Journal of Optometric Phototherapy

April 2014

Charles Butts, O.D. shown working with Jessica Lessmann. This year's Journal is dedicated to Dr. Butts. Please see page 26 for "A Tribute to Charles Butts, O.D., Dean Emeritus CSO, 1924-2014."

Order Code: OPT/ COFMA

Price : € 2580 exl shipping costs

This is the measuring-instrument used after the optometrist has performed a complete examination on his client. The purpose is to measure the color field of the client. These test results complete the visual profile of your client. This gives you the possibility to follow up your client as good as possible.
The possible measurements with the COFMA are:
A.measurement of the right color field
B.measurement of the left color field
C.mapping the motion field of the right eye
D.mapping the motion field of the left eye
E.mapping the blind spot of the right eye
F.mapping the blind spot of the left eye
For this mapping Optomatters has created special colored test sticks and test charts.
COFMA incl: 2 cameras, 1 LCD screen & videoconnection, 12 volt adapter, 5 colored test sticks, 50 test charts OS, 50 test charts OD.

The COFMA machine helped you to diagnose the client's problem and now we concentrate on the training. For this we use the **Color Coach** (COC), the trainingsinstrument. The frequency of the sessions that you propose to your client who's following the training depends on the preestablished diagnosis. You don't only offer an extra professional service to your client but, applying syntonics in your studio, stands for a considerable increase of your clientele.

In the **COC** are the following integrated filters:

Alpha, Delta,Theta,Mu,Pi,Omega,Upsilon,Lamda,D,S,N

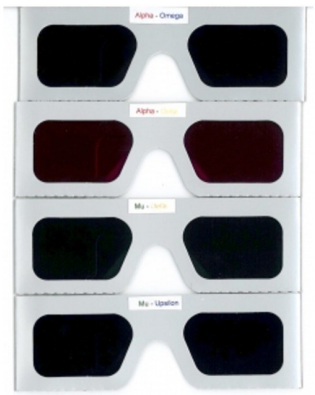
Order Code : OPT/COC

Price : €2995 excl shipping costs

This instrument is a more simplified version of the color coach, designed for home training.
For some clients daily training with syntonics is advisable.
The color boy, a handy portable kit, is perfectly suitable for home training.
In combination with the carton goggles, which you can order in different filter options.

Order Code : OPT/COB

Price : € 600 excl shipping costs



Carton goggles Filter Combinations
We can make for you the filtercombinations you want! All filtercombinations are possible.
The filters you can combine are: alpha,
delta, theta, mu, pi, omega, upsilon, lambda, depressant, stimulant, neurasthenic.
Order Code : FilCombSet Price : €19 per Set of 6 goggles /excl shipping costs

MW (Miracle Workers Set)
Carton goggles with the next combinations:
6x alpha-omega, 6x alpha-delta, 6x mu-delta, 6x mu-upsilon.
Order Code: OPT/MWSET : Price €76 excl shipping costs
Syntonics Starter Set
This syntonic starter package includes:
1xCOFMA, 1xCOC, 1XCOB, 1XMWSET
Order Code: OPT/SYNSTSET Price €6035 excl shipping costs

OPTOMATTERS CVBA BELGIUM
EMAIL : INFO@OPTOMATTERS.COM WWW.OPTOMATTERS.COM

College of Syntonic Optometry

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

Editors
Irene Wahlmeier, M.S., COVT, CPOA
Ron Wahlmeier, MBA, MT(ASCP)

Advertising
Davis S. Mora, O.D., Ph.D., FCSO

Layout and Design
Niki Summers

Journal Review Board
Ray Gottlieb, O.D., Ph.D., FCSO
Denise Hadden, Optom, FCSO
Larry Wallace, O.D., Ph.D., FCSO
Mary Van Hoy, O.D., FCOVD, FCSO

College of Syntonic Optometry
Board of Directors

President
Mary Van Hoy, O.D., FCOVD, FCSO

Vice President
Stefan Collier, F.O., FCSO

Immediate Past President
Donald Barniske, O.D., FCSO

Director Of Education
Larry Wallace, O.D., Ph.D., FCSO

Secretary
Richard O'Connor, O.D., FCSO

Treasurer
John Pulaski, O.D., FCSO

Dean
Raymond Gottlieb, O.D., Ph.D., FCSO

Librarian
Thomas Cunningham, O.D., FCSO

Trustees
Robert Fox, O.D., FCOVD, FCSO
Denise Hadden, Optom, FCSO
David S. Mora, O.D., Ph.D., FCSO
Edward Kondrot, M.D., CCH, DHt, FCSO

International Representatives
Stefan Collier, F.O., FCSO, European Liaison
Simon Grbevski, Optom, FCSO, Australian Liaison
Jesus Espinosa-Galaviz, O.D., FCOVD, FCSO

Journal of Optometric Phototherapy (JOP) is published yearly by the College of Syntonic Optometry.

All rights reserved. No part of this publication may be reproduced or utilized in any form without permission in writing to the Editor. All expressions of opinions and statements of supposed fact published in signed articles do not necessarily reflect the views or policies of the College of Syntonic Optometry, which does not endorse any specific educational program or products advertised in JOP. Letters to the Editor may be edited for content and space availability. Acceptance of advertising or optical industry news for publication in JOP does not imply approval or endorsement of any product or service by either JOP or CSO.

Editorial Office: CSO, 2052 W. Morales Dr., Pueblo West, CO, 81007, (719) 547-8177, FAX: (719) 547-3750.

Any article, editorial, column or other item submitted to the JOP by an author for review and eventual publication indicates the authors' approval for publication and assignment of copyright to JOP.

Submission of Manuscripts

All manuscripts should be submitted to
Ron Wahlmeier, Administrative Director, CSO.

The preferred method is via e-mail (syntonics@q.com).

If e-mail is not convenient, send to:
Ron Wahlmeier, 2052 W. Morales Dr, Pueblo West, CO 81007

Table of Contents

Journal of Optometric Phototherapy

The President's Message

Dear CSO Colleagues,

Greetings! By the time you all are reading this message, I am hoping the weather is sunny and warm again. Enough of this cold wintry weather with school closings and hazardous road conditions! Time to shed the layers of sweaters, coats, scarves, hats, and gloves for sunny skies and colorful, lightweight garments!

2014 has started off on a bittersweet note. Two of my dear friends and mentors passed away within three weeks of each other, Dr. John Hanson, creator of the Tooties System, a unique bean bag motor based therapy system and loyal advocate for behavioral/ developmental optometry, succumbed to cancer on January 17th. Then, our Dean Emeritus, Dr. Charlie Butts, passed away on Feb. 6th. I say bittersweet because I feel so blessed to have known both of them and to have learned such valuable lessons that will serve me as I work with my patient population. Yet, I dearly miss our phone conversations as I picked their brains and enjoyed their hearty laughter and obvious love of life!

Shortly after Dr. Hanson passed away, I left for my second trip to Kuwait, dedicating this trip to his memory, to serve as one of their optometric consultants for Center 21, a unique center that serves the needs of young adults with autistic spectrum disorder. My task was to perform behavioral optometric evaluations on this population as well as train therapists who would be working with them daily at the center. The two modalities I chose for this task were the Tooties System and Optometric Syntonic Phototherapy. It was while waiting to board my plane back from Kuwait that I learned about Dr. Butts' passing. So, this trip should have been dedicated to both men!

In thinking about Drs. Hanson and Butts, I began to ponder the idea of leaving a legacy. It occurred to me that one doesn't necessarily have to be brilliant or an expert in their field to leave a significant legacy. What if simply mentoring a fellow colleague on cases involving Syntonics made a difference for that colleague? What if inviting another colleague over to your office to observe how you conduct a functional visual field or utilize the syntonizer with patients made that colleague a believer and user of optometric syntonic phototherapy? Wouldn't that be leaving something of importance behind when you depart this Earth?

Let's say you have great organizational skills or have talents networking with others. Perhaps you could leave your mark as an officer with CSO and share your gifts and talents by contributing to this organization. That, too, would be leaving a legacy.

One of the things I miss so much with both Dr. Hanson and Dr. Butts is their enthusiasm and obvious love for the work they did. They never seemed to tire of sharing their knowledge and encouraging me to keep at it and continue to learn and grow! Perhaps it's now our turn to give back and continue the great work begun by two fine gentlemen that have graced this Earth with their generosity of time, talent, and most important of all, their model of simply giving of themselves to a work that is meaningful and significant to the lives of so many, many people! Let's honor them by doing our part in continuing this legacy!

~ Mary VanHoy, O.D., FCOVD, FCSO

The PolyVagal Theory and Syntonic Phototherapy 2014

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

Syntonic optometry historically has as a foundation the use of specific frequencies of light applied through the eyes in order to balance the autonomic nervous system (ANS), and treat vision problems at their source. A simplified construct viewed imbalances of the sympathetic and parasympathetic branches of the ANS that could be restored to homeostasis with high and low frequencies of visible light. The rebalancing of the ANS reduced the sympathetic by activating parasympathetic action with high frequency colors, or reduced overactive parasympathetic dominance by stimulating the sympathetic system with low frequency colors. The rebalancing of the ANS might be by reciprocal inhibition, nonreciprocal mutual antagonism (co-activate or co-inhibit), or unilateral activity. A primary example of unilateral actions is demonstrated in the PolyVagal Theory. An understanding of this theory is crucial in advancing the art and science of Syntonic Phototherapy and how frequencies might be prescribed.

The PolyVagal Theory was proposed by Stephen Porges (2011) as the "neuro-physiological foundation of emotions, attachment, communication, and self-regulation ". Two functionally distinct branches of the vagus or 10th cranial nerve from the medulla serve to brake the sympathetic nervous system. The vagal system is in opposition to the sympathetic-adrenal system. The opposing systems are phylo-genetically arranged for immobilization, mobilization, and social communication or engagement. The vagal system is comprised of two complexes: the dorsal and ventral.

The dorsal vagal system originates in the dorsal motor nucleus, is unmyelinated, and called the "vegetative vagus". It controls the subdiaphragmatic visceral organs such as the digestive tract. Prolonged action in this tract can result in total immobilization, apnea and bradycardia. Immobilization is a primitive yet effective defense for survival. In nature we see this with reptiles playing dead when threatened. The ventral tract originates in the nucleus ambiguous, is myelinated to provide more control and speed in responding. It is often called the "smart vagus" as it regulates the "fight or flight" behaviors in the interest of social engagement. This level of the vagus evolved with the first mammals. Here the vagus can inhibit or disinhibit limbic circuits. The Ventral complex controls such organs as the esophagus, bronchi, pharynx, larynx, and the muscles of the head and neck. It slows heart rate and in times of stress can act without engaging the sympathetic-adrenal system (unilateral action). An example would be that a person is approaching someone on an unfamiliar street and initially may feel fearful, a fight or flight reflex might arise but the vagal system could suppress the fight or flight reflex, relax the facial and throat muscles, soften the eye, and then engage the approaching person with a smile and greeting. Therefore, facilitating social communication, self regulation is a function of vagal control. The vagus can mediate autonomic regulation, vocalizations, listening, and is critical in restoration for treating emotional and physical trauma.[1]

Generally homeostatic processes are regulated by the parasympathetic nervous system via the vagus nerve which is bi-directional (sensory and motor) allowing communication between the organs and brain structures. The vagus accounts for 80% of the parasympathetic system with 70% of the vagus having sensory fibers. This allows the vagus to act as a 6th sense, providing information of the activities within the body cavity. This internal information called interoception, allows maintenance of homeostasis in the face of environmental challenges. The efficiency of the vagus is critical in perception, and physiological and psychological health.[2]

The vagal tone can be monitored by pupil responses and heart rate variability. The heart is directly innervated by the sympathetic and the vagus nerve and serves to reveal the vagal tone. The analysis of the beat rates, called heart rate variability, demonstrates the rhythmic sinus activity, breath rates, and the input from the parasympathetic and sympathetic systems. Through biofeedback technologies one can learn to increase affect and emotional regulation. The ability to enhance heart rate variability leads to less emotional reactivity, and increased capacity for social engagement and attachment. Increases in heart rate variability have been shown to enhance the immune system as well. This feedback technology is being used to treat mental disorders from autism to bipolar patients.

Syntonic phototherapy provides another tool to affect vagal tone and sympathetic systems to balance heart rate variability and create emotional well being.[3]

An example of neural regulation of the ANS via the vagus is facilitating vocal communication. Emphasis on the difference in neural circuits can support defensive behavior (fight or flight, and freeze) and social interactions. In defensive states the middle ear is not contracted, acoustic stimuli are prioritized by intensity, in safe social states, acoustic stimuli are prioritized by pitch. In safe states, vocalization is amplified and in defensive states the loud low frequencies (background noise) are more easily detected. This is due to the inner ear membrane contractions that are innervated by the vagus. The inner ear changes are accompanied by parasympathetic tone that increases striated muscles of the face and head, and middle ear muscles. The vagus dampens low frequency environmental sounds to promote vocal frequencies that serve social engagement.

In summary the vagus system modulates 4 levels of complex behavior. Level 1 is homeostatic processes regulating internal organs. This requires bidirectional interoceptive monitoring and regulating organs via sensory and motor pathways between the brain and internal organs. Level 2 processes need cortical, conscious, and often motivated influences on the brain stem. Level 3 processes are observable motor behaviors. Level 4 reflects coordination of behavior, emotional tone, and body states to facilitate social interaction.[2] These are the multiple tasks of the vagus in the Polyvagal Theory. Patients with vagal dysfunction are often seen with traumatic brain injury whereby they exhibit flat affect, facial distortions, and are socially withdrawn.

