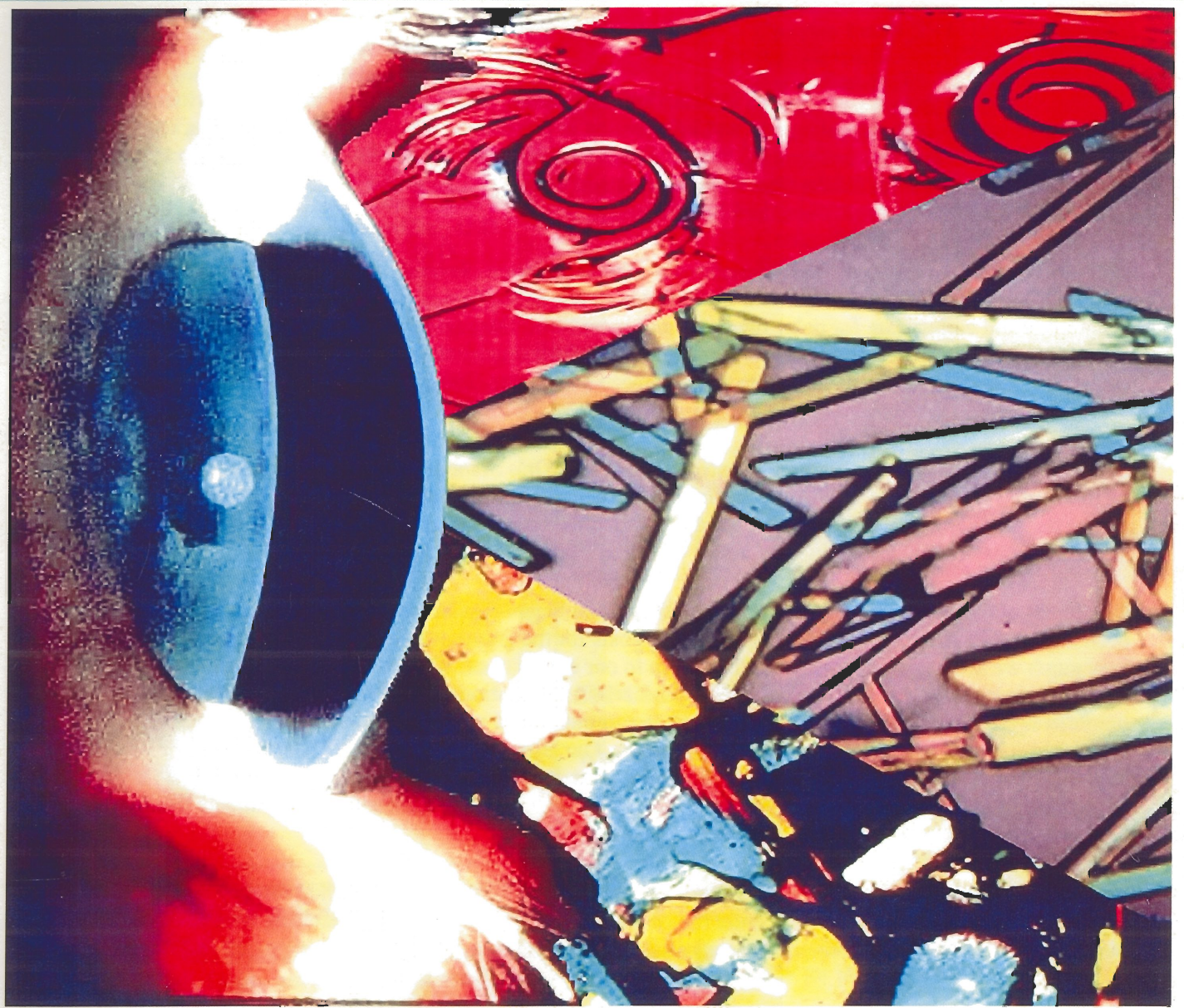


Journal of Optometric Phototherapy



Artificial Lighting and Health
Syntonics and Orthokeratology
Changes in Fields in Athletes After Syntonics
Awakening Resources with Color Light

April 2006



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

Dear Colleagues,

The key words this year are energy and information. The cutting edge of quantum physics describes the universe primarily composed of energy and information in physical or virtual space. These terms are a metaphor for CSO and our conferences. We get wonderful information and tremendous energy from each other. I hear it from people all the time from those attend what a special group we are. I hope you all will be in Tampa this year to share this wonderful opportunity.

