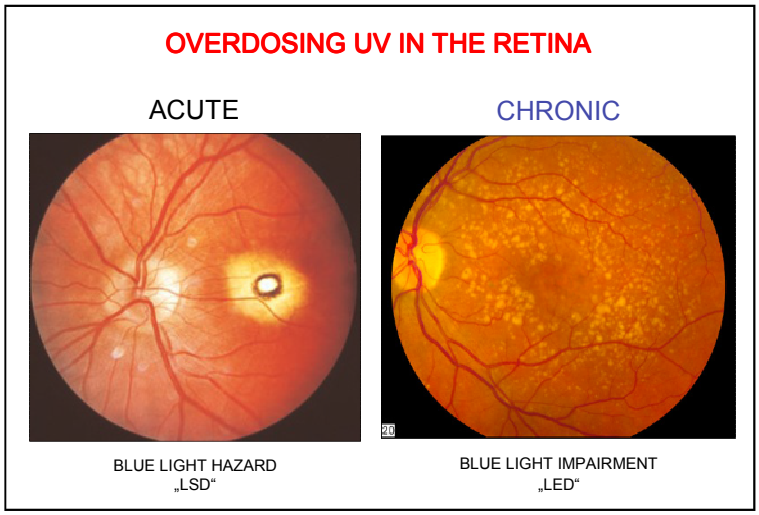
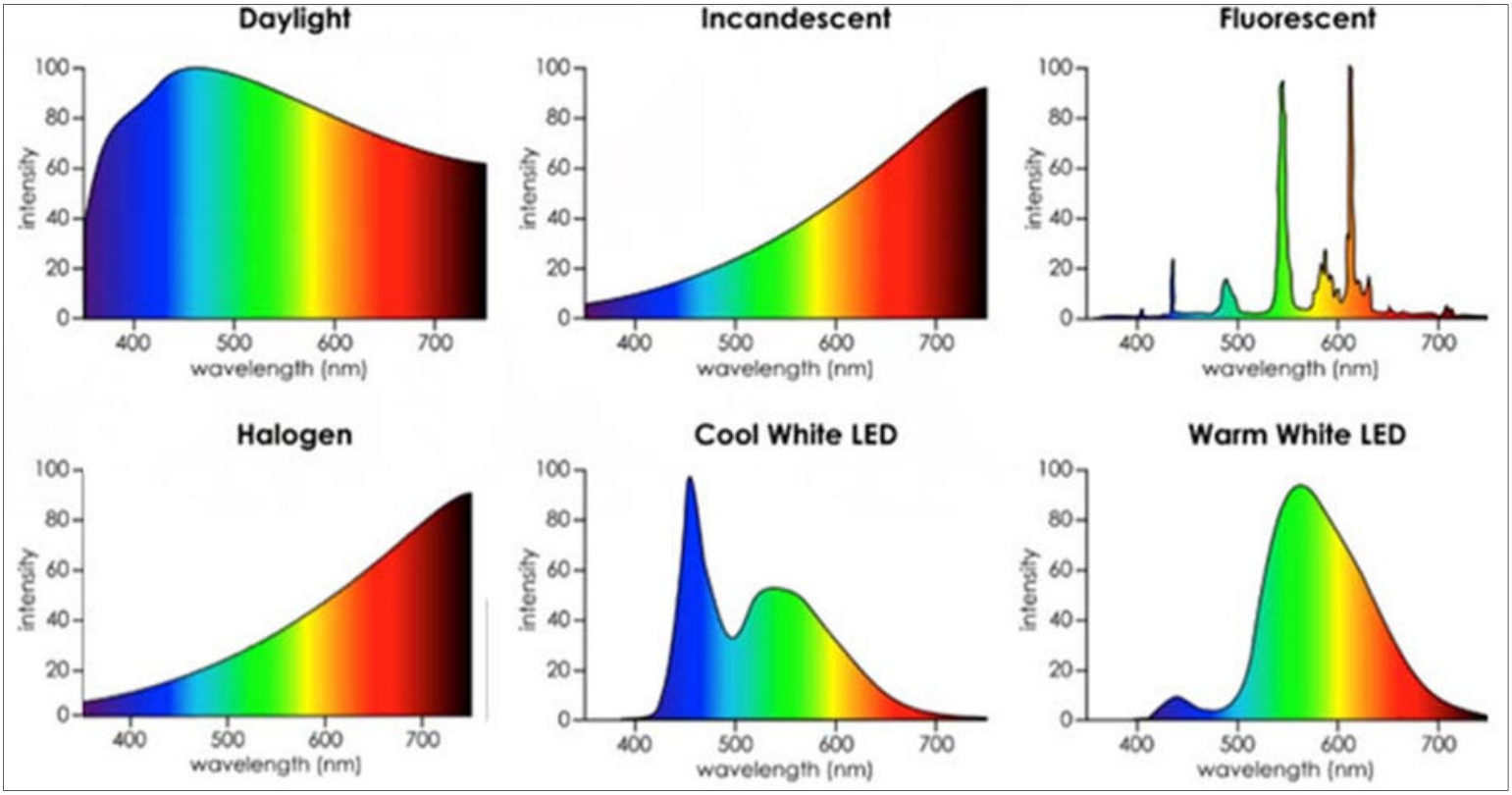
Visual display terminals	~70Hz Raster		Many anecdotal reports of prolonged photophobia
Normally functioning fluorescent lighting	100Hz and 120Hz	Phase-locked firing of LGN neurons in cats	(Eysel and Burandt, 1984)
Various	Up to 162Hz	Human electroretinogram signals at light frequency	(Berman et al.,1991; Burns et al 1992)
Normally functioning fluorescent lighting (50Hz ballast)	100Hz	Inconsistent changes in plasma corticosterone levels in captive starlings	(Maddocks et al., 2001)
Normally functioning fluorescent lighting (50Hz ballast)	100Hz	Mate choice in captive starlings	(Evans et al., 2006)