In Syntonic Phototherapy these patients can be stuck in a partial freeze or fight and flight syndrome. A recent filter combination used for such patients was elaborated by Stefan Collier called the Omega-Neurasthenia Syndrome.[4] The Omega-N therapy combines the weakest motor depressant and a parasympathetic stimulant. This filter combination can modulate or tone the Polyvagal reaction and relaxes the acute response from the hypothalamic-pituitary-adrenal axis. Parallel effects include increased heart rate coherence and enhanced neural control of the face, larynx, pharynx, enabling complex facial gestures and vocalizations. These patients tend toward emotional exhaustion, withdrawal, mood swings to emotional affect, extreme fatigue or hyperirritability. There is often learning problems, inability to read or concentrate, changes in voice and motor overload such as shaking. Visual problems include: alpha-omega pupil with photophobia, low ductions and recoveries, fatigue exophoria, esophoria as far, subnormal accommodation, field constrictions with enlarged blind spots, dark reflex in retinoscopy, poor visual grasping in the VO Star, and very low near point of convergence without high exophoria. These patients are usually exhausted, with dizziness of balance problems.

Many of these patients are so fragile that they cannot tolerate this weaker parasympathetic filter combination. Sometimes it is necessary to start with Omega alone for shortened exposure of less than 10 minutes. Other times Pi-Omega will be better tolerated especially if there is vertical imbalance. The hallmark of the Polyvagal response is the patient is stuck in ANS imbalance such a frozen sensory-motor state (immobilized) or in "fight or flight" state. Using the Omega (a weak motor depressant) and Neurasthenia filter (extreme exhaustion) allows for

About the Author:

Larry B. Wallace, O.D., Ph. D., is a Doctor of Optometry and has a Ph.D. in Ocular Phototherapy. He has practiced for over 35 years in Ithaca, N.Y . He has served as President of the International Light Association and President and Education Director for the College of Syntonic Optometry. He has invented and patented the first micro-current device to treat eye disease. He has published numerous articles and research on phototherapy. Dr Wallace has lectured and taught workshops around the world in the field of phototherapy and rehabilitative optometry. He is also a certified low vision specialist in New York, and offers alternative care for eye disease. He has worked extensively in the field of optometric neuro-rehabilitation, postural restoration, and treatment of head trauma and brain injury.

the release of the overactive polyvagal action due to trauma. In this situation the sympathetic nervous system response has conditioned the ANS in this semi permanent state of immobilization or more often, a "fight or flight" over action of the sympathetic. In the case of a frozen facial and vocalization presentation it appears the vagal tone is absent. These patients are often extremely fatigued yet cannot tolerate even the weakest sympathetic stimulation. It is frequently necessary to titrate the colors with the weaker blues like omega or N. Even mu-upsilon is too bright to be tolerated. It is as if we need to tone the vagal response slowly. As advanced application of syntonics is required, it is necessary to consider the polyvagal theory for successful patient outcomes.

References:

[1] Porges, Stephen, The Polyvagal Theory, Neurophysiological Foundations of Emotions, Attachment, Communication, Self-Regulation, 2011, Norton and Company New York N.Y.

[2] Porges, Stephen, " The Infant's Sixth Sense: Awareness and Regulation of Bodily Processes", Institute for Child Study, University of Maryland, 2003.

[3] Wallace, Larry, "Heart Rate Variability and Syntonics" Journal of Optometric Phototherapy, 2003.

[4] Collier, Stefan, The Omega-N Syndrome, The College of Syntonic Optometry, Course 101, 2013.

Hummingbird Hues, LLC

"One Cannot Hold a Torch to Light Another's Path Without Lighting Their Own!"

Portable Light Units

White Portable Light (Model A)

- White Corded Lamp
- Attached Slotted Lens Collar with Collimating Lens
- 11w HD Natural Lighting OttLite® (Does not overheat)
- (6) 4" Glass Filters with Vinyl Ring & Handle
- Acrylic Black Base
- Patient Light Program Cards
- Black Zippered Filter Case
- Lime Green Soft-sided Carry Bag

Polished (Model B)

- Polished Steel/Black Corded Lamp
- Attached Slotted Filter Collar Containing Collimating Lens
- 11w HD Natural Lighting OttLite® (Does not overheat)
- Acrylic Black Base
- Patient Light Program Cards
- (10) 3" Glass Filters with Vinyl Ring & Handle
- Silver and Black Aluminum Hard Case (13" x 10" x 5"), Shoulder Strap, Molded Insert to Hold Light and Lenses Securely

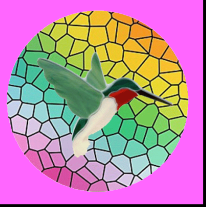
Polished Steel/Black Light Mounted Inside Lockable Silver & Black Aluminum Case (Model C)

- Same as Model B, except for size of case (18" x 12.75" x 6") allowing storage area, no acrylic black light base, and
- This light unit is permanently mounted in case for easy set-up: Open case, adjust light angle, insert color filter(s), plug in and enjoy!
- Travels well.

Customized by: Hummingbird Hues, LLC

Deb Summers, Owner

45000 Olson Road
Avondale, CO 81022-9786 USA
Phone: (719) 947-3203 or (719) 569-9200
Email: hummingbirdhuesllc@gmail.com
Website: www.hummingbirdhues.com



Custom Glasswork: Stained Glass, Fused Glass, Etching, Sandblasting

Custom–Made Babbitt Windows

Recondition/Upgrade Home Training Unit formerly sold by Dr. Stan Levine:

- 11w Replacement OttLite®
- Original 4" Color Glass Filters Cut to Order
- Lime Green Soft-sided Bag
- Model A Glass Filters/Vinyl Ring/Handle
- Model A Slotted White Collar with Collimating Lens and Hardware

Optometrists: Jugglers of more than Sensory and Motor Functions

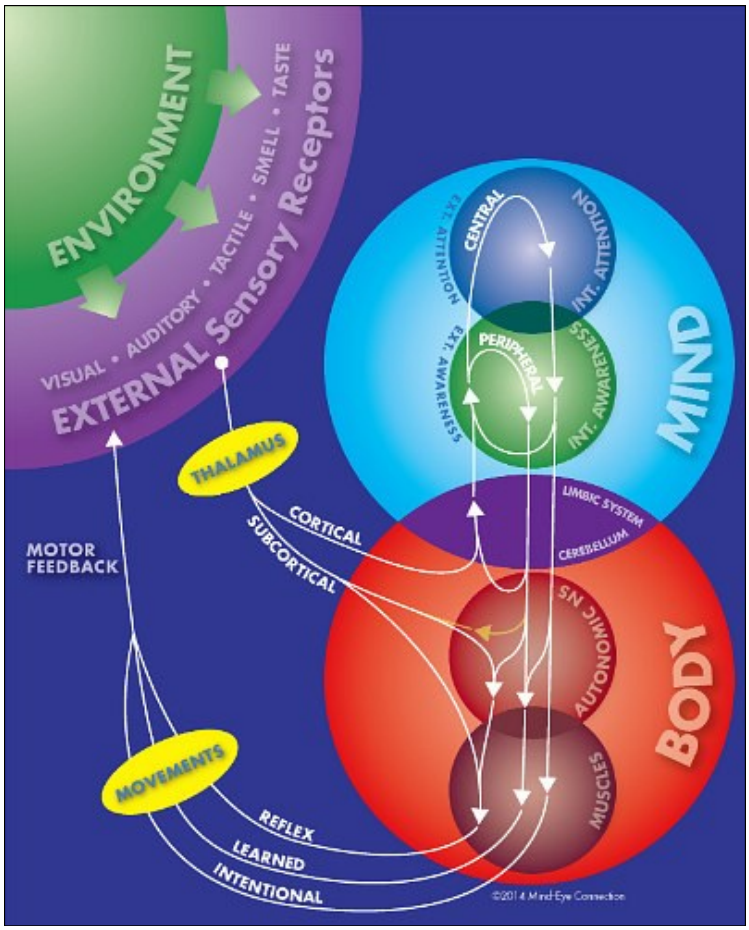
Deborah Zelinsky, O.D., F.N.O.R.A., F.C.O.V.D.

I. Introduction:

In 1994, I was privileged to speak at the second ICBO meeting (International Congress of Behavioral Optometrists) in Australia. The topic was Optometry: Jugglers of Sensory and Motor Systems. Having used professional juggling as a way to pay college tuition, I thought it was a cute title representing just what optometrists did – altered sensory systems through the retina and measured motor outputs through eye movement testing. The presentation showed a drawn picture of a juggler, with sensory signals (in the form of juggling balls) coming into one hand and motor outputs (as other balls) leaving the other hand. I discussed how the motor outputs created feedback for new sensory inputs, forming a continual, dynamic loop. In fact, we discussed this sensory-motor interaction when looking at targets in the external environment as "the" nervous system, termed somatosensory nervous system. Years later, Benoit Lombaerts, president of the Society of European Optometrists, introduced me to syntonic optometry, where glasses can stimulate internal signaling pathways, termed the autonomic nervous system. Those two systems together – the somatosensory from the external world, and the autonomic from the internal world – have a constant dynamic, and we, as optometrists can alter either or both depending on how we choose to use our optometric choices of lenses, prisms and filters (including tints and bangerter occlusion foils).

II. Neuromodulation by retinal stimulation is an emerging concept.

Optometry classes focus mostly on lenses, prisms and eye health; the use of syntonics remains an offshoot, not taught in school, but interesting enough to entice those who crave more learning. Since the era of Skeffington, the idea of the eye being a part of the body has been a concept that developmental optometrists had to learn. All the greats in developmental optometry, such as Bruce Wolff, John Streff, Carl Marsden, Bob Kraskin, Don Getz, Gerald Getman, Gus Forkiotis, Frederick Brock, etc., left their legacies by taking our profession to new levels regarding sensory-motor linkages. The onset of technological developments in the computer age enhanced the need for stable visual space worlds linking peripheral and central eyesight, making developmental optometry more popular and the somatosensory nervous system better understood.



Somatosensory Nervous System. External stimuli affects sensory receptors, triggering a motor output.

As that concept of making patients more comfortable grew rapidly (by using glasses and visual therapy to solidly integrate peripheral and central eyesight), the concept of using light to affect the autonomic nervous system also was gathering a following. More greats, such as Harry Spitler and Charlie Butts showed the importance of light on the autonomic nervous system. The use of light to modify neurological signaling (neurophotonics) has been around for decades, with uses such as bilirubin

lights treating jaundice, airplane lighting altering jet lag, special lighting to help people with seasonal affective disorder, but research on what exactly the light was doing was sparse. Medicine wasn't always accepting the thousands of anecdotal cases. Doctors began working with Syntonic Optometry since the early 20th century. Now, it is 80 years later and research is JUST recently documenting what Spitler and Skeffington knew to be true.

In 2003, a new cell in the retina was discovered. It reacted to light, but had nothing to do with eyesight and was in the ganglion cell layer, not the photoreceptor layer. This ipRGC (intrinsically photosensitive retinal ganglion cell) has been found to link with internal metabolic processes and sends mixed information to the brain, regarding both external information (that arrives from the rods and cones) and internal levels of chemicals (that arrives through the retinopetal feedback fibers into the eye from the body). Neuromodulation by retinal stimulation is the wave of future research, and optometry is at the forefront!

III. Simplified overview of the nervous system

CNS: The central nervous system is composed of the brain and spinal cord. But, since the retina is an extension of brain tissue (arising from the neural tube during development), the central nervous system can be redefined as the retina, brain and spinal cord.

PNS: The peripheral nervous system relays information to and from the protected retina, brain and spinal cord through two pathways – afferent and efferent. Sensory (afferent) goes into the PNS, the motor (efferent) comes out of the PNS. The efferent motor can be voluntary or involuntary.

The afferent and efferent can each be separated into two portions – signals arising from external sources (somatosensory, also called sensory-motor), and signals arising from internal sources (autonomic nervous system (ANS). The internal sources are separated into three further categories: 1) Sympathetic (fight/flight/fright), 2) Parasympathetic (rest/digest) and 3) Enteric (stomach).

- **Externally stimulated somatosensory nervous system**

  External sensory stimuli from external sensory receptors, triggering a motor reaction &response

  Visual Example: If you feel a tickle on your arm or leg (sensory afferent input) and you look to see what's there (motor efferent output). The motor output can be at a reflex (involuntary) level or at a conscious (voluntary) level. (It can also use a subconscious habitual or an anticipatory pathway, but that is past the scope of this short article.)

- **Internally stimulated autonomic nervous system**

  Internal sensory stimuli from internal sensory receptors, triggering motor reactions in organs

  Those receptors include, chemoreceptors, baroreceptors, nocioreceptors, osmoreceptors, etc.

  Shuts down or activates peripheral eyesight

  Visual Example: Riding in a car, feeling carsick as the trees pass by

  Visual Example: Seeing a scary film that increases heart and breathing rates.

External signals can and do have an effect on the internal systems, beneath conscious awareness, and internal signals can and do have an effect on the external sensory systems. This interrelationship between awareness and attention to the surroundings versus internal sensations or thoughts is what we capitalize on when prescribing optometric treatments.

IV. Retinal circuitry: A lot happens on the way to the visual cortex

We learn in optometry school that there are approximately one million ganglion cell axons leaving the retina, bundled as the optic nerve carrying signals to many parts of the brain. But, before the brain receives any information, the ten layers of retinal circuitry have condensed the approximately 160,000,000 receptors that react to light into that 1,000,000 pieces of information.

The layers of the retina have both inhibitory and excitatory mechanisms to filter incoming information. Different types of eyeglasses affect different types of ret-

inal pathways. For instance, yoked prisms tend to primarily affect signals to the superior colliculus, tints tend to primarily affect retinal signals to the hypothalamus and lenses have a primary effect on signals traveling to the visual cortex.