Another very special group is The International Light Association. Several of us attended their annual conference in Brussels last October and were treated to one of the best conferences I been to. The depth knowledge and enthusiasm for color therapies was incredible. They are advancing the science and art of light sciences in quantum leaps. Syntonics is a crucial part of their organization and educational program. I encourage you all to join and learn from our European colleagues. This years CSO conference will again draw from their organization.

In our own country we were well represented at COVD by Dr's Stern and Fox who are cementing our relations with their organization. Rob Fox is also lecturing at Eastern States this year on neuro- rehab and of course the role Syntonics plays in brain injury. I also attended NORA as a special guest of their Board and was able to speak to their membership about CSO and hear some great presentations.

The Board of CSO under the organization of Cathy Stern began regular conference calls this year which have been a tremendous help in organizing and setting goals for the group. It has become more apparent than ever how much we need you, the membership, to help in our committees. We currently have committees for education, research, membership/fellowship, journal and publications, conferences, and liaisons to other optometric organizations. Any member can join a committee and with more volunteered help we can make great strides in growth and recognition for Syntonics. Our Board alone cannot do it with out you ! Please attend our annual business meeting or contact me to help. It is only by working together that we can continue to grow and become an integral part of optometry. After all, most of optometry and the patients would benefit if Syntonics were part of everyone's treatment options.

This has been a slow process and we certainly see more scientific validation for phototherapy each day. This is now accelerating as we more fully enter the century of the photon. It is a very exciting time to be in this work and I encourage you all to participate in any and all ways you can. I hope to see you all in Tampa.

My warmest regards to you all,

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

LETTERS

The opinions expressed in this section are those of the writers, and do not necessarily reflect the view of the *Journal of Optometric Phototherapy*. We reserve the right to edit letters as needed. Address email to: Sarah Cobb, eyeamsarah@hotmail.com

Dear Editor,

My ophthalmologist wasn't so sure about me taking syntonics to treat my Uveitis. After 3 months of taking steroids, it moved to the back of my eye. But when I returned to his office after 8 days of light treatment, he said that a tremendous healing had occurred. He was shocked. I mean, jaw dropped open, just staring at me shaking his head in shock. He actually said that he thought it was a miracle and thought syntonics might be proving medical science wrong because all they are taught about conditions like mine are that the healing is to be treated systemically and that he is dumfounded by the fact that the healing is occurring by a non-systemic means of treatment.

Now, my eye is still not 100%, I do still have some floaters, but he says the back chamber of my eye which was super cloudy when I left and filled with liquid, was almost crystal clear. He has taken me off steroids...yea!

In any case, he wants information. Tons of information. Websites, research, blah-blah-blah. Needless to say, we have made a believer out of him.

Thanks for everything!

Lex

Editors note:

Treatment involved 5 minutes epsilon omega D/ 15 minutes mu epsilon. Two treatments were given with the syntonizer the first three days and one treatment each day during the five days that followed. Two ocular colorpuncture treatments were offered in addition on the last two days of treatment.