Flicker and Biological Effects.



This is the same tissue regeneration that can be seen in the skin rejuvenation. The process involves chronobiology, water activation, ATP-energy production and cyto-chrome oxidation. As blue light increases nitric oxide production there is an effect on microcirculation with vaso relaxation, thereby increasing blood circulation but also reducing ATP production. Red light absorption stimulates ATP production, with a decrease on nitric oxide completing the compensatory spectral mediation. The intra and extra cellular water absorbs infrared which modulated temperature and cellular diffusion. The eye needs the infrared to complement the high energy blue part of the spectrum in these photo driven physiological



cycles. Nature, through sunlight, provides the full spectrum our physiological needs for healthy function. An over abundance of any color may upset the system. This can often occur since we live in a world mostly of artificial light.

Artificial lighting sources are described not so much with wavelength but by their illumination and temperature. Other factors are color rendering, flicker rates, and electro-magnetic emissions. These aspects should be part of evaluating light sources for health and productivity. When these factors are analyzed, we learn very few light sources that surround us in daily living are optimal for our health.

Computers screens typically have a peak wavelength of 435-479nm, which is a high intensity blue that is absorbed by our retina shutting down the pineal gland, suppresses our immunity, and creates oxidative stress on the lens and macula. LED's are almost as bad with emissions peaking at 460-470nm. Florescent lights share the same skewed spectrum. These light sources are low in red light

About the Author:

Dr. Alexander Wunsch is physician in Germany, researcher and teacher in light medicine and photobiology with particular interest in light effects and beneficial / adverse health impacts of solar radiation and artificial light sources on endocrine and cellular levels in humans.

In his medical office in Heidelberg he develops and applies therapeutic light spectra in combination with other biophysically based treatments. He also presents at international conferences and acts as a consultant for federal authorities and the lighting industry.

and offer no thermal output as well. The longer wavelengths of red and infrared are essential to cellular regeneration. The flicker rates of LED"s also disturb brain wave function. These sources also are strong in electromagnetic pollution that effects tissues, nerves, blood muscles and bone.

Dr. Wunsch has been the leading scientist and consultant to a Hybrid Tanning technology that incorporates the latest research to produce light sources that promote health though irradiating the skin. Light sources used include infrared, ultraviolet, ultrasound, and complementary visible colors. This includes hot and cold colors to stimulate and relax the nervous system as needed. This is one of many new light technologies that can use light frequencies to restore and heal.