Eye facts I never learned in optometry school include:

- No human baby is born with a macula – it develops.
- The retina is formed during gestation like a patchwork quilt, with each quadrant arising from different transcription factors, at different times.
- Babies born deaf have changes in their retinal circuitry (retinal plasticity rather than cortical).
- The nasal retina sends signals into the hypothalamus; the temporal retina does not.
- The retina has its own intrinsic circadian clock.
- The retina has its own immune system.
- The retina has its own survival mechanisms in place after trauma.
- Every time an eye care professional places a pair of glasses on a patient, we are altering that patient's posture, perception and body chemistry.
- Convergence can be affected several ways. The most common is when the patient is engaged in their environment, aiming at targets. A second mechanism of convergence occurs when head position is shifted. Habitual head position might be downward (creating an exophoric posture), when tilted upward, eyes converge. A third mechanism is internal thoughts. Eyes converge when people are thinking about details or are stressed and diverge when they are conceptualizing or relaxed. A fourth mechanism is internal physiological state – eyes pull outward during sleep.
- Just as Skeffington said that convergence and accommodation aren't separate, neither are auditory and visual pathways. Effects of stimulation of the retina include alteration of auditory localization. New research from Vanderbilt University shows that auditory and visual inputs are out of synch in children with autism.
- Stimulation of the eye affects other parts of the body – the eye is not isolated from the other sensory and motor systems, nor from changing biochemistry. Consider what happens to adrenaline levels if something scary is "caught" out of the corner of your eye. The peripheral retina is linked with adrenaline levels.
- Signals from the optic nerve have four MAIN targets (and many smaller ones). The main ones are the hypothalamus for ANS regulation, superior colliculus for posture changes, visual cortex for peripheral eyesight and visual cortex for central eyesight.

V. Some common optometric interventions

- **Yoked Prisms** – Angle light toward one edge of the retina to initially alter the body's positional sense, because reflexive eye movements will point toward the incoming light, triggering internal postural mechanisms in the hips for stability to counteract the eye movement.
- **Non-Yoked Prisms** – Angle light toward either nasal or temporal retinal sensors. The eyes will also reflexively point toward the light, but this inward and outward movement stimulates different visual and postural mechanisms (shoulders rather than hips), shifting apparent object location. The nasal stimulation (from Base In prism) affects retino-hypothalamic signaling.
- **Lenses** – Disperse light toward the edges or the center of the retina tends to make objects appear larger or smaller, by emphasizing or muting the background. This change in light mainly alters the balance between central and peripheral circuitry by having the target and background occupy different percentages of the retinal input.
- **Filters** – Alter either spatial or temporal retinal input with filters affects internal processing and external perception. Tints filter out selected wavelengths of light, stimulating specific retinal cells which alter retinal chemistry (and thus body chemistry). Graded occlusion filters alter the spatial components of incoming light.
- **Mirrors** – Induce a sensory mismatch between central (target) and peripheral (background). These are used in many aspects of rehabilitation, such as patients with strokes or visual field defects.

VI. Conclusion: Eye care professionals affect nervous systems

Scientific research continually demonstrates that deficiencies in various visual pathways are found in patients who have schizophrenia, Parkinson's, epilepsy, diabetes, autism and Alzheimer's, etc. Many systems are intertwined with the eye, and eyeglasses can be used to activate retinal sensors, affecting those systems. Retinal circuitry is a hot topic in neuroscience research because it is an easy, non-invasive way to probe and alter brain function. Current bench research is on salamanders, fish, turtles, mice, rats, rabbits and monkeys, while waiting for FDA approval to work with humans. But, optometrists are actually working at a bedside level on humans. We have an effect on patients' nervous systems daily without realizing it, by actually being able to selectively stimulate both neurological and biochemical systems and monitor changes.

Pathway disruptions after traumatic brain injury can be addressed by optometry, as can the concept of peripheral retinal cells activating and shutting off based on body chemistry. Since sensory systems are rarely used in isolation, eyeglasses can be used to alter spatial organization and thus auditory localization in patients.

Using the retina as an entry into brain activity rather than simply using eyeglasses to sharpen visual acuity allows for many feedback and feed forward systems to be activated. Subcortical, predicable retinal pathways can be selectively stimulated to affect brain processing. The retina is actually doing a lot before information gets sent to the visual cortex, and something as simple as a slight tint in everyday glasses can be helpful in calming a sensitive nervous system. In fact, research in Australia showed that mice with macular degeneration exposed to a specific red wavelength of light were less likely to have their disease progress.

During the seven hour grueling optometry board certification, it was interesting to notice how visual therapy was included in many questions, and binocular vision and neuro-optometry were elective subsections. Syntonics has yet to receive that status on board questions, but those who follow research see it coming. It's time to head toward the year 2020 with a clear vision of where optometry could be. Syntonics should soon be part of mainstream optometry. The mounting amount of research on retinal stimulation by various light frequencies validates how neurological and biochemical aspects of optometric interventions remain fascinating. Optometrists are really much more than jugglers of sensory and motor functions – we're jugglers of internal and external information processing, taking over the balls in the air from a long line of pioneers.

About the Author:

Deborah Zelinsky, O.D. has had publications on the topic of neuro-optometric rehabilitation in peer reviewed and open access books and journals since 2007. She was bestowed the Founding Father's award from N.O.R.A. (Neuro-Optometric Rehabilitation Association) in 2013, and has been asked to speak about using light to modulated the nervous system at the Society for Brain Mapping and Therapeutics Congress in Los Angeles in March, 2015 (www.worldbrainmapping.org). This article is a condensed version of her current chapter for a textbook on Neuromodulation. The book will be the second part of a trilogy of textbooks sponsored by the World Brain Mapping Foundation. The first was on Nanoneurosurgery and Nanoneuroscience, the second is on Neurophotonics and the third will be on Stem Cells. Dr. Zelinsky has spoken worldwide to various groups such as the Symposium for Deep Brain Connectomics in France, the International Occupational Therapy Convention in Greece and the Society for Applied Neuroscience in Spain, She has also presented the concept of using eyeglasses to alter auditory function even in totally blind people at the Illinios Brain Injury Foundation and the Idaho Commision for the Blind and Visually Impaired in the U.S.A. She and Dr. Parres M. Wright practice optometry in Chicago, Illinois, at the Mind-Eye Connection, emphasizing tests on brain pathways that the eye is connected to, in addition to the eye itself.

VII. References

Baccus, S. A. (2007). "Timing and computation in inner retinal circuitry." Annu Rev Physiol **69**: 271-290.

Chaurasia, S. S., N. Pozdeyev, et al. (2006). "Circadian clockwork machinery in neural retina: evidence for the presence of functional clock components in photoreceptor-enriched chick retinal cell cultures." Mol Vis **12**: 215-223.

Chu, E. M., M. Kolappan, et al. (2012). "A window into the brain: an in vivo study of the retina in schizophrenia using optical coherence tomography." Psychiatry Res **203**(1): 89-94.

Dantsig, I. N. and A. V. Diev (1986). "[Light sensitivity of the central and peripheral sections of the retina in exposure to noise]." Biull Eksp Biol Med **101** (2): 133-135.

Ecker, J. L., O. N. Dumitrescu, et al. (2010). "Melanopsin-expressing retinal ganglion-cell photoreceptors: cellular diversity and role in pattern vision." Neuron **67**(1): 49-60.

Ghose, D. and M. T. Wallace (2014). "Heterogeneity in the spatial receptive field architecture of multisensory neurons of the superior colliculus and its effects on multisensory integration." Neuroscience **256**: 147-162.

Grossman, R. B., M. H. Schneps, et al. (2009). "Slipped lips: onset asynchrony detection of auditory-visual language in autism." J Child Psychol Psychiatry **50**(4): 491-497.

Kolb, H., E. Fernandez, et al. (1994). "Are there three types of horizontal cell in the human retina?" J Comp Neurol **343**(3): 370-386.

Lavoie, J., M. Maziade, et al. (2014). "The brain through the retina: The flash electroretinogram as a tool to investigate psychiatric disorders." Prog Neuropsychopharmacol Biol Psychiatry **48**: 129-134.

London, A., I. Benhar, et al. (2013). "The retina as a window to the brain-from eye research to CNS disorders." Nat Rev Neurol **9**(1): 44-53.

Maleki, N., L. Becerra, et al. (2012). "Direct optic nerve pulvinar connections defined by diffusion MR tractography in humans: implications for photophobia." Hum Brain Mapp **33**(1): 75-88.

Memari, A. H., P. Ghanouni, et al. (2014). "Effects of visual search vs. auditory tasks on postural control in children with autism spectrum disorder." Gait Posture **39**(1): 229-234.

Nag, T. C. and S. Wadhwa (2012). "Ultrastructure of the human retina in aging and various pathological states." Micron **43**(7): 759-781.

Petrus, E., A. Isaiah, et al. (2014). "Crossmodal induction of thalamocortical potentiation leads to enhanced information processing in the auditory cortex." Neuron **81**(3): 664-673.

Schwab, S., O. Wurmle, et al. (2013). "Eye-head coordination abnormalities in schizophrenia." PLoS One **8**(9): e74845.

Sprenger, A., P. Trillenberg, et al. (2013). "Enhanced top-down control during pursuit eye tracking in schizophrenia." Eur Arch Psychiatry Clin Neurosci **263**(3): 223-231.

Takahashi, S., M. Suzuki, et al. (2013). "[Association of clinical symptom between schizophrenia and exploratory eye movement]." Seishin Shinkeigaku Zasshi **115**(1): 3-9.

Zele, A. J., B. Feigl, et al. (2011). "The circadian response of intrinsically photosensitive retinal ganglion cells." PLoS One **6**(3): e17860.

Zucker, C. L. and B. Ehinger (2001). "Complexities of retinal circuitry revealed by neurotransmitter receptor localization." Prog Brain Res **131**: 71-81.

The Affordable Care Act (ACA) and it's effect on Syntonic Practices in the United States

Hans F. Lessmann, O.D., FCOVD, FCSO and Ron Wahlmeier, MBA, (MT)ASCP. JOP editor

Although it's really too early to tell the full impact of the Affordable Care Act on Syntonic Optometry Practices in the United States, some of the changes are already here. The impact varies from state to state, the patient mix of the practice and the general health of the patient population. One of the noted effects is on the health care coverage provided for the staff of the optometric practice.

One Northeastern practice recorded a 30% increase in their staff premiums in 2013. This year the staff coverage plan was dropped because it did not include pediatric or pregnancy coverage (none of which the staff needed). The recommended replacement plan from the same provider included a $2,500 up front deductible and a 32% increase in the premium. The replacement plan was rejected and the physician spent 10-15 hours searching for an affordable replacement plan.

The same practice reported changes in the process of accepting patients for treatment. When a patient is scheduled for treatment, the third party payer is contacted before the patient arrives and the following information is collected and passed on to the patient when they arrive for their examination/treatment:

1. Is the patient eligible for a routine examination this year?
2. Is it at no charge or is there a co-pay and how much is the co-pay?
3. Is the patient eligible for medical as well as optometric coverage?
4. If the patient is eligible for medical coverage, how much of the patient charge is credited toward the deductible (example; only $130 of a $150 fee is credited toward the deductible.)

This process along with the accounts receivable requires 2.5-3.0 full time equivalents in the practice.
There is considerable confusion about what the various third party payers will reimburse for the examinations/ treatments as they have not yet received a government fee schedule. The only way to be sure of the reimbursement is to review the payment on the claim as the practice receives reimbursement. A curious effect of the Affordable Care Act is that Medicaid pays more for an examination than plans chosen through the act (Medicaid $70-90 vs ACA $45-60)

A rural California optometrist reports little or no change in his practice. Although, medical coverage for his staff has increased 10%. The reason for the lack of change in the rest of his practice is the patient mix (55% Medi-Cal). Also, the incidence of diabetes in his patients is high. Most of the patients are then receiving medical as well as optometric treatments/exams. Increased service equates to increased practice revenue.

A unique approach to personal/Family health care coverage prompted by the Affordable Care Act has been provided by Hans F. Lessmann, OD, FCOVD, FSO. His comments are shown below:

People covering People: Health Sharing

Imagine having money sent to you when you are sick along with well wishes and even prayers from folks unknown to you but who share your values. Also, imagine having complete access to your chosen doctor and facility without consideration of whether it is "in-network" or "out-of-network" and at remarkably lower costs. This is health sharing. It is not health insurance, but a group of people who collectively agree to share new unexpected medical costs. Instead of paying an insurance premium, you are assigned someone who is sick, to forward your health share.

There are only a handful of health sharing ministries that were recognized for exemption from the Patient Protection Affordable Care Act of 2010, PPACA. Importantly, this exempts one from the penalty/tax for not having

health insurance. They have been around for over twenty years and have recently grown dramatically with the problematic new health exchanges.

Like many my plan was cancelled and the new plan was costly. My premium increased from $900 to $1,400 a month but the deductible exploded to $11,000 in-network and $33,000 out-of-network. This is not insurance! We switched to Samaritan Ministries at a cost of $370/month with a $300 deductible. They cover $250,000 per person per need per year. They even accepted my daughter with Down syndrome at no additional costs!

I believe paying the doctor directly helps restore the doctor-patient relationship by encouraging the doctor's sole loyalty to the patient without the often limiting influence from insurance medaling. As you know where the money goes, it cuts out corporate profits and large executive salaries. They claim an average negotiated discount of 40%. Unlike insurance companies that disrespectfully cut member claims to "providers", doctors and facilities know they will be paid and when. The health sharing concept is simple; they pay for any *"new"* symptom or injury, defined as occurring within the last 12 months.