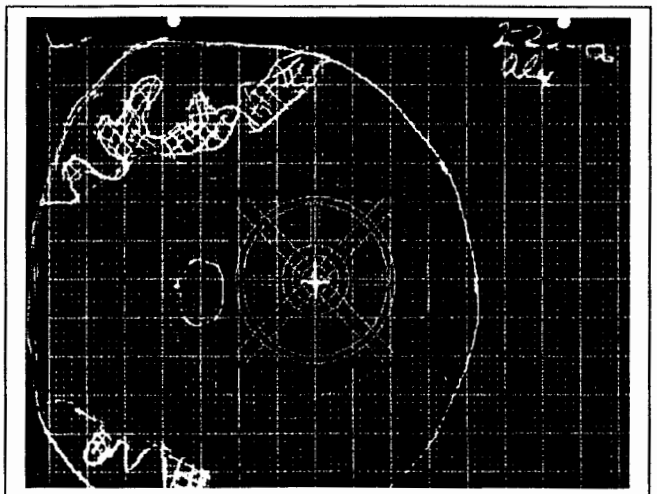
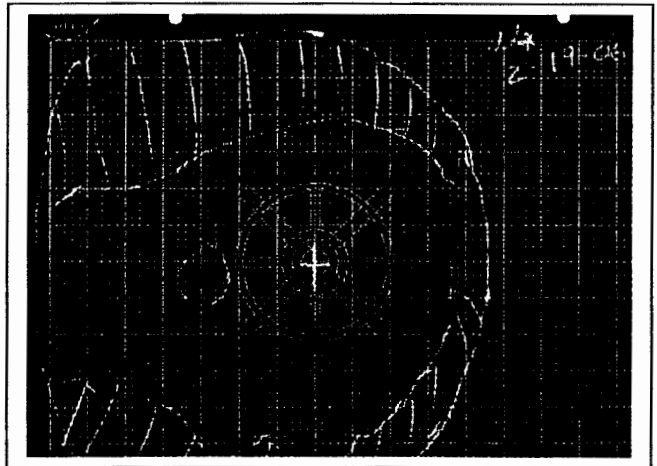
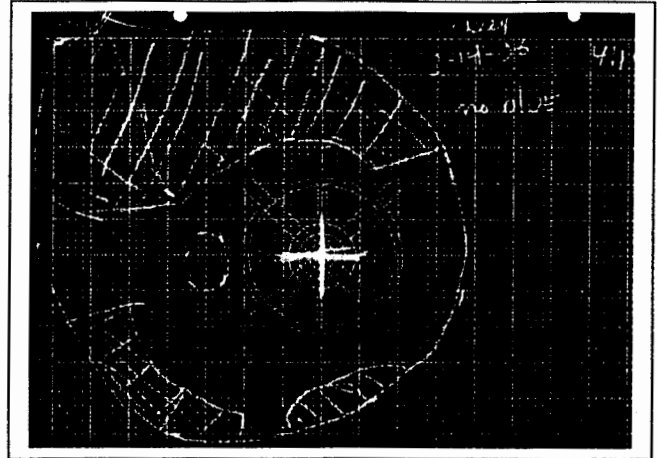


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Artificial Lighting and Health

Alexander Wunsch uses spectro-chrome in combination with electromagnetic fields, body sound application and cranio-sacral bodywork in his private medical practice in Heidelberg, Germany. He does research in the field of light effects on cellular levels and developed a number of devices for vibrational medicine, chromotherapy and electromagnetic environment testing.

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William Henning on Ductions and Phototherapy

Dr. Ray Gottlieb is the Dean of the College of Syntonic Optometry and recipient of the H. Riley Spitler Award. His book, Attention and Memory Training, was recently published. He lectures internationally, writes, and creates eye exercises for improving visual function. His practice is in Rochester, New York.

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Changes effected in Optometric Measurements and Functional Visual Fields in Athletes by Exposure to Syntonic Stimulation

Peter Heinrich qualified in Johannesburg, South Africa in 1971. He has been in private practice in Pretoria for some 33 years. He specializes in syntonic phototherapy with special interests in sports vision, natural vision rehabilitation, energy medicine and iridology. He is married to Margie, they have three daughters, a son, and three grandchildren with another on the way.