Nature has evolved humans to adapt to all the colors of our environment and locality. The sun is Earth's energy source and we have evolved to adapt to it 's ever changing light and dark cycles. Artificial lights create an unnatural stimuli that we are not built to handle. Dr. Wunsch's research has found the best light sources are still the incandescent bulb. All fluorescents and LED"s light sources lack the thermal end of the spectrum including red and infrared. A full spectrum is still the best light source. It is only when we recognize the action spectrum of light on our physiology that we can begin to design healthy light environments.

For more information and clarification please see these video links by Dr. Wunsch:

- http://articles.mercola.com/sites/articles/archive/2016/10/23/near-infrared-led-lighting.aspx
- https://vimeo.com/187834155
- https://vimeo.com/184495934

Finding Intuition in Fields - The Biomarker and Antidote to Trauma

Denise Hadden, FOA [SA], FCSO

How do we know what will happen in advance of an experience? What information do we gather in order to make as reliable a 'guess' as we do? What happens to stifle this intuitive ability – as it frustratingly does? And how does this relate to trauma?

Our fields of vision hold more than we could ever imagine. They are the areas of vision that we typically only measure for pathology and yet the wealth of perceptual and psychic information available in them may lead us to understand the origins of creativity, consciousness and trauma – all accessible on one continuum of information updated daily and captured in the fields that emanate from our eyes, those windows to our souls.

The word intuition is not used easily in science. The descriptive scientific words required for clarifying intuition must necessarily be more explanatory of the action involved. It was Richard Rosen, mathematician, biologist and philosopher, who in around 1970's, put forward a theory of life and challenged the current [and still prevalent] thinking on definitions of existence, then redefining the definition of the living. He saw complexity as defining existence.

He described all life as M,R –Systems, meaning Metabolism and Repair. He said that life is embodied in organisms and what defines life is what organisms do and why they do it. He defined anticipation as a characteristic of existence, calling it Anticipation Systems [AS] Theory, and that it is in the understanding of integration between open and less open systems, that make predictions of future events possible.

Fields of vision are perfect examples of open and less open systems. They are very accurate indicators of our life journey and the way we are living it. But we have put boundaries on our vision and where the edge of our vision ends. And along with that –an even firmer boundary on our awareness – our natural intuition, in the assumption that to know better is to focus better, keep it all sharp and in control.

Who questions where our vision and awareness ends or blends? At what point do we stop receiving information from the field that surrounds us? And when, where and why did we imagine the necessity for these boundaries on our fields?

I feel that the answer is in the way our ANS has evolved to respond to our human demands for control.

In accepting that Anticipation, as Rosen called it – and which I would call intuition - is in fact a characteristic of existence, Nadin noted that - vision remains the area of choice in identifying anticipation.

Vision is the primary sensory mode for perceptual responses and how we use both our internal and external fields of awareness in combination with our other senses, is where the magic of intuition, creativity and consciousness all collide.

'…the way we look at systems is no different than the way we look at each other…', Rosen

Rosen, it seems to me, understood life and its vagaries from a wider perspective. Living is an interactive process of moving up and down the seesaw, stopping every now and then when we lose our balance, and having to do some fancy footwork to get back on a level again.

We have a remarkable nervous system that allows us to do this without major mishap, until we encounter or create chaos.

Trauma, PTSD and the fear that rapidly diminishes our confidence in these situations sits at one end of the spectrum of our existence. The other end could well be described as 'the God factor'. Yet once introduced to this paradigm, this map - that reflects how well we are able to control these emotions and still imagine that we can maintain a semblance of normality – there is little that matches the high of what feels sometimes our superhuman ability to manage it all.

And so a stage in the changing evolutionary cycle of our original blueprint is set in motion.

What this looks like physiologically, is that our most subtle awareness disappears. This is apparent in our ever

diminishing and distorted peripheral awareness. Our confidence, creativity, openness, friendliness and loving natures that are the nectar from a tranquil ANS, disappear. We doubt ourselves, double check, forget faces, names and the sequence of events. We feel lost somewhere deep inside ourselves. And all the magic of life seems to disappear as well. Things just keep going wrong. Our decisions drive us into places that do not nurture or serve us well. Isolation and loneliness, depression and anxiety become the drivers of our existence.