Health sharing does not cover routine office visits or chronic diseases like diabetes and high blood pressure. They ask that you endeavor to lead a biblical life refraining from smoking, excessive drinking, and marital infidelity, while attending church. There are only a handful of health sharing ministries, which are Christian. But this does not that mean that other faiths or groups of people could organize to support each other if the exemption could be extended or ignored like so many of the other law's provisions that have already been extended or ignored.

Many have lost sight of the purpose of insurance. It is "NOT" to pay for your health care, but to *"protect your assets"*. It is your money anyhow whether you pay premiums, taxes, or directly, the only question is who makes the decision; you or the third party. Health sharing puts you in charge to best support you and your family. While this approach may not be for everyone, it offers an affordable and secure option at a time of uncertainty.

Editor's Note: Hans F. Lessmann, OD, FCOVD, FCSO is the President of "The Society for the Education of Physicians and Patients". www.sepp-online.com

Lighting Up Lives, 2014

Denise Hadden, Optom, B.Sc. Hons, FBOA, FSMC, FOA [SA], FCSO

Jamie 6y7m, a sweet but very busy little boy arrived for yet another assessment on his vision. He was born with a left accommodative esotropia and though there is no note in the ophthalmologists report – his parents reported nystagmus and abnormal head posture as well. It had been suggested that he should consider wearing his +3.00 DS prescription and begin full time right eye occlusion with Atropine. He had been patched from 6months old and had regular checks with a variety of doctors since then. There was no family history of strabismus or nystagmus. His parents were upset because they had seen no improvement in his vision, squint or symptoms at all during the 6yrs of treatment.

Little Jamie had already repeated pre-primary and was still not able to read or concentrate properly in class. He was described as distractible, constantly moving, disruptive in class and unable to complete his work. He had V/A's of RE: 0.05[20/400] [only with head movement] and LE: count fingers. Acuities, and all testing was a challenge as Jamie moved his head constantly, up, down, angled right and left. His esotropia and nystagmus were variable but significant and his fundus examination normal.

He was unable to complete oculomotor testing and covering his left eye caused a significant increase in nystagmus in the right eye. He turned his head to the left in or-

der to compensate for the nystagmus when he was walking or playing.

My refraction revealed about +3.00DS and I advised that he begin wearing this immediately. His colour field was zero degrees with the large white target only.

Even though Jamie had had 2 TBI's a year prior, I chose to begin with red/orange and lemon [alpha delta/mu delta –Lazy Eye Syndrome] because he had been positively diagnosed as esotropic at birth.

They followed this program twice a day for two weeks. His second colour field showed 3-5 degrees with the small white target and he managed to see the red target at 2 degrees. His mother reported that he had been very emotional the first week and then became much calmer and more focused. His nystagmus improved and his erratic head movements were less. His teacher had also noted these changes and wanted to know what had happened. His second colour field a few weeks later, with the same program only once a day, increased to 5-8 degrees white and 3-5 degrees on the colours. His teacher noted that he was 'using his eyes more to see than moving his body'. He was not upsetting the other children, less disruptive and calmer and focusing much better. He had begun to have a few nightmares. I changed the program to Lemon for a week and then returned to red/orange and lemon, hoping that this would reduce his nightmares.

They continued with this for the next month, however his colour field stopped increasing and his previous achievements seemed to be diminishing. He got Scarlet Fever and we stopped light for a few weeks. When he returned, I put him on the Monocrom Dome for one session of 10 mins – but I controlled the colours and kept him within the blue spectrum. His eye movements improved significantly and his vision therapy session a week later went much better. He did another 10mins on the Dome, again controlled to the blue spectrum and then we returned to home light therapy on my trauma-releasing program.

Nystagmus requires Indigo [omega] but it is always difficult to decide when to change frequencies, and especially when you have a mixed system such as Jamie had. I had watched his fields carefully, and could see that his program needed to change. Using the Monocrom Dome in a controlled way is a very fast way to clarify what frequencies are required.

He continued to improve in all aspects. His teacher and parents noted that he was calmer and doing very much better at school, with less tantrums and disruptive behaviour. His visions improved to R & L 0.2 [20/100]. His colour fields began to open much faster and he achieved a 20degree white field and 12-15degree colour fields. His Monroy Visual Memory scores, which had been 9months below his age, had improved from 5y10m to 6y11m within the space of 3 months. He is wearing his spectacles permanently, squinting much less, has a good head posture now and his nystagmus is significantly better. His parents are thrilled with his progress and little Jamie wrote his own feedback saying- 'Light therapy makes me very happy, sometimes sad, I am listning more and focist on certint things, helping a lot, good at maths now, I like puzzles more than other times.'

That's the feel good for me. Wish I had had a syntonist when I was a child …..

About the Author:

Denise Hadden is a full time private practicing optometrist in Cape Town, South Africa.

In 2001, Denise developed a unique method of field analysis described in her book New Light on Fields.

Denise was invited to present her pioneering work into colour fields and perceptual scores at ICBO, 2010. She further developed and presented her work on subtle fields of awareness at ISSSEEM, 2011.

Her new area of interest is in the matching of Light Emission Analysis [Kirlian] with the information obtained from colour visual fields. Contact at www.denisehadden.co.za

See page 14 for additional information on a new book by Denise called Coaching the Invisible Fields.

Email light@denisehadden.com for information on workshops or presentations.

Practicing "Outside The Box" In Kuwait

Dr. Mary W. VanHoy, O.D., FCOVD, FCSO

It's February and cold for Kuwait. I am standing before wide-eyed Jordanians hired to be mentors and therapists for the participants of Center 21, a dream of a father of a young adult son with severe Autistic Spectrum Disorder. The six Jordanians, two females and four males are young, all under the age of thirty. Three of the males are occupational therapists trained in their native Jordan, while the fourth male is a physical therapist also trained in Jordan. The two females, one four months pregnant, are special education teachers, the unpregnant one with her masters degree in counseling as well.

Center 21 Facility in Kuwait City, Kuwait.

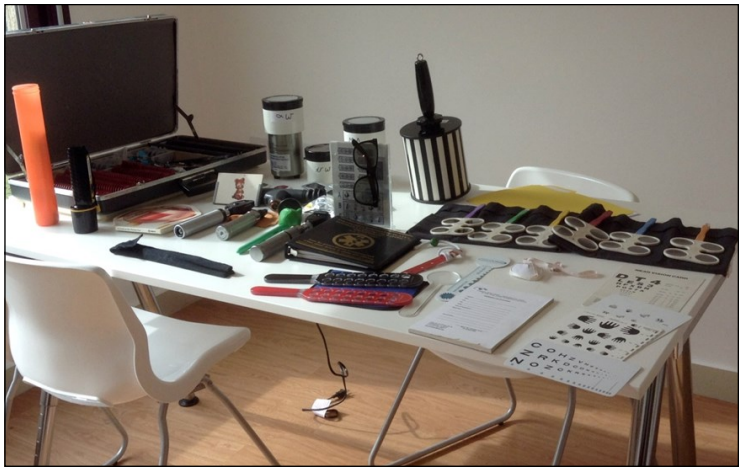
As with many of their American counterparts, all of the Jordanians thought of vision as primarily eyesight and ocular health, not as a dynamic process (motor) that profoundly influences behavior. Even the special education teachers use procedures and devices very similar to vision therapists but had never considered the similarities of goals and treatments.

With knowledge of the level of function of the participants at the Center 21 facility after my maiden voyage to Kuwait in May to survey the project and my role with Center 21, I correctly decided to utilize the most engaging and effective optometric tools available to get the "most bang for the buck". This certainly did not include high tech instrumentation like the Bob Sanet computerized "dream machine" nor even typical Bernell instruments, standard tools of most vision therapy clinics. No, to get clinically significant engagement of this special population, I needed the tasks to be powerful, non-invasive, and easily administered. The tools also had to be easy to teach new vision therapists who would not have a behavioral/developmental optometrist on site at all times. This eliminated the use of prisms and lenses as there would be too much room for errors without a doctor on site.

My Two Female Jordanian Therapists.

Having had great results in my private practice utilizing solely Optometric Syntonic Phototherapy and the Tooties System for my special needs patients, these two simple but powerful modalities were my chosen instrumentations for the Kuwaiti Center 21 Vision Therapy Clinic.

In the eight days I spent working in Kuwait, I concentrated on teaching and training the six Jordanians. However, I also examined eighteen patients, six of whom were the Jordanian therapists (they needed to experience a behavioral/developmental optometric evaluation to fully understand my model of vision). Think of nursing home optometric equipment and you will have a fairly good idea of the "equipment" I took with me to Kuwait, a complete trial lens set, a couple of trial frames, my spot retinoscope, monocular indirect ophthalmoscope, penlight, red/green filters, Bernell Lanterns, red/green flashlights, Randot Stereo Test, Color Test Plates, flipper lenses, skiascopy bars, Wolff wands, cover paddles, and a portable battery operated Ott lamp which had full spectrum lighting. Note, I did not have a distance acuity chart but did bring several types of near point acuity cards. I also brought



Portable Optometric Testing Equipment for Kuwait.

inch cubes with a long plastic tube that inch cubes were placed into so I could note spatial awareness, crossing of midline, and eye teaming skills as patients performed motoricially. I also brought a number of fun targets for evaluating saccades and visual pursuits, targets such as finger puppets, pens with animal tops, etc.

Jordanian Therapists Practicing VT Procedures—all motor based.

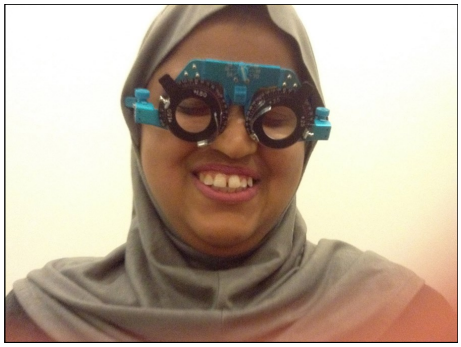
My primary clinical concerns were:

1) any blatant optical needs for lenses
2) any performance improvements (better eye contact, visual attention, or tracking) with stress-relieving performance lenses
3) performance in their environment as related to gait, posture, and ability to navigate in their space world
4) clinical signs for the need for optometric syntonic phototherapy and if so, what filter to prescribe.

To answer these questions, I relied heavily upon my near point retinoscopy (thank you Dr. John Streff for your sound mentorship on this often forgotten but immensely valuable clinical skill), observations of performance with low power stress-relieving lenses and/or vertical yoked prisms, and performance with the Tooties System for launching Tooties and catching them, tossing Tooties into the Toss Back net and catching them, and tossing and catching Tooties from a seated position on the floor with the Tooties Toss right in front of them. The Tooties System 7C afforded me valuable clinical observations of posture, eye/hand/foot coordination, balance in space, visual tracking skills, convergence skills, and accommodative skills as well as hand dominance. But, most importantly, every single patient loved the Tootie System and began to smile and relax! (A BIG thank you to my dear friend and mentor, the late Dr. John Hanson, whom I dedicated this trip to, for his persistent mentoring of me and tolerance of my initial skepticism of the value of his "simple" tootie system)

Our US Team (Left to Right): Ms. Collette, an OT teaching sensory integration. Patricia Lemer, coordinator of the US Team. Mary Rentschler, body works therapist for primitive reflexes. Dr. VanHoy, neuro-developmental optometrist.

In determining the optimum starting filter(s) for optometric syntonic phototherapy, I relied heavily upon the patient's case history, chief visual concerns as stated by the patient's guardians, nanny, or parents. I also utilized the key clinical tests for Syntonics advocated and taught by our late Dean Emeritus, Dr. Charlie Butts: 1) the presence of an alpha omega pupil and to what extent the pupil released constriction 2) nearpoint of convergence as measured by the Butts (Brock) String 3) the functional visual field results. Since none of the patients I evaluated could give me clinically reliable functional visual field results, I depended upon quick confrontation field estimates as well as observation of head movements when tracking and doing saccadic fixations. Last but not least, I utilized applied kinesiology to "seal the deal" by either testing directly with the patient viewing various syntonic filters in a totally darkened room or if the patient was not reliable in maintaining finger pressure, I used a surrogate with the surrogate making direct physical contact with the patient who was viewing the syntonic filter. I was amused to observe that just as in America, the surrogate if a parent, had the same bewildered reaction to this highly unusual method to determine a clinical answer! However, just like my American parents or surrogates, they could NOT deny they felt a difference when the clinically correct filter was being viewed!



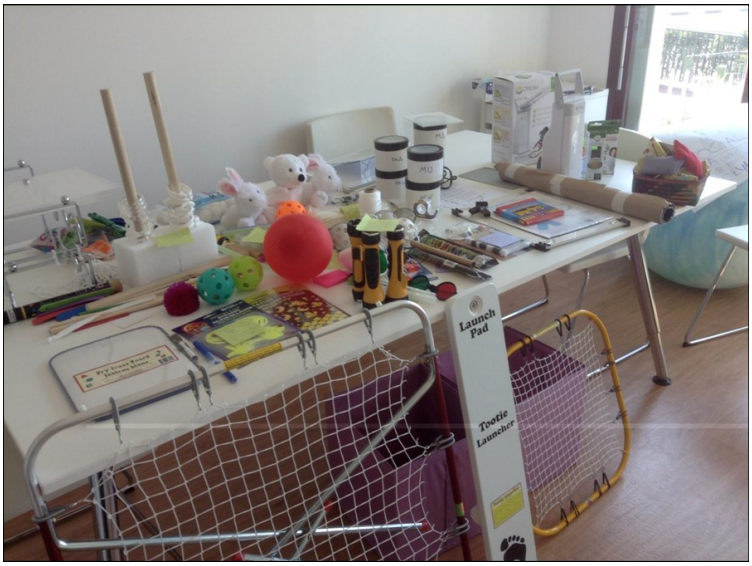
One of my photosensitive Kuwaiti Patients with Stress-Relieving Trial Lenses.