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Skeffington Circles and Functional Visual Fields

Optometrist Geoff Shayler was the first optometrist in England to include syntonics in his practice and obtained Fellowship in CSO in 2001. He lectures on behavioral optometry, functional fields, and syntonics, having published many articles on these topics in Europe as well as the U.S.

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Color Fields, Intoxication and Reading Disability

Sarah Cobb is Editor of the *Journal of Optometric Phototherapy*. She teaches, writes, and incorporates ocular colorpuncture with other light therapies in Port Townsend, Washington. Her eye charts are in use worldwide.

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Awakening Resources With Color Light

Nishant Mathews is a color therapist, counselor and body worker with an extensive background in conventional therapy practices and Buddhist psychology of awakening. Presently residing in Amsterdam, he offers training and consulting in Samassati Colortherapy. He is the author of several books including Light, the Master Matrix and The End of the Night.

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Analysis of Colour Fields

Denise Hadden began practicing behavioural optometry in the early 1990's and discovered syntonics in 1997. After she completed a 3 year course in traditional Chinese medicine and acupuncture, she has found the knowledge invaluable in her search for the meaning of vision. She practices in Cape Town, South Africa.

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Guide to Structure, Functional, Behavioral, Therapeutic Modalities – Conventional Vision Therapy, Syntonic Phototherapy and Orthokeratology for Myopic Patients

Dr. Larry Wallace is the President of the College of Syntonic Optometry. He is an inventor, writer, and speaker who holds patents on bioelectric devices for treating degenerative eye disease. Recipient of the H. Riley Spitler Award, he lives and practices in Ithaca, New York.

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A Conversation with Charlie

Dr. Charlie Butts, Dean Emeritus of the College of Syntonic Optometry, has applied phototherapy to over 3,000 of his patients and has had an enormous influence in optometry. He created the basic course in syntonics and has mentored many of the accomplished syntonic practitioners. He still enjoys enlightening new optometrists.

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OPTOMATTERS – SYNTONICS – EQUIPMENT - 2006



COFMA (Colorfield Machine)

A new colorfield tester with 2 build-in camera's and 1 LCD screen for a better Test observation and a correct charting of fields.

Incl: 1 COFMA, 1 case teststicks, 50 charts for the left eye, and 50 charts for the right eye, one 12 volt adapter, CE & URL Norm.

Price: 2.580,00 Euro excl. shipping

For more details just contact us!



COC (Color Coach)

A new Syntonizer for office Training. This instrument has the following integrated filters: alpha, delta, theta, mu, pi, omega, upsilon, lambda, D, S, N.

The COC has also the possibility to go in a stroboscopic performance and speed adjustable with a potencymesurer.

The COC has also a removable binocular to improve binocular disorders.

Incl: 1 COFMA, one 12 volt adapter, CE & URL Norm.

Price: 2.995,00 Euro excl. shipping

For more details just contact us!



COB (Color Boy)

This instrument is a more simplified version of the Color Coach, adequate for hometraining. For some patients daily training with syntonics is advisable. The Color Boy, a handy portable kit is perfectly suitable for hometraining.

Incl: 1 COB, one 12 volt adapter, CE & URL Norm.

Price: 365,00 Euro excl. Shipping

Thanks to the carton goggles which you can order in different filter combinations, a perfect hometraining is possible with the Color Boy.

Price: 16,00 Euro (6 pack) excl shipping

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Just call and it's on his way!***

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ARTIFICIAL LIGHTING AND HEALTH

Alexander Wunsch

Introduction

New findings in photobiology show that we have to revise our understanding of the anatomical function of the human eye and brain. The human photo-endocrinology is much more complex than some scientific disciplines formerly expected and lighting technicians intend to acknowledge. Since R.G. Stevens suggested his melatonin hypothesis in 1987, an increasing number of scientists look for a correlation between the use of artificial light sources and carcinogenesis. But the use of artificial light not only can induce cancer development, there is also strong evidence for an involvement in the increase of cardiovascular disease in modern industrial societies. In this article we will put together the pieces, which play their role in this dangerous outcome.