Poet, Jose Emilio Pacheco wrote –

'The sun shines new every day

But the eyes that watch it do not enjoy the same luxury'

The love we thought was there, along with our view of the extended periphery of existence, just vanishes.

All of this is recorded in our fields of awareness. As each interaction with the outside world happens, we assess how to respond with an ever decreasing flow of information – and therefore also our capacity to do so. The image of this is sobering and yet simultaneously relieving. The secret of how we have suffered is out, and the reason, the why, the understanding, is evident.

Field therapy is an antidote to the effects of all trauma, for in the very individual pattern of how we have seen life, there lies clarity and the possibility of renewal, change and new hope.

Field Therapy is a relatively newly developed process that incorporates a measurement of internal and external awareness on physical and emotional levels. The therapy 'morphs' into an epistemological theory of consciousness and dynamic interactions between systems. How we look at life determines how we process perceptually. And perceptually, we are brain driven to function in the most energy efficient of ways. As life is a drive for survival, in an evolving world where our evolutionary progress has been altered as a result of the changes to our innate somatic encodings, [Judith Rosen] the way we look at things, arguably, has become more unpredictable.

The sceptic question arises – is this anticipatory [think intuitive] response merely a reaction to a stressor?

Minch [1986] clarified this well, stating that reactive control depends on a correction of an existing deviation; whereas anticipatory control depends on prevention of a predicted deviation.

I would like to illustrate this theory with a personal story of the sometimes subliminal information that our anticipation/intuition brings, which may aid in the avoidance of negative life experiences.

I was sitting on the edge of the bath drying off, with my feet on the bath mat. One foot slipped fractionally. It was a really miniscule amount. But I received an immediate image of what would happen if the action had been a more significant slip. Within a fraction of a second I 'saw' the future of this as me overbalancing in reaction to slipping and falling painfully on my spine. Without skipping a beat, I changed the position of my feet to one that felt more secure.

I knew that I had been given the guidance to be able to avoid pain. Whether I accepted and followed that guidance, was up to me. My personal experience of this information immediately following this event was that I had been shown how to avoid that particular chaotic node in the complexity of my existence.

This is the intuitive/anticipatory information process that feeds us daily, 24/7. It is not a noisy communication, there is not even a 'ping' to warn us that it is coming in. It comes faster than feels humanly possible and is why we typically ignore almost all that our intuitive/ anticipatory system has to offer us.

None of us are perfect at following this guidance, though most of us are very conscious of it when we have not followed it, as we all have experienced – 'I knew in my gut that was going to happen!'

Anticipatory Systems theory talks of two systems, guidance and control, open and closed, having two clocks – correlated processes happening at different time scales [Nadin]. The basis of measurement of colour fields of vision/awareness is to determine the state of the autonomic nervous system [ANS]. This system is seen as one, and entirely interrelated. However – if we were to look at it as two systems, functioning in different time and speed with entirely different agendas in terms of outcome – how would this impact on the parasympathetic and sympathetic systems understanding of the balance that their uniting requires?

How would it change our understanding of the ANS if we saw the two sides as being anticipatory systems? And that in the absence of trauma, which system would provide the perceptual position to maintain the systems functioning of regeneration, repair, repetition?

It would be the parasympathetic side – which is related to peripheral vision, intuition, creativity, open wide viewing. In the presence of trauma, we have programmed ourselves to ignore the parasympathetic – in the misguided belief that we are exclusively the ones in control. This is how our subtly shifting desire to control has commandeered the evolutionary process to convince us that we know best.

When measuring a field – it then becomes clear that we are determining the position that shows how far off our original somatic coding we have drifted. The place of intuition is the place of peace, the knowing factor that a higher power has given us. The field of intuition is the domain of the Divine, devoid of human control, and a place that our egos will refuse to explore until the wheels fall off and our lives begin to unravel.

Then, only then, do we let go – and all that was missing in our lives is given permission to return.

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Anticipatory Systems, Robert Rosen

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Addendum 1: Autobiographical Reminiscences

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ROBERT ROSEN'S ANTICIPATORY SYSTEMS THEORY: THE ART AND SCIENCE OF THINKING AHEAD

Judith Rosen

Robert Rosen's book, Anticipatory Systems: Philosophical, Mathematical, and Methodological Foundations, was written in the mid-1970's and originally published in 1985. It has been out of print for a number of years but an expanded Second Edition is currently being finalized for publication and will hopefully be out by the end of 2009.