Once the patient's ocular health was determined, the need for any optometric lenses or yoked prisms, and the applicable optometric syntonic phototherapy filters confirmed, a treatment plan was prescribed for the patient.

While I would have preferred using the standard CSO endorsed syntonizer, due to the excessive

weight to bring with me to Kuwait, the unlikelihood of patient compliance in maintaining fixation in the instrument, and the Kuwaitis' perception of our "antique" instrument as being low tech, I opted for home syntonic units which consisted of an Ott full spectrum battery operated light beneath an 11X14 plate of syntonic filters (Roscolux filters) that were sandwiched between cardboard picture matting and then had a plexiglass plate on top and beneath the matting. This arrangement allowed the patient to engage with the therapist by tracing lines drawn on the plexiglass plate, finding various targets placed on the plexiglass plate (while not obstructing the transmission of the syntonic lights) and other simple tasks such as picking up dry cereal placed on the plexiglass plate to snack on while looking at the lights. In most cases, I prescribed ten minutes per filter if two filters were prescribed or twenty minutes if only one filter was prescribed. I also instructed three to five consecutive days of phototherapy, a minimum of three consecutive days. The course of treatment was to be eight weeks with me monitoring patient progress via email reports and possible Skype calls.

Center 21 will start with six clients, one for each of the Jordanian therapists. The male therapists work only with male clients while the female therapists work only with females as is the cultural custom in Kuwait. The Center's board of directors plan to hire additional therapists as they accept more clients. I, as one of the behavioral/developmental optometrists, will be available via Skype and email communiqués to monitor patients and instruct the respective therapists.



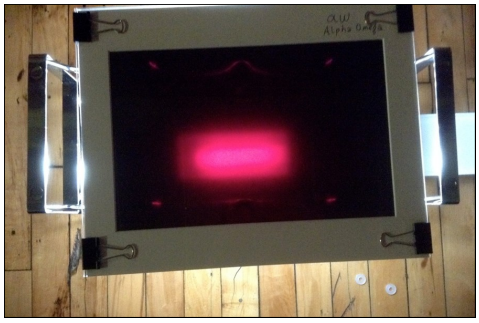
Vision Therapy Equipment for Center 21 Clinic.

Prototype of Portable Syntonizer with Ott Lamp and Roscolux Filters.

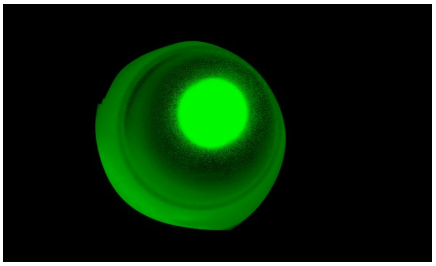
My goals for the clients of Center 21 are for them to be more interactive with their environment, to have and maintain better eye contact, and to be more secure and confident in navigating in their environment and various surroundings.

There is no conclusion to this story as it is an ever evolving work in progress.

I am simply humbled and grateful to have been chosen to participate in this novel and innovative project serving the needs of young adults with Autistic Spectrum Disorder Syndrome.



View from above the Portable Syntonizer with Ott Lamp and Roscolux Filters sandwiched inbetween two plexiglass plates on a stand.



View from above of an uplamp with an Ott CFL bulb. A plexiglass plate can be placed on top of the lamp for motor activities to encourage looking at the filtered light.

About the Author:

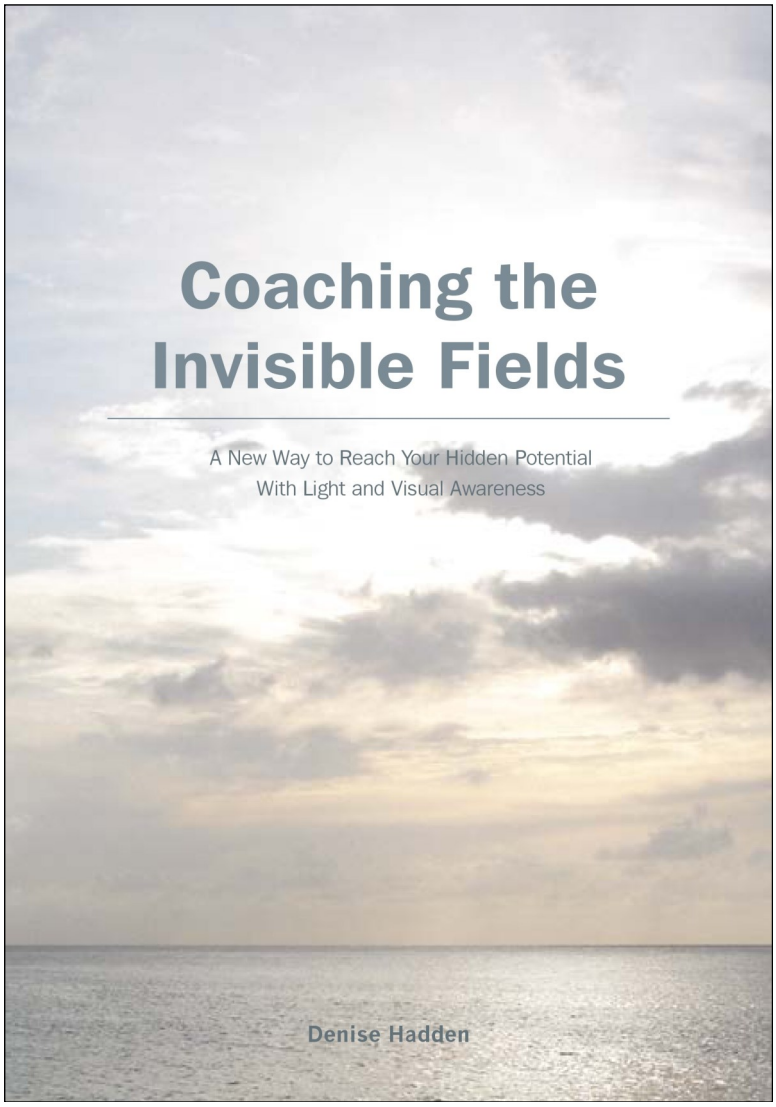
With over 40 years of practice as an optometrist, Dr. VanHoy established a vision therapy only clinic in 2008 in Indianapolis, Indiana.

Dr. VanHoy has been serving as the President of College of Syntonic Optometry since 2012.

Book Review

Coaching the Invisible Fields

by Denise Hadden
(Registered Optometrist B.Sc. Hons, FBOA, FSMC, FOA [SA], FCSO)



Coaching the Invisible Fields uses visual awareness and coaching methods to map out a conscious, guided journey to the realisation of your unique and greatest potential. It describes the informational fields that surround us and utilises a visionary method of field analysis, described in the author's first book, *New Light on Fields,* combining it with coaching processes that allow clinicians an expanded view of their clients and clients an awe-inspiring journey towards health and happiness.

Additionally, it explains the process of using light to rebalance our vision, our visioning and our visualisations. Combining light with coaching magnifies and exponentially increases our capacity to reach, retrace and restructure old patterns into a 'spontaneous fulfilment of our desire'.

This groundbreaking book looks at the extended event field of life, and incorporates consciousness, possibility and potential into a pathway towards an empowered and joyful life journey.

Denise Hadden is an optometrist, light therapist, visual coach and author of *New Light on Fields*. Formerly in private optometric practice for 36 years, she now presents workshops and seminars on her developing work on light and visual awareness. She was born in South Africa, raised in Scotland and currently lives in Cape Town

Email light@denisehadden.com for information on workshops or presentations.

LOTEMAX® GEL—UNIQUE FORMULATION DESIGNED TO CONTROL INFLAMMATION

MUCOADHESIVE TECHNOLOGY—
Engineered to adhere to the ocular surface[1-3]

DOSE UNIFORMITY—
No shaking required to resuspend drug[1,4,5]

LOW PRESERVATIVE AND TWO KNOWN MOISTURIZERS[1,2,4,6]

PROVEN EFFICACY AND ESTABLISHED SAFETY[1,2,7]

Indications and Usage

- LOTEMAX® GEL is a corticosteroid indicated for the treatment of post-operative inflammation and pain following ocular surgery

Important Risk Information about LOTEMAX® GEL

- LOTEMAX® GEL is contraindicated in most viral diseases of the cornea and conjunctiva including epithelial herpes simplex keratitis (dendritic keratitis), vaccinia, and varicella, and also in mycobacterial infection of the eye and fungal diseases of ocular structures
- Intraocular pressure (IOP) increase—Prolonged use of corticosteroids may result in glaucoma with damage to the optic nerve, defects in visual acuity and fields of vision. If this product is used for 10 days or longer, IOP should be monitored
- Cataracts—Use of corticosteroids may result in posterior subcapsular cataract formation
- Delayed healing—Use of steroids after cataract surgery may delay healing and increase the incidence of bleb formation and occurrence of perforations in those with diseases causing corneal and scleral thinning. The initial prescription and renewal of the medication order should be made by a physician only after examination of the patient with the aid of magnification
- Bacterial infections—Prolonged use of corticosteroids may suppress the host response and thus increase the hazard of secondary ocular infection. In acute purulent conditions, steroids may mask infection or enhance existing infections
- Viral infections—Use of corticosteroid medication in the treatment of patients with a history of herpes simplex requires great caution. Use of ocular steroids may prolong the course and exacerbate the severity of many viral infections of the eye (including herpes simplex)
- Fungal infections—Fungal infections of the cornea are particularly prone to develop coincidentally with long-term local steroid application. Fungus invasion must be considered in any persistent corneal ulceration where a steroid has been used or is in use
- Contact lens wear—Patients should not wear contact lenses when using LOTEMAX® GEL
- The most common ocular adverse drug reactions were anterior chamber inflammation (5%), eye pain (2%) and foreign body sensation (2%)

Please see brief summary of full prescribing information on adjacent page.

References: 1. LOTEMAX GEL Prescribing Information, September 2012. **2.** Fong R, Leitritz M, Siou-Mermet R, Erb T. Loteprednol etabonate gel 0.5% for postoperative pain and inflammation after cataract surgery: results of a multicenter trial. *Clin Ophthalmol.* 2012;6:1113-1124. **3.** Shaikh R, Singh TRR, Garland MJ, Woolfson AD, Donnelly RF. Mucoadhesive drug delivery systems. *J Pharm Bioallied Sci.* 2011;3(1):89-100. **4.** Data on file, Bausch & Lomb Incorporated. **5.** Coffey MJ, Davio SR. Viscoelastic and sedimentation characterization of loteprednol etabonate ophthalmic gel, 0.5%. Poster presented at: Association for Research in Vision and Ophthalmology (ARVO); May 6-10, 2012. Fort Lauderdale, FL. Poster #6283/D1143. **6.** Lotemax Prescribing Information, April 2006. **7.** Rajpal RK, Roel I, Siou-Mermet R, Erb T. Efficacy and safety of loteprednol etabonate 0.5% gel in the treatment of ocular inflammation and pain after cataract surgery. *J Cataract Refract Surg.* 2013;39:158-167.

®/™ are trademarks of Bausch & Lomb Incorporated or its affiliates. ©2013 Bausch & Lomb Incorporated. US/LGX/13/0049 [4/13]

BAUSCH+LOMB

LOTEMAX® GEL
loteprednol etabonate ophthalmic gel 0.5%
DISCOVER THE POWER OF GEL

Members In The News

Congratulations to Philip Bugaiski, O.D., FCOCD, FCSO of North Carolina, USA and Jesus Espinosa-Galaviz, O.D., FCOVD of Mexico as our 2013 Fellows in the College of Syntonic Optometrist.

Ray Gottlieb, Larry Wallace, Jesus Espinoza, Phil Bigaiski, and Mary Van Hoy.

All Ages Vision Care vs. Hall of Fame Basketball career at North Carolina State.

Dr. Genia Beasley was inducted into the North Carolina State Hall of Fame in 2012. During her playing days, she received all ACC and all American honors. She was instrumental in achieving no losses to arch rival University of North Carolina during her 4 year collegiate career. Her four year record includes 2,367 points, 1,245 rebounds, 60 double doubles, and 185 blocked shots which are school records that still stand. She also played internationally, had a collegiate coaching career of 6 years, and played professionally for the Nebraska wranglers before ending up as a behavioral optometrist.

Genia Beasley, O.D.

Dr. Beasley's patients may not know of her athletic achievements but they appreciate her "can do" spirit and the team approach she and her staff bring to their treatment. She may not require staff members to have a good cross-over dribble before they can gain employment but she does require good eye-hand coordination and an ability to help others attain their best. Her commitment to excellence extends to getting her staff up to date training and helping her patients set and achieve goals that become possible because of the vision therapy given.

There is no competition between Dr. Beasley's athletic career and her optometric practice. The common ground is her commitment to excellence. The College extends a belated congratulation to Dr. Beasley. Her contributions both on and off the court benefit us all.

H. Riley Spitler Award Presented to:

Geoff Shayler, BSc., FCOptom, FCSO

For Groundbreaking Research & Leadership in Advancing The Science and Clinical Application of Syntonic Phototherapy

Geoff Shayler with Mary Van Hoy.
St. Pete Beach, Florida May 4, 2013

Charlie Butts Award
For Distinguished Services
Gratefully
Presented to:

Richard O'Connor, O.D., FCSO

In recognition for your many years of deep attention and boundless energy in organizing and managing our International Conference on Light and Vision.