Danger from Artificial Light

Light is essential for life on this planet. Evolution happened under very specific lighting conditions: the recurrent alternation of night and day burned the circadian rhythms into the genes of all forms of life, which is highly adapted to the photonic conditions of the environment. The specific composition of sunlight as well as the properties of the atmospheric layers play important roles for the life-aiding qualities of natural light. Under today's viewpoint we have to suspect that every aberration from these properties make artificial lighting potentially dangerous for health.

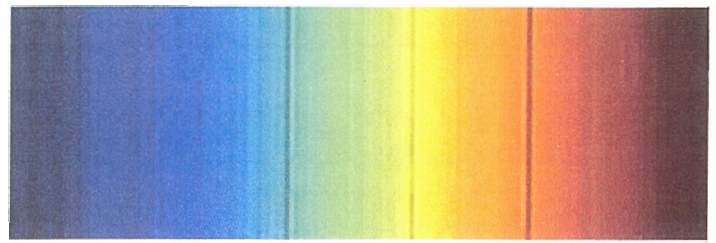
Sun Physics

What are the aberrations we are talking about and which sensory modules in our anatomical nature are responsible for detecting them? If we want to understand this, we first have to take a look upon the subtle photonic consistency of sunlight itself. Astronomers tell us that it took around one million years to produce the photons we are receiving and consuming right now. There are myriads of scattering occurrences and collision acts until a photon reaches the surface of the sun after it has been generated in the sun's central regions by the well known fusion process, where hydrogen atoms amalgamate to helium and photonic energy. This deadly energy transforms on its way from center to periphery from inconceivably high frequencies into the range of optical radiation: more than 40 percent of the solar energy given off lies in the visible spectrum. While the radiation coming from the photosphere is really full spectrum light, the outer layer of our central star, the chromosphere, removes all element-related emission lines from the whole spectrum. We understand what this means if we use a spectroscope, so we can see the Fraunhofer lines: after perambulating the chromosphere, sunlight shows an absorption spectrum, which can be characterized as *full spectrum minus elementary frequencies*.

Color Temperature

Light and color are the consequences of heat: if we increase the temperature of a metal filament, it will emit electromagnetic radiation. First we can feel the heat and then we can see the wire glowing in different colors: the red heat will turn into orange and yellow until we see white light. The distribution of the wavelengths radiating from a heated body is defined in physics as *black body radiation*. The solar radiation energy is distributed like we expect from a black body with a temperature of 5700 K, which equals the sun's surface heat, with one exception: a black body shows no Fraunhofer lines. For that reason it is already a

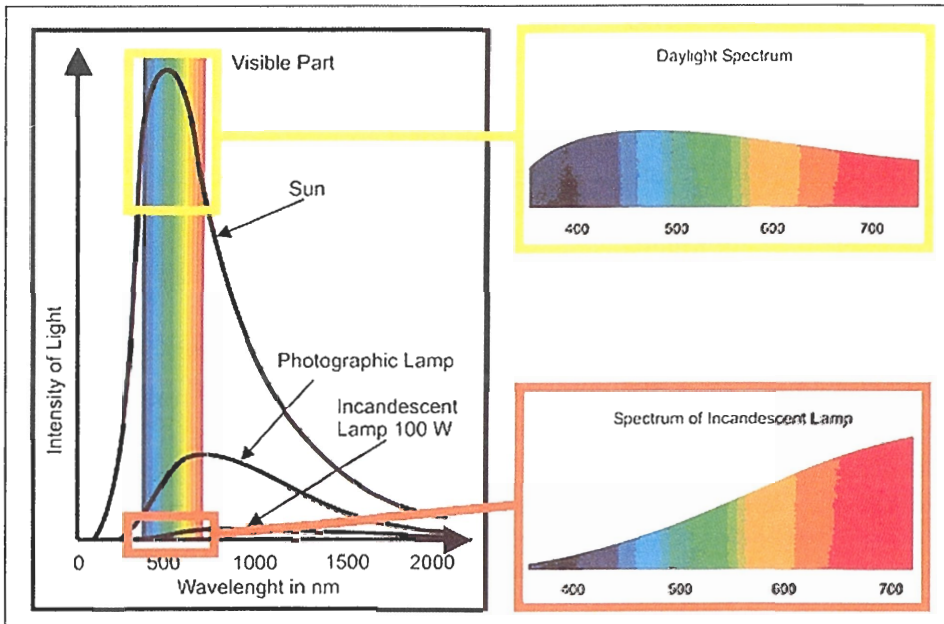
simplification if we say that sunlight has a color temperature of 5700 Kelvin, which ignores the inner spectral composition. (We will return to the term “color temperature” when we look at some photometric definitions and measurements of artificial light sources later in this article.)