Copies of the original text are being made available on disk to conference attendees and ISSS members for a discounted fee, during the conference. Come see me if interested.

Historical Perspective

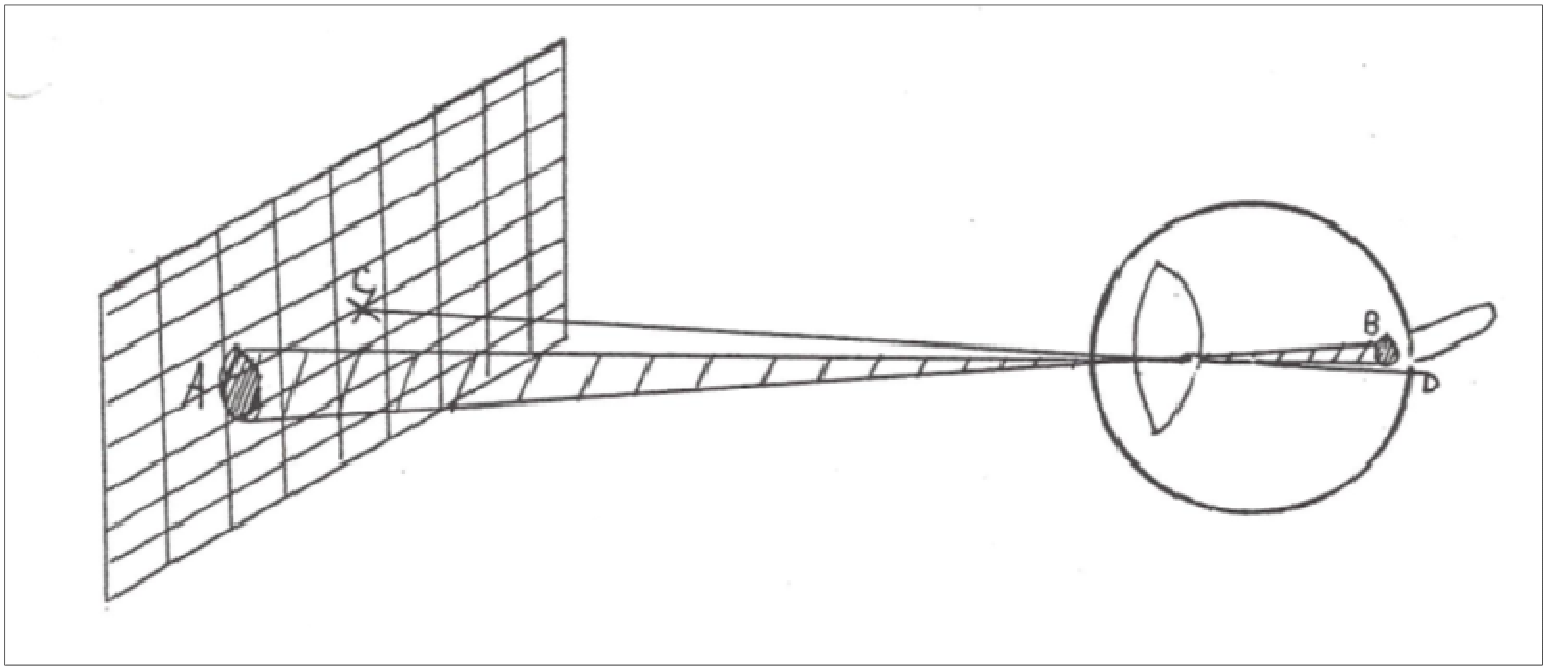
VISUAL FIELDS

By Hugh F. Webb, Opt. D.
With the Technical Assistance of
T. A. Brombach, OPT. D.

January – 1941
Vol. 1 No. 4

To establish the outer limits of the visual field does not constitute a complete investigation of peripheral portions of the retina and interpretation portions of investigation of peripheral portions of the retina and interpretation therefrom. There are may be areas blind to visual stimuli but surrounded by useful areas. These insular like spaces of defective vision, lying within the field, and surrounded by more or less normal field, are called scotoma.