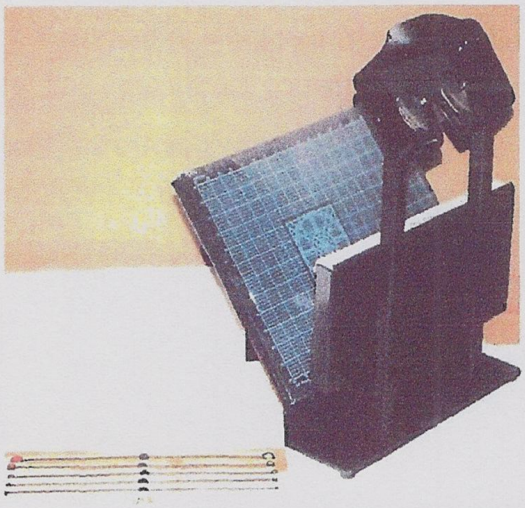
St. Pete Beach, Florida
May 4, 2013

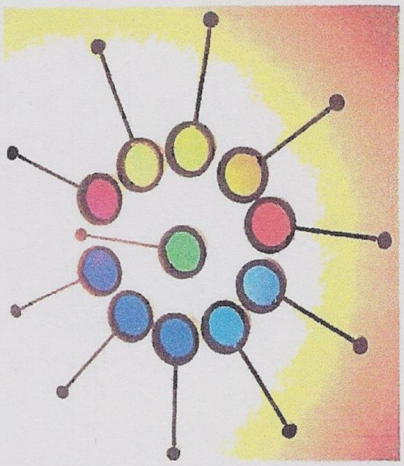
C&j Instruments **2620 Pawnee Ave. North Platte, NE 69101**

C&j Instruments has more than 20 years experience manufacturing syntonic equipment with a close working relationship to the College of Syntonic Optometry. Call or email for a free brochure and price list.

I Appreciate your business, Rex J. Cross, Owner

C&j Instruments





Phone 308 534-2537 * **Email: candjins@kdsi.net**

Historical Perspective

Pupillary Asthenia

By Dutton W. Browett
(from April 1934 *Syntonogram*), this article originated the concept of the alpha omega pupil.

Lack of pupillary control is a condition which we believe can be remediated syntonically, as a knowledge of ocular physiology and practice will prove. It is well, before approaching this subject from a practical aspect, to review a little on the physiology of pupillary reflex which is directly related to pupillary control.

Light, upon entering the human eye, causes constriction of the pupil. The constriction of the pupil is effected by the contraction of the circular or sphincter muscle of the iris. Its dilation is due to either inhibition of the sphincter muscle, or the contraction of the radial muscle fibers, or both of these combined. The sphincter muscle is innervated by the Third cranial, or Oculo-motor nerve; the Cervical Sympathetic supplies the radial muscle fibers. The Oculo-motor nerve receives its impulses from the mid-brain, i.e., the reflex arc is said to be located at the floor of the Aqueduct of Sylvius, or possibly in the Corpora Quadrigemina, as to which it matters little; and this pupillary centre sends out impulses because it received impulses from the afferent or sensory nerves. It will be recalled that such an action is known as a reflex action, and the constriction or dilation is said to be produced reflexly.

There are many ways in which the sphincter and radial muscles of the Iris may be reflexly thrown into activity and thus reflexly produce constriction or dilation of the pupil. The most common being photic stimulation to which we will be most concerned. When, after the eyes have been shut for some time, a bright light is thrown into them, pupil constriction promptly takes place. The reason for this is, when light enters the eye it stimulates the Optic nerve fibers in the retina, here a nerve impulse is generated which passes along the Optic nerve tract to the Anterior Corpora Quadrigemina of the mid-brain. Throughout the entire length of the mid-brain extends a narrow canal known as the Aqueduct of Sylvius. It is beneath the floor of the aqueduct that the Third nerve has its origin, and by neurons connect up with the nuclei of the afferent or sensory fibers. From the pupillary nerve fibers the impulse is transmitted by these connecting neurons to the Third cranial nerve fibers; the place of this transfer is called the pupil constriction centre or reflex arc, as mentioned above. By the way of Oculo-motor fibers the impulse reaches the Ciliar nerves, to the sphincter muscle of the Iris. We may here remark that the fibers which convey the impulses to the pupil constricting centre, take no part in vision, seeing they form no connection with the Cerebral Cortex. These fibers are concerned in an afferent capacity, only with the production of ocular reflexes, and are spoken of as pupillary fibers, as mentioned above.

Consensual constriction of the pupils of both eyes which can be seen when just one eye is stimulated is effected by the decussation of some pupillary fibers at the chiasma and within the mid-brain.

The amount of pupil constriction is not determined so much by the intensity of light as by the rapidity of its increase. In syntonic this would suggest flashing of incident light into the eyes, or possibly have the patient blink where there is need to develop the pupillary control.

Various colors of the spectrum affect the pupils differently. In syntonic, alpha, due to its intense luminosity and longer wave-length, is a strong sensory stimulus which overcomes weak reactions in the sphincter pupillae. Omega on the other end of the visible spectrum, due to its lack of luminosity and shorter wave-length is a motor depressant, this is, it slows motor action, manifesting itself in the relaxation of the circular muscles or sphincter pupillae. Omega tends to relax the blood vessels, consequently improving circulation. Alpha, combined with omega to bring about better pupillary control, is a logical remedy, as will later be proved by actual case reports. Alpha when combined with omega, after studying the above facts about each, must slow down the entire sympathetic syndrome so that it is balanced with the parasympathetic.

As to the possible causes of lack of pupillary control, we must first understand the reasons for dilation. Dilation of the pupil is not only due to the inhibition of the sphincter pupillae, but also to stimulation of the dilator muscles. A stimulation to the cells of the Cervical Sympathetic located in the lower cervical and upper thoracic regions of the spinal cord, starts an impulse along the preganglionic fibers; leaving by the first and second anterior thoracic

roots, they pass long the sympathetic chain to end in the Superior Cervical ganglion. Here the relay begins and reaches the eye by two routes. Some fibers proceed to the Ciliary ganglion but not to be relayed, rather they pass through to the eyes with the short ciliary nerves. Other fibers leaving the Superior Ciliary ganglion pass through – without relay – the Gasserian ganglion of the Fifth cranial nerve, and proceed to the eyes with the long ciliary nerves. These fibers innervate the radial muscle fibers of the iris, thereby causing pupil dilation.

Emotions such as fright, surprise, and anger are especially able to produce a dilation of the pupils. Mydriatics of which we may mention belladonna, cocain, wood alcohol and hyoscyamus, all cause dilation of the pupil. General blood toxicosis through stimulation of the cervical sympathetic centres cause dilation of the pupils. Tabes dorsalis or lack of bodily nerve control also produces dilation of the pupils. It is well known that Dyspnea – very labored breathing – as in the early stages of Asphyxia is associated with the dilation of the pupil. It is highly probable that the increase venosity of the blood especially its increase in carbon dioxide, stimulates the ciliospinal centre or cervical sympathetic, thus causing pupillary dilation. The increased amount of carbon dioxide in the blood may also explain the pupil dilation during severe muscular exercise.

We have especially observed during our experiments that when a patient has an exophoria for both distant and near vision with a low adduction and low positive reserve convergence respectively, regardless of whether the eyes are myopic or hyperopic, there is usually to be found a lack of pupillary control with more or less intolerance to bright light. We may be right or wrong in saying that our observations allude to the fact that lack of pupillary control occurs in exophores under the age of fifty approximately. Above fifty years of age, there is frequently smaller pupils, particularly in the hyperope which is due to a stiffening of the iris produced by an increasing amount of connective tissue. The fact remains that there is an increasing miosis of the pupils with advancing old age.

As several case reports will show, the prescribing of alpha omega, or alpha lambda, when a more intense sensory stimulus is required, will show improvement with one syntonic. We have especially noted that after giving the above syntonizations, there was recorded not only a better pupillary control, but also a reduction in the exophoria and an increase in adduction and in the positive reserve convergence. This result seems only logical after considering the fact that the convergence function is supplied by the same nerve as that to the sphincter muscle of the Iris, namely the Motor oculus.

In conclusion, I would believe that when considering the foregoing facts predisposing pupil dilation, there must naturally be emotional stability, and normal alkalinity of the blood, to maintain normal pupil control. Also, orthophoria and binocular control are essential in regular pupil function as foregoing experiments have proven.

Case No. 1

H.

Type P, age 25. Sex, female.

History of ocular irritation and lack of pupillary control. Diameter of pupils under moderate light was 4 mm. approximately. Under direct bright light pupils dilated to same size in two seconds.

Rx O.D. -4.00 + 2.25 axis 25 V.A. 20/20
O.S. -3.25 + 2.00 axis 1.65 V.A. 20/20

P.R. Exo 5 degrees. Ad/-3
P.P. Exo 15 degrees P.R.C./-4

Nascentized N/L Used alpha omega for one session. Result was that the size of pupil under direct bright light remained more constant, dilation being to 3 mm. within one minute. Improvement in phorias, adduction and positive reserve convergence also noted as follows:

P.R. Exo 2 Ad 12/2
P.R Exo 8 P.R. C. 16/12

Alpha-Omega Pupil

After hearing Dr. Browett's paper at Cleveland, Dr. Paul H. Johnson of Davenport, Iowa, a most ardent Syntonist, suggested that a specific name should be applied to the type of pupil discussed in the research report. Dr. Johnson suggested calling it an "alpha omega pupil".

A Tribute To Charles Butts, O.D., Dean Emeritus CSO, 1924-2014

Ray Gottlieb, O.D., Ph.D., Dean CSO and Sarah Cobb

Charles Butts the Man

Charlie was born in June of 1924 in Missouri where he lived most of his life. In WWII he became an army pilot, flying the "Hump," a 530-mile long passage over the Himalayan Mountains in the China-Burma-India Theater. This dangerous task took a heavy toll as nearly 1,000 men and 600 planes were lost over the hump by the end of operations in 1945. Soon after returning to Missouri he married Rosemary, and they began a 68-year marriage made in heaven. In 1950 they moved to Chicago and lived in a trailer while Charlie attended the Chicago College of Optometry.

Charles Butts.

Rosemary describes Charles' early years in syntonics: Dr. Cecil Henry, a classmate and friend at the Chicago School of Optometry, bought a practice in Kansas City from an optometrist who used "some sort of light" therapy that Dr. Henry continued to use with great success. Several years later Charlie heard about another optometrist, Dr. Herman Haganah, who also used light and practiced nearby. Charlie contacted him and soon was making weekly trips to learn more syntonics. In 1964 he heard about a syntonic convention near where they lived and Charlie and Rosemary went to the banquet. There were about ten O.D.'s attending, including a new member, Dr. Lowell Becraft. J. O. Jenkins was also there. The banquet entertainment was everyone getting up to tell jokes.

Charles was "on fire" after that, according to Rosemary and she joked that Spitler's *Syntonic Principle* was Charlie's 'mistress' because he came to bed with 'that book' every night. Dr. Spitler who was the founder of syntonics had passed away on 1961 but syntonics was still being taught on Spitler's model. Charlie decided that CSO would attract and retain more new members if the basic course was simpler and more optometric. So he developed a new Basic Course. He became director of education, then eventually CSO Dean, and began teaching it in his new way. (More about this later.) Syntonics became central to his approach and in the mid 1980's when he sold his practice and retired for health reasons he kept the records of more than 3,500 successful syntonics cases.

He practiced optometry for more than three decades in California, Missouri and was successful enough to become part owner of a bowling alley, a nursing home, and a milk delivery business. Always up for an adventure, he owned his own airplane that he flew for vacations and to attend conventions, and when he sold his airplane, he bought a motor home that he and Rosemary drove on vacations as far away as Alaska and southern Mexico.

For the last 20 years, Charlie and Rosemary lived in Missouri in the warm months and in Mission, Texas for the rest of the year. He was still very involved with syntonics and enjoyed being the go-to guy for new as well as experienced syntonists. Right up to the last, "Charles still got

Rosemary and Charles Butts.

calls – 'Picking my brains,' he said, 'Why don't they study the book?'"

Charles is survived by: Rosemary, 3 children, 13 grandchildren, 20 great grandchildren, hundreds of friends and colleagues, and his long time and beloved "mistress", *The Syntonic Principle*. A grand celebration of his life will be held in Missouri in June, 2014.

The Charles Butts Legacy

Charlie preserved our History

Dr. Gottlieb: Charlie was the last syntonist of his generation to pass away. He was there in the mid-1960's when CSO and syntonics faced a major crisis. Charlie made sure to leave us bits and pieces of writing about that difficult period. The rest of us, the "new old generation" didn't come along until 1975.

We will attempt to review some of the history of what happened next. In preparing this tribute article I discovered a 250-page Butts file hidden on a dark, dusty place on my hard drive – CharlieAdvCollection.pdf. It's part of his legacy along with great write-ups of how to do syntonic fields, pupil assessment, string test, etc. (that are in the "Blue Book"). He also included letters he wrote that explain his thinking in designing the basic course, and how he arrived at some of his strong opinions. In addition are a selection of writings by Spitler and other syntonists. This file is the basis of my descriptions below. He gathered these writings in a 248 page three ring binder that he gave to Sarah Cobb. Sarah's husband, Jim Patton, scanned the pages as a pdf file and gave me a copy. Some of what follows is quoted directly in Charlie's words to convey something of his personality.

Charlie wrote to Sarah:
Dr. Butts: "This book (CharlieAdvCollection.pdf) is only a very small amount of the material that I wanted to include. The articles written by Syntonic Optometrists back in the 1930's and 1940's show that it wasn't described in optometric terms. If so, it might have been more accepted at that time. The Syntonists in that period had to defend their position of semi-medical practice. If they had initially put it in optometric terms and procedures syntonics would have gone over. So much for the hindsight. We today are optometrists and aren't interested in practicing MEDICINE but only interested in helping people's visual problems regardless of what has caused the malfunction. Our problem is we have to study the medical model to understand Syntonics. Some of these articles here are very good reading. They show the power we have in Syntonics. Use it for Optometry."