This picture shows the solar spectrum with Fraunhofer lines

Why should we think about these Fraunhofer lines at all? How can they matter, if we are unable to see them with the naked eye? The eye is definitely not the only receptive organ for light. The

human skin is transparent for light, even short wavelengths like the UV radiation reaches the capillary layers and the blood inside these delicate vessels. All the pigments and molecules with chromophoric groups in our body absorb and emit photons. Each single atom has the attribute we could call *photonic metabolism*. Photons are the language in which all matter communicates; every jump (change of energy level) of an electron is accompanied by photonic activity.

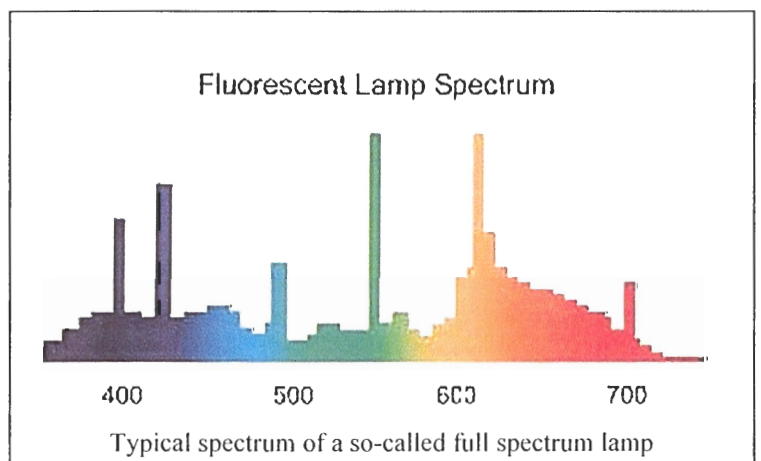


Let us now remember why

Einstein received the Nobel Prize – it was not for his Theory of Relativity. It was for explaining the photoelectric effect. This effect occurs if a metal electrode is treated with photons, which liberate electrons if their quantum energy is high enough. In simple words, photons can make ions thicker or thinner, depending on absorption or emission activity. In the age of quantum theory we would be well advised if we'd extend the findings at metal electrodes to effects which light can yield on biological membranes. Supposedly the Fraunhofer lines in the sunlight act like photonic suction gaps influencing the molecular membrane passage in the capillary system of the skin, the largest organ for light reception, and in the ground substance outside the cells. This could give a deeper explanation why well-performed heliotherapy always creates a harmonizing balance, regardless if the patient's condition is characterized by hypo- or hyper-activity. We want to keep these considerations in mind when we later take a look at the mercury vapour lamps, better known as fluorescent tubes or so called *full spectrum lights*.