Charting scotomas is done on the same general principle as outlining peripheral limits. A flat surface is best for this purpose, either a campimeter or a large tangent



screen. On eye is occluded while the other eye is being tested. The eye under investigation is to be fixed on the central fixation point in the field. While thus fixed the test object is placed within the blind area and moved toward seeing area. When the patient can see the object the place is recorded, and once again it is moved from non-seeing area to seeing area. The test object should approach the seeing area as near perpendicular to it as possible. Tests should be taken in at least the eight principle meridians, and if any deviation from normal is indicated, sixteen meridians should be recorded.

Blind spot work should be done with a target that subtends a one-fifth degree angle. If the test is taken on the campimeter attachment to the perimeter, use the one millimeter target. Special equipment has its own targets of the proper size.

Blind spots may occur in the field other than at the normal blind spot of Marriotte. If they do they should be charted for colors as well as white. Motion should also be tested as there may be areas blind to one stimulus but not to another. Both the one millimeter target (about.17 degree) and three millimeter targets (about .5 degree) could be used for comparison.

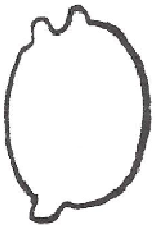
When a blind sport includes the macular area a problem is presented in getting the patient to hold fixation while the eye is being charted. A cross, or an "X" marked with white pencil or chalk may be sufficient to maintain fixation if the blind spot is only relative to some colors, or small. Encircling the fixation spot and asking the patient to stare at the center of the circle may help. Placing four of the "X's" each 3 degrees, 5 degrees or 10 degrees from the center in four principle meridians, and asking the patient to hold his eye where he can see all four crosses at once will hold the eye fairly steady despite loss of central vision. Stereoscopic campimetry sometimes holds an eye steady in the field for measuring central blind spots.

The normal physiologic blind spot is a projection into the field of the area where the retinal fibres gather into a common bundle and exit from the eye. It is located on the nasal side of each eye and is projected into each temporal field. In the diagram "A" is the projected blind spot of the nerve head "B". "C" is the projected central fixation point of the macula "D".

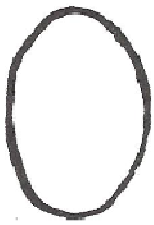
H. S. Gradle proclaims the center of the blind spot to be 16 ½ degrees from the fixation point and slightly below the horizontal meridian. The horizontal diameter is about 5 degrees and the vertical diameter is about 7 ½ degrees. To locate this in the eyeball we can place its center at about 2 ½ millimeters to the nasal side of the posterior pole and ½ millimeter below the horizontal line. It is approximately 1 ½ millimeters in diameter.

As the nerve fibers leave the eye they gain whitish sheathes, or coverings, called myelin, as an insulation and protection. Occasionally we find eyes where this opaque sheath extends into the eyeball, covering the fibers for several millimeters beyond the nerve head. If they do this it increases the blind area, as the opacity shuts off the light from reaching the deeper rod and cone cells. Helmholtz declared this so common that three fin-

ger-like projections for very short distances were to be considered part of the normal physiologic blind area. Exaggerated cases of opaque nerve fibers can be seen with the ophthalmoscope.



Helmholtz Blindspot.



Generally accepted as normal blindspot.

CLASSIFICATION OF SCOTOMA

For clinical purposes we can classify scotoma into the following categories:

POSITIVE SCOTOMA. The patient is conscious of a blind area in his field and actually sees a dark or clouded spot projected into the field.
Cause: Peripheral lesions, as a choroidal or choroi-retinal area of pathology, or congenital defects.

NEGATIVE SCOTOMA. The patient is not conscious of a blind area. In this case the field is not discovered until the measurements are taken.
Cause: Symptomatic areas are usually due to lesions posterior to eyeball.

ABSOLUTE SCOTOMA. All perception of light is wanting including moving objects.

RELATIVE SCOTOMA. The light sense is subnormal and the perception of color is defective, usually for red or green. Sometimes known as color scotoma.

CENTRAL SCOTOMA. Location within the central zone and includes the fixation point.

PERIPHERAL SCOTOMA. The fixation point being at, or near, the edge of the defect.

PERICENTRAL SCOTOMA. The fixation point being at, or near, the center of the defect.

RING SCOTOMA. The defect surrounding, but not including the fixation point.