Charlie becomes a syntonist

Dr. Butts: "It was very strange how I got into syntonics. I had a patient that I had sent to every Ophthalmologist to try to get help and we could not get her any help. Dr. Cecil Henry bought Dr. I. Plam's practice in Kansas City, Missouri. Plam was a syntonist and sold his equipment to Cecil who had a medical background and understood light. He was using Spitler's filters with a Carbon Arc for the light source. It worked well but you had to use carbon that contained certain minerals to get the proper af-

H. Riley Spitler, DOS, MD, PhD, MS, FSCO

~~ 1899-1961 ~~

Formerly Clinician McFadden Sanatorium, Battle Greek, Mich.; Physician-in-charge Crab Orchard Sanatorium, Crab Orchard, Ky.; Past President State Board of Optometry, Ohio; Past First Vice-President American Optometric Association; Accredited teacher of Mechanotherapy and physical therapies since 1925 by Ohio State Medical Board; Past Dean Department of Mechanotherapy Metropolitan College; Dean Central States College of Physiatrics; Fellow American Academy of Optometry; Founder and Dean College of Syntonic Optometry.

Spitler circa 1924. Note the right exotropia.

fect with the filters. Anyway I called Cecil and asked if he could do this patient and explained her problem. He said he would try. I said she couldn't pay. He said O.K., but she would have to stay at a hotel. I said she couldn't afford it. His answer: "Why in the HELL don't you take the course and help her?"

"WELL, that is the Start of my experience: Taking a women going blind starting with V.A. 20/300 in each eye and bringing it back to 20/40 in 15 treatments. I cried. I couldn't believe what took place in such a short time. I had brought one instrument at the basic but in three weeks I had to order another one and then another one. I had three working most of the time. When you get into this work your patients bring others and build your practice. Before I retired due to health (I was diagnosed with 4 aneurysms and thought I didn't have long to live) I was doing an average of 23 patients a day over a year's time."

The history of why we changed from the original syntonizer

Dr. Butts: "In the 1930's the FDA filed suit against Dinshah Ghadiali who faced a series of court actions as the government moved against his healing practices. Dinshah used light on the body over the organ that needed treatment. He had a large following and some of his people ran ads in the Chicago Tribune claiming that light would save their life. He was arrested for fraud in 1931 but was acquitted. In 1945 the government acted again. Ghadiali faced charges that he had made false claims about his spectro-chrome healing device. In 1947 he was convicted but not sent to prison on the condition that he cease practicing chromotherapy. His books and unsold devices were destroyed, and those that had been sold were confiscated from their owners. The day before he went to court, his building holding all of his records mysteriously burnt to the ground. This news ran rapidly through all light therapists and all went underground."

Dr. Butts: "Dr. Spitler unexpectedly died of food poisoning in 1961. Many of the original members were retiring and the FDA was still putting pressure to purge non-mainstream medical approaches. In the early-1960's the FDA sued CSO. It went to court in Omaha NE. J.O. Jenkins was CSO president at that time and attempted to defend the college. We lost the suit and the right to practice syntonics. As a consequence, many CSO members stopped doing syntonic treatments, afraid that their state optometry boards might take away their licenses. Some of the old guard who went on practicing syntonics [Thank Goodness] but not talking about what it would do. CSO membership dwindled." No one wanted to take responsibility for the college. In 1964 we knew of only five men practicing syntonics."

"After Dr. Spitler had passed away, the physical college building in Eaton, Ohio was sold and the money given to Spitler's widow. We had to remove the college belongings from the building. The books, materials, instruments, etc. were bundled up and sent by truck to J.O. in North Platte, NE. Unfortunately we shipped them across the state lines without proper labeling. It is a Federal law that all medical instruments have to be labeled when they are sent across state lines. Somehow the feds got wind of it and Federal agents stopped us at the Ohio border and confiscated and destroyed what they found. Fortunately some made it to J.O.'s."

(Dr. Gottlieb: Rex Cross told me he remembers when FBI agents arrived at J.O. Jenkins' house with a warrant to search it for syntonic materials. But J.O. was too crafty for them. Mindful of a possible raid, he had carefully and successfully hidden syntonizers and their manufacturing molds in his attic.)

Dr. Butts: "In the late 1960's syntonists wanted stop hiding and practice syntonics out in the open. Three of us met with the FDA federal director for the Midwest in Kansas City, MO: Dr. Herman Hagenah, Dr. Joe Shockey and myself (Charlie Butts). The director told us he had no opinion about whether syntonics worked. But if we wanted to practice legally, we would have to change the syntonizer because it was considered a medical device. If we removed the colored filters, it would not be considered a medical device and so could be legally shipped across state lines."

"We worked through several stages of redesigning the syntonizer and finally came up with the present model. We took the three disks that

held the filters out of the old instrument, mounted them individually in their own holders and packaged them separate from the syntonizer. J.O. paid out of his pocket for as many of the old instruments we could find and rebuilt them into the present instrument. When our supply ran out, J.O. started manufacturing new ones in the form that they are manufactured today." (Currently this instrument –"The College Instrument"– is manufactured, sold and distributed by Rex Cross. RG).

Charlie redesigns syntonic treatment and the Basic Course

Dr. Gottlieb: I remember being confused about how exactly to use various charts that were in our handouts when I took the Basic Course. These seemed disconnected from what Charlie taught us. As I read the papers in the CharlieAdvCollection.pdf file and learned what Spitler taught his basic, I understood how these charts were used. In 1967, after Charlie had been using syntonics in his office so successfully for several years, clear-headed and passionate about saving syntonics, Charlie took on the challenge to save CSO and syntonics. Passionate is the perfect word. Until the day he died he thought a lot about what more he could contribute to CSO.

Dr. Butts: "When I took the basic course we learned to treat symptoms. This was the medical model of syntonics that was taught by Spitler, who was trained as a medical doctor before he became an optometrist. Although Spitler taught about the OEP 21-points and visual fields he rarely referred to them after that. Optometric measures were not really part of the syntonic diagnosis or treatment. We took a history, recorded the symptoms and treated the patient with light until their symptoms went away. Some needed only a few treatments. If later the symptoms returned, the patient came back for more syntonics.

This is Charlie's description of Spitler's syntonic procedure:

1) Take optometric measures: acuities, binocular balances, refractive state, pathology, & visual field.
2) Record a detailed medical history and list of symptoms.
3) Refer patients for medical attention if a serious medical condition or one that would prevent successful syntonic treatment (e.g. dental infection) is indicated.
4) Compare the patient's symptoms with the sympathetic vs. parasympathetic and the affected glands chart showing over-activity symptoms.
5) Compare with the asthenic and piknic symptom chart of behaviors and conditions typical for each type.
6) Go to the syntonic balance board chart to select the filter based on the information we have so far.
7) Compare filter choice with the filter actions chart to see if it fits the needs.
8) Then give syntonic treatment with the selected filter until the symptom went away.

Dr. Butts: "I was appointed Educational Director in 1967. By then I was doing over 20 therapy patients a day and having fantastic success. I had memorized Spitler's book and went back into my physiology books and studied like mad. We had quite a few men still in the college but most were retired and others were laying low due to the FDA harassment. They all knew the value of Syntonic therapy and were very sharp and knowledgeable in the treatment phases, BUT they were retiring and new Optometrists were not coming in to take their place. "

"I tried to teach the syntonic model as it had been taught to me by the college course, but the information and procedures were difficult to implement because it was oriented toward a medical rather than an optometric model. This scared the incoming optometrists to death because the state boards were on guard about optometrists practicing medicine and they looked DOWN on anything they thought was quackery. Licenses could be taken away for such practices. I could see that teaching syntonics as a medical procedure was not the way to go. I felt that something had to be done to save this wonderful therapy."

"I was an OEP-trained Optometrist and was using the testing and training methods as they were taught then. If we wanted to continue this therapy it had to be taught in Optometric terms --- AS an OPTOMETRIC technique."

"All of the Basic I stole from other people. I'M THE FIRST TO SAY THIS. I had learned a lot from Dr. Henry and Dr. Haganah and had studied the books by the other light practitioners. I just tried to put it together for OPTOMETRY. So this is why I say study SPITLER he is the grandfather of it all." (Dr. Gottlieb: If you read Dinshah, Loeb and Henning you will see that he got some of his ideas and terminology from them, – e.g. the terminology of mu/upsilon as the 'Acute' and mu/delta the 'Chronic' filter is taken directly from Dinshah and

not Spitler.)

"In my new Basic Course I taught what worked for me in my practice. In great detail I drilled the students on how to measure and record functional visual fields, diagnostic procedures using the string, the 21-points, alpha-omega pupil testing, medical history and visual complaints and symptoms. If you do these it can never be said you are not practicing Optometry. They provide an optometric measure of where you started pre-treatment and what you have accomplished during and post-treatment."

Charlie put together a basic cookbook of treatment protocols – These included:

1) The five syntonic syndromes and the filter combinations used to treat them.
2) What each filter combination does,
3) How to determine and write syntonic prescriptions,
4) How to set patients up in the syntonizer with the main filter closest to the patient and the augmenting filter closest to the light source,
5) How to begin treatments by nascentizing for three minutes,
6) That treatments using one, two or sometimes three filter combinations, are given for a total of 20 minutes.
7) Flash the light to increase the power of the treatment.
8) That treatment sessions must occur daily for at least three days in a row each week with a rest period of a few days between,
9) The number of treatments in a complete series of sessions is 18,
10) Check progress after 6-8 treatments to evaluate if the filters are correct,
11) How to, when and which filters to change to if necessary,
12) When to take post-treatment measures and
13) How to know whether and when to start a second series of treatments, if needed.

"I also taught about where to purchase the equipment and about how to care for the syntonizer – the vibration type of 50W light bulb, the voltage transformer, number of hours before light bulb needs to be replaced by a new bulb (the bulb darkens after about 20 hours and needs to be replaced, and how to clean the instrument and filters. (These maintenance procedures are often overlooked but, ignore them and your rate of success goes down.)"

"The treatment goal was to correct the underlying causes of poor fusion, tropia, accommodation, versions, amblyopia, asthenopia, all the optometric symptoms that I could think up. I designed a new patient receipt form to give to the patient after the visual/syntonic evaluation that included a list of "optometric" visual symptoms with the appropriate ones checked off for that specific patient, as well as the cost, and lens Rx."

"I tried to: "Keep it Simple Stupid". That was my saying to myself from then on. Using this simple approach, one can be a very successful optometric syntonist and never learn the medical model. The "Miracle Workers" of optometry correct 80% of all visual complaints. Can't, beat that. Optometry bought it. You can see how far we've come since that time."

"How did I arrive at 20 minutes and 20 treatments and the sequences of not less than 3 per week? I discovered by using this sequence I could correct 80% of complaints and not have them to reoccur. This was an excellent percentage. Less than three treatments per week was a waste of time as we could not get the results we expected. We found 10% had to require more than one sequence of treatments. Usually trauma involved. The visual fields told this to us." [Read the article in your blue book.}

"Dr. Henry found taking two or three days off between treatments helped the body to retain and maintain the therapeutic changes at the highest level of success. I was verifying this also in my practice. Then after the final therapy session it takes the body about 7 days to come into its own balance. Waiting seven days to take the field after the last therapy gives us a more accurate measure of lasting success.

Charlie brings functional visual fields into syntonic treatment protocol

WHY I INCORPORATED VISUAL FIELDS INTO SYNTONIC OPTOMETRY

From a paper by Charlie Butts written around 1966

"Dr. Cecil Henry of Kansas City, MO exposed me to Visual fields and their value. I have been practicing the wonderful world of Syntonic optometry for almost eight-

een months. This paper is based on what I learned and I hope it will especially help new to syntonics or those who've been doing it for just a short while."

"A visual field study is one of your most important tests that can be run in Syntonics. It shows the patient his condition that he himself can see. He told you where to put the white dot, green dot, red dot, and blue dot. He told you where the areas of his loss are. What could be more dramatic to him in actually seeing a part of his eye not working correctly?"

"After Syntonics is completed I always wait a week before running his final exam and field study. As you men that run field studies know, this is a long awaited, anxious time for the patient who is worried, wants to know and is usually astounded at the results. All of the dim areas of the field have cleared. He can see his improvement."

"If this patient had been given syntonics without a visual field study and the initial acuity measured a 20/25-20/40 loss in V.A., he would say you didn't help me at all and this syntonics is a lot of nonsense. All you can do is to stutter and say we did have this and this improvement, but you can't prove it to him. Fields prove this to him and you have a permanent record of the retinal area for the future and he is yours forever!"

"How my practice has changed in the last year. In 1965 I ran over 250 fields on syntonic patients. Not only did the patients benefit from this but so did I. I did not run visual fields on all of my patients in 1965 but I'm trying to do better in 1966. In my opinion, the taking of visual fields when practicing Syntonics is absolutely necessary. This gives the beginning syntonist confidence. He can see what he is doing – the patient sees this also. Lately most of my patients have already heard about syntonics from satisfied patients. In fact, every once in a while, I have one come in and says "Doc, I need some of those 'treatments' (this is always the word they use) that you gave so and so. We check them carefully and completely and usually they do!"