UNILATERAL SCOTOMA. Affecting both eyes.

BILATERAL SCOTOMA. Affecting both eyes.

SYMETRICAL SCOTOMA. Corresponding areas in both eyes involved.

It is readily seen that the same scotoma can be called by different names, but each name is specific in its meaning. For instance in a toxic amblyopia we may have a scotoma that is central, relative and negative. An absolute scotoma may be positive or negative, depending on whether the patient is aware of it. Its location would probably be a determining factor. In relative scotoma no defect is noticed for white and is not found unless colored targets are used.

Congenital color blindness for all or some of the colors may be present. Care must be used not to confuse this with color scotoma,

Achromatopsia is true and complete color blindness. With this condition colors may be seen as varying degrees of intensity.

Hemiachromatopsia is the inability to recognize colors in one half of the field.

Central achromatopsia is the inability to recognize colors in the center of the field.

By Dyschromatopsia we mean difficulty in recognizing colors, but not the complete loss.

All of the foregoing conditions must be distinguished from color amnesia (loss of color memory) and color aphasia (recognizing true color but unable to name it).

In some circumstances the field of form recognition may be collapsed to inside the normal blind spot area. If it is, of course, blind spot charting is useless. To find an enlarged blindspot means nothing unless it is established that the form field, or white field, is large enough to surround the blind spot.

Control tests in the San Francisco Poly Clinic have shown this to be true with glaucoma. In spite of the classical blind spot projection in glaucoma they cannot be measured if the whole field for white is restricted to within fifteen degrees. A blind spot, to be labeled such, must be completely surrounded with useful areas of vision.

Lighting Up Lives, 2017

Denise Hadden, FOA [SA], FCSO

Vision and Purpose

A wise woman and good friend of mine, sent a New Year newsletter which reminded me of a patient that I had seen over many years. The message was that the vision we have for our lives can only be achieved if it walks hand in hand with purpose and that we need to be believers in …

'...our ability to write our own story, including changing the focus, the characters and the outcome so as to better align with our vision and purpose.' Elise Burns-Hoffman

An immediate image of this patient came to mind. He had struggled through a difficult marriage, achieved well in his profession, but had ongoing physical and emotional health issues. His fields had shown his left blind spot was always nasally and horizontally displaced, which worsened during intense stress. The right would occasionally shift off position, depending on his levels of stress, but in the main, it remained normal. He had experienced some minor head injuries, but more significant physical injuries which had necessitated surgical intervention and had left him with PTSD.

A light program that spanned some months each year, brought his very diminished fields to an irregular 15-17degrees each eye, but with every upset in his life they would begin to close down again. He was determined to find a way to improve his life and health and to this end visited osteopaths, acupuncturists, healers and various alternative practitioners over the years that I knew him. He had continued on with his very structured professional life, but eventually chose to divorce. At this point he went through an identity crisis - he felt as though he needed to divorce his profession as well and for the first time ever – he realized that he had never really enjoyed his work at all. By this time, he was openly acknowledging his intuitive and spiritual gifts and had decided to visit a healer to find a new direction in his life.

He arrived at my practice the day after the healing session and began to describe the feeling that 'something' in him had changed significantly. He had slept the entire day and night after the healing session and had felt quite spaced out during the process, but was in a bright and clear state when I saw him.

For the very first time, both his blind spots were normalized, and both he and I were impressed with the change as this was a significant shift for him. However, his colour fields had diminished to a 10degree regular blue and red and a 3-5degree irregular green.

His decision during and after this healing was to change his career path totally to practicing holistic therapies.

Over the following month he had Monochrom Dome treatments, which allow one to choose the colour you prefer. He suffered intense neck and back spasm and had bi-weekly visits to the osteopath. His fields after two weeks showed no change in his field size, but his blind spots had returned to their off centre position and even worsened slightly.

He was devastated, and this field appointment became a cathartic moment of realization of his true 'purpose' in life. He raged and wept, as he saw that his body had chosen to go back to its old patterns. I listened to his outpouring of sudden clarity, of how he saw that he had lived life in a distorted way, following a career that everyone else thought was the best one for him, marrying someone who was acceptable for the family, and all the while ignoring his own secret inner desire to be involved with holistic healing. He suddenly 'saw' that the healing had given him the chance to change this pattern and that he had subconsciously allowed his body to return to its old negative patterning.

During the next few weeks, he began to make the definitive changes in his work that set him clearly on an entirely new career path. He was terrified, to say the least, but enlivened, and reported that he felt 'happy' for the first time in his life.

Follow up fields showed both blind spots realigned and remained that way. His colour fields slowly but surely began to open again and he remained a 'happy' man.

Blind spots indicate neck/structural imbalance and on a body/mind level, indicate that one is not aligned to one's

true path. As this man's blind spots normalized, he was offered the opportunity to follow his true path. He could just as easily have denied the existence of it and continued with his old ways of living his life as a lie.

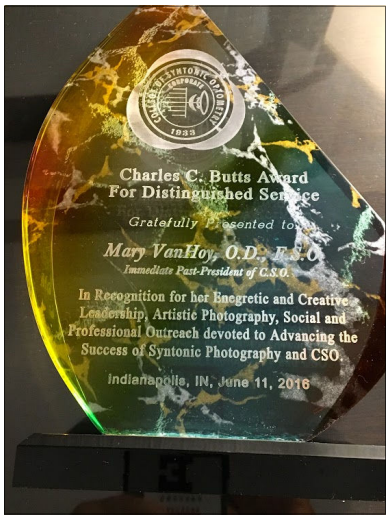
Following our deepest personal desires takes enormous courage, not just to make the decision, but to follow through with a message that is congruently felt in every part of your life so that …

'this part of your story will forever be cherished in the years to come'.

Elise Burns-Hoffman,
Business owner and Personal Business Coach,
January 2017, SA

Awards and Accomplishments

College of Syntonic Optometry



Charles C. Butts Award

For Distinguished Service
Gratefully Presented To:

Mary VanHoy, O.D., F.S.O.

Immediate Past President of C.S.O.

In Recognition for her Energetic and Creative Leadership, Artistic Photography, Social and Professional Outreach devoted to Advancing the Success of Syntonic Photography and CSO.

Indianapolis, IN June 11, 2016

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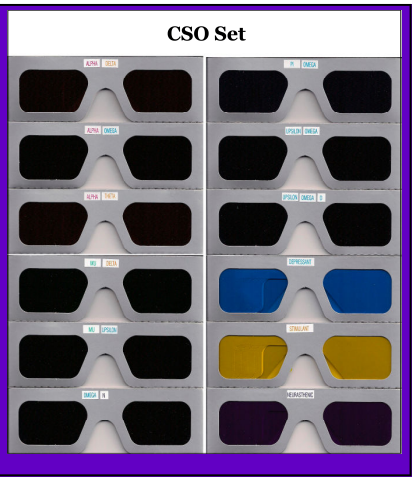

Books by Denise Hadden

- *New Light on Fields*
- *Coaching the Invisible Fields: A New Way to Reach the Hidden Potential with Light and Visual Awareness*

Portable Light Units

White or Polished Steel Corded Lamp (Model A)

- White or Polished Steel Corded Lamp
- Attached Slotted Filter Collar with Defusing Lens
- 15w HD Natural Lighting OttLite®
- (6) 3" or 4" Glass Filters with Handle
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Now available in 2-Slotted or 3-Slotted Collars!

Polished Steel (Model B)

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- Attached Slotted Filter Collar containing Defusing Lens—Now available in 2-Slotted or 3-Slotted Collars!
- 15w HD Natural Lighting OttLite®
- (10) 3" Glass Filters with Handle
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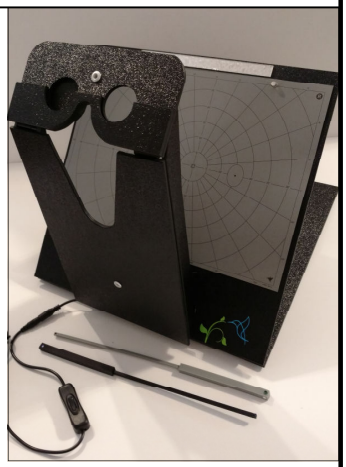

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Optometric Syntonic Phototherapy 101

June 7-8, 2017 *Pittsburgh, Pennsylvania, USA*

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These applications will teach practical methods of treatment, and better inform their patients of therapy options.