Charlie's Legacy of Concern

Dr. Gottlieb: Charlie was known as the "Master Syntonist" and the "Father of Modern Syntonic Optometry". You can see why. Based on his extensive reading and clinical success in his syntonic practice, he had great confidence in syntonics and his approach. He had strong feelings about how things should be done and wasn't afraid to express them. He wanted syntonics to thrive and was concerned about several items that he felt would hurt syntonics. The following paragraphs were written by Sarah Cobb to make sure that Charlie's concerns would not be forgotten.

Fundamental Principles - – By Sarah Cobb

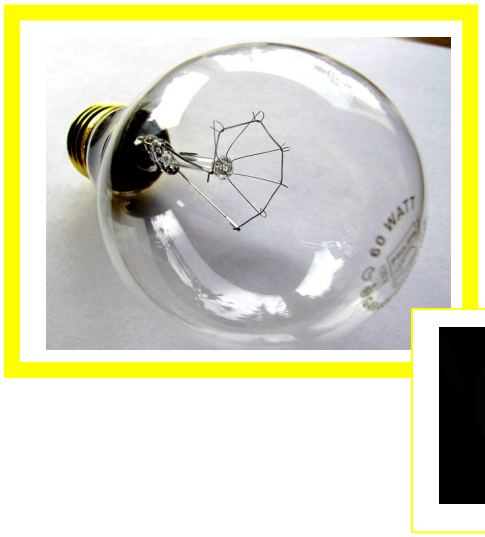
In all the years I've known Dr. Charles Butts and asked him questions, there were certain principles he believed in. Charlie carried on the tradition that came before him, following the protocol set forth from the beginning by the likes of Spitler (*The Syntonic Principle,1941*), Loeb (*Handbook of Specific Light Therapy, 1929),* De Jarnette (*Chromotherapy,1941)*, and later optometrist J.O. Jenkins and others. Charlie studied Spitler throughout his lifetime and regularly treated himself with Alpha Omega/ Mu Delta.

In an interview April 2006, he was asked how important the office setting was in providing phototherapy.

"In my opinion the office is the only was to practice syntonics. In fact I can count on one hand where I tried home therapy (they were family, where I could monitor them every day). The reason? You have an idea how the patient is responding... I saw my patients every day, especially children. I asked them questions and touched them to let them know I was there. It is also very important to have a therapist in the room to monitor all patients. I always set appointments so I had between two and three patients at a time." Of the 3,500 patients that went through his office in Missouri, he required that they come in 3-5 times a week for syntonization in his office.

Charlie often commented that optometrists didn't know how important the light source was that often he would find a syntonizer with the wrong bulb in it. He insisted that it be an incandescent 50 watt, 120 volt bulb supplied by 142 volts from an autotransformer. It was also important that the bulb be a vibration bulb. This set up seems to deliver a higher quality spectrum of light to the patient. He also emphasized use of glass filters because there was a documented history of positive outcomes using established protocols and these instruments.

Charlie said that if you wanted to jump-start a case, the patient could take two 20-minute sessions a day, at least 4 hours apart for the first three days. After that he said that 2 sessions a day wouldn't help. Often, at this point, he would map another field. During syntonization he



On the left is the vibration bulb. Note the spread of filaments in an arc, giving maximum filament exposure to the eye. The bulb on the right represents a style of incandescent. When this bulb is in the instrument, only the end point of the filament is presented to the eye.

asked patients to move their eyes around slowly to expose more of the retina.

Charlie often said that syntonics was so powerful in changing and balancing the whole physiological system, not just the eyes, that if optometrists understood this they would study the actions of the filters more, master the fundamentals and be more mindful of the light sources used in instrumentation.

In an interview for the journal dated March, 2009 Charlie was asked how the College of Optometry changed him. ***"First it changed my life, my being, my practice, and my approach as an optometrist. I'm proud to say Larry and Ray have led us well and the new ones are carrying this forward… God bless the torch carriers."***

Charlie's Legacy of Love, Generosity and Commitment

Dr. Gottlieb: The lessons learned from Dr. Charles Butts' fundamental approach to syntonic optometry provide us with lasting illumination and inspiration. He was proud, pleased, grateful and very relieved when he passed the rains to the new leadership in the mid 1980's. Sarah Cobb was perhaps closest to Charlie and Rosemary during the last decades. As our journal editor and beyond, Sarah interviewed, edited and published a Charlie column for more than a decade. They often spoke by phone and she visited him just a few months ago. It was Sarah that Rosemary called to inform us of Charlie's passing.

Sarah Cobb and Charles Butts.

My Last Visit – By Sarah Cobb

My last visit with Charlie and Rosemary Butts was just a few months ago when we took this picture. My husband and I had become friends with them both over two decades ago in Texas, when Charlie came to our house and offered light to my beloved father who had suffered a stroke as well as macular degeneration. On this recent trip we had quite a nice time catching up before Charlie called me out to his office, a lakeside cottage that was on the waters edge.

He asked me if I would map his field. He preferred me to use a small probe and move it slowly. His field was amazing. The color fields were full without interlacing, and his blind spots were normal in size. He asked me to move the probe slowly around the outside of the blind spot to look for areas of com-

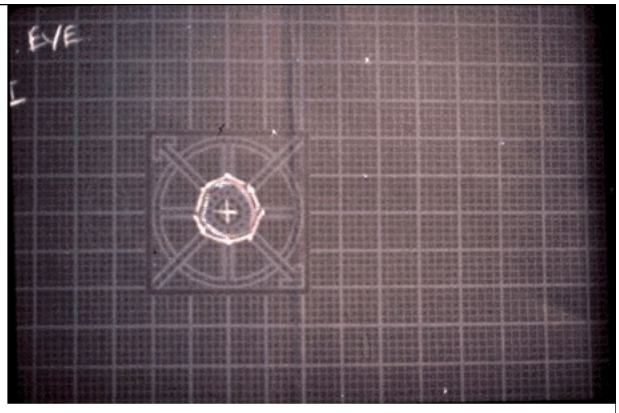
promise. There were none. He remarked that his fields were "Not bad for a man soon to be ninety."

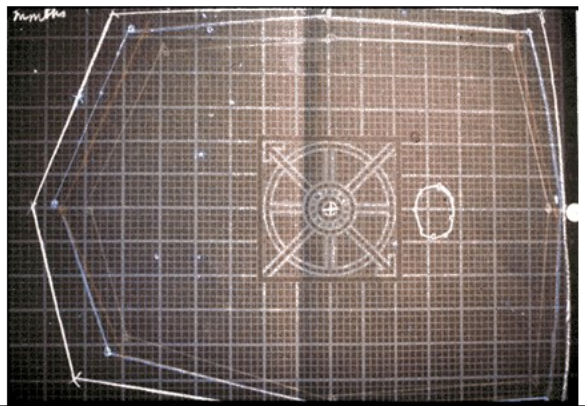
After that I asked him about ionization, a concept I've had trouble understanding. He asked me if I had read page 145 in Spitler. I had read that passage before. Charlie pulled out his book, a hardback that has been tabbed with bookmarks and rebound in cloth several times. He opened it to page 145 and asked me to read the passage to him and we discussed it. Spitler wrote that higher frequencies of light were more capable of ionization of the photochemical substances in the retina than the lower frequencies. Charlie drew my attention to a diagram of a cross section of a cone on page 159. Finally the subject changed to the frequency combinations, Alpha Omega/ Mu Delta and the glory of taking Alpha Upsilon.

Charlie has been a light in my heart, but also light to guide my path. Not only did he save syntonics for future generations through his teaching and leadership, but he saved my father's sight, reading, and enjoyment. He will be forever missed.

Charlie's Clinical Records Legacy

Dr. Gottlieb: Charlie routinely took functional visual fields and before and after photographs and saved these along with the records of many of his more than 3000 syntonics patients when he sold his practice in 1984. He created a narrated slide show with the help of Sarah's husband, Jim Patton. Below are sample slides from Butts' slide show showing before and after photos of a young esotrope with before and after visual fields.





Tributes

Dr. Gottlieb: We are very pleased that we were able to present Charlie with CSO's *Lifetime Achievement Award* at the 75th CSO anniversary convention in 2007. And we are very happy that he was around to know of our newest award, the *Charles Butts Award* given in recognition for outstanding service to CSO. It was presented for the first time last year to Dr. Dick O'Connor. Rosemary told me that Charlie was very proud and moved by these tributes.

Many of our colleagues have sent in wonderful stories and statements of respect, appreciation and gratitude for our beloved friend. I would like to have the space to include these here but unfortunately, there isn't space here. These along with the audio and the transcript from Dr. Ed Kondrot's "Healthy Vision" 1-hour call-in radio show on March 23, 2014, dedicated to Charlie will be uploaded sometime soon to our website — www.collegeofsyntonicoptometry.com.

When J.O. Jenkins died at age 101 years old, Charlie wrote a loving tribute to honor and remember his beloved teacher and friend. Some of the history in this article I read in that tribute. Charlie said some wonderful things about J.O. that apply as much to Charlie as to J.O. I have taken the liberty of making a few edits and changing the name from J.O. to Charlie.

SYNTONICS — IT IS THE MIRACLE OF OPTOMETRY.

Syntonics was Charlie's greatest LOVE in optometry. There are not many men or women who would spend their 60's, 70's, and 80's doing this for the fun of it. He had to love and know the feeling of helping mankind and Optome-

try to have such an effective therapy as we have today.

There is much more that should be said, BUT SO you see, we owe a great debt to this 89 years young person who donated his life to this wonderful field. For those of us that love Syntonics it's easy to see why Charlie felt as he did.

I hope that now you have a brief history of his important involvement in what and why we are so privileged to practice this therapy of light, you all join me in holding Dr. Charles Butts in your memories and in your hearts for his dedication to and love of Syntonics.

Perhaps without Charlie the practice of Syntonics would not have even survived at all. Yet, here we are bringing a viable alternative for optometrists to be able to bring light and a renewed perception of life into so many lives and on so many levels today.

He strongly believed that "WE [the college] is the wave of the future in therapy for visual problems. We can correct many that are not treatable by any other method."

Charlie included this cartoon at the end of the CharlieAdvCollection.pdf file. We thought it would be a fitting end to this article because in our hearts, "The Master Syntonist" does live on in our hearts and in our syntonic achievements.

"SYNTONICALLY YOURS, LOVE CHARLIE"

LIFETIME ACHIEVEMENT AWARD

Presented to

Charlie Butts, O.D., Ph.D., FCSO

"The Father of Modern Syntonics"

By the College of Syntonic Optometry
On the Occasion of Our 75th Anniversary Convention

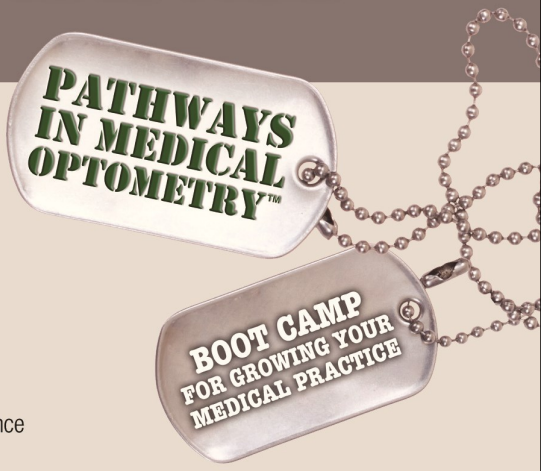
For Over 40 Years You Have Taught and Inspired Generations of Syntonists. You, More Than Anyone, Have Kept Syntonics Alive and Vibrant.

WE ARE DEEPLY GRATEFUL

May 5, 2007

A memorial for Charles Butts, O.D. will take place on June 21, 2014 in Laurie, MO.

THE TRAINING YOU NEED TO GROW YOUR MEDICAL PRACTICE



Attention All Optometrists

Attend a boot camp to receive a step-by-step implementation plan that will take your practice to the next level by:

- Taking charge of your schedule
- Determining vision plan vs medical plan
- Gaining access to insurance panels
- Improving billing and medical records
- Understanding *ICD-10* codes
- Maximizing practice productivity and performance

Expert faculty:

Scot Morris, OD, FAAO
John Rumpakis, OD, MBA
Allergan Eye Care Business Advisors

Register today at **AllerganODPathways.com**

Upcoming PATHWAYS IN MEDICAL OPTOMETRY™ Course Schedule

City	Level 1	Level 2
Charlotte, NC	Sat, 2/1/14	Sat, 4/12/14
Atlanta, GA	Tue, 3/11/14	Sat, 5/17/14
Columbus, OH	Sat, 4/19/14	Sat, 6/21/14
Pittsburgh, PA	Sat, 5/31/14	Sat, 8/2/14
Seattle, WA	Sat, 8/9/14	Sat, 10/18/14
Dallas, TX	Sat, 9/13/14	Sat, 11/8/14

Level 1 is a prerequisite to Level 2. Each boot camp consists of 1 full-day course.

Cost per course:

First OD registration per practice
$399 per course*

All additional practice registrations
$199 per course*

**Costs required per PhRMA guidelines.*

ALLERGAN

©2013 Allergan, Inc., Irvine, CA 92612 ™mark owned by Allergan, Inc. APC72TS13 133646

College of Syntonic Optometry

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

College of Syntonic Optometry
82nd International Conference on Light & Vision

April 30—May 3, 2014

St. Pete Beach, Florida

Dolphin Beach Resort
4900 Gulf Blvd.
St. Pete Beach, Florida

Contact:
Ron Wahlmeier, Administrative Director
719-547-8177 Email: syntonics@q.com

83rd International Conference on Light & Vision

October 28-31, 2015

La Fonda on the Plaza

Santa Fe, New Mexico

International Light Association
11th Annual Conference

17-22 September 2014 ***"Light Cycles and Life"***

and

22 September 2014 ***International Light Day***

http://www.international-light-association.org

Haifa, In Israel