Incandescent Light

Now let's talk about artificial light sources. There are many different types, so we will only pick out the important ones: incandescent, fluorescent and LED light. If we go chronologically, we have to



start with the incandescent bulbs. This electrical light source had been invented by the German watchmaker Heinrich Goebel in 1854, six years after he had migrated to the USA, but he was not able to bring it to the market. So it took another 25 years until Edison succeeded in this business, but he was working with direct current, which cannot be transported over long distances. Before the world could be electrically enlightened, another genius, Nikola Tesla, had to invent the alternating current technology. These two components, filament bulb and transportable electrical energy, were the keys to open doors to our modern world. In the first decades of electrical lighting no one had a problem with the only disadvantage of incandescent light: its high energy consumption. Only five percent of the power investment comes back as light, the rest is transformed into heat, what makes this light comparable to a kind of tamed bonfire, still near to nature. The incandescent lamp is the only electrical light source which deserves the label “full spectrum,” because it delivers all wavelengths without any gaps or energy peaks. When a filament bulb is operated with direct current, it produces a completely clean light, free from modulation frequencies and flicker – the best you can get.

Fluorescent Light

Let us now take a look at the mercury light sources, which entered the stage in the late thirties of the last century, when they lent a hand in demonstrating the advantages of modern technologies during the World Fair in New York. These fluorescent lamps contain mercury vapour that is charged up with electrical pumping energy. During the subsequent discharging process the mercury atoms emit photons in specific wavelengths, which are able to excite other mercury atoms they meet in their path. Only excited atoms are ready for chemical reactions, by the way. Fluorescent light shows mercury-specific energy peaks in its spectrum, a circumstance which John Ott regarded as a problem. We know today, that visible light enters the human system via the skin and reaches the fatty tissue without any problems; even the skull and brain are highly transparent for light. The fat is exactly the substance where we find the mercury that entered the body via food or dental amalgam fillings. Mercury is a toxic substance and hard to eliminate, so the body tries to deposit it in compartments with a low metabolic activity, so-called bradytrophic tissues. This is the reason why we find the mercury concentrated in the fat layers under the skin and in the neuronal myelin sheaths of the brain. Mercury light percolating through skin and bones counteracts the endeavors of the body to detoxicate this fatal substance. Only excited atoms are ready for chemical reactions. While sunlight with its Fraunhofer gaps induces a suction force for elementary wavelengths, the elementary spectral lines create a pressure, exactly the opposite. Sunlight has a calming effect on chemical elements; the mercury light induces excitation of this poison.

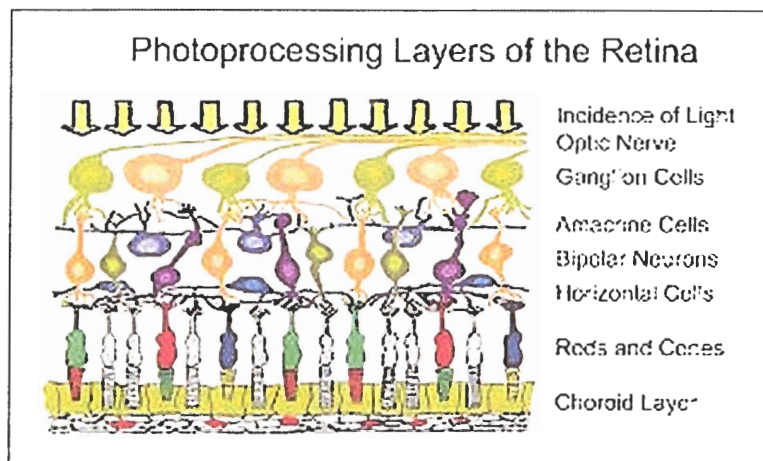
Light Emitting Diodes

LED light sources are luminescence radiators which are available in different colours. They are often called monochromatic light sources, but this is not really true. Depending on the wavelength or color they show a narrowband or broadband spectrum, but never emit a real monochromatic light like a laser does. The advantage of LED lies in the low energy consumption while the handicap often is found in the type of electronic circuitry used for driving them. The so-called *pulse width modulation* (PWM), used for controlling the intensity, especially utilized in color changing products, often operates on low frequencies (under 100 Hz). This leads to a flickering effect, which is only noticeable under certain conditions or by measurements. Flickering light can cause headache and discomfort and should be avoided in artificial lighting. We mention the LED technology here because it can be used in treating SAD; using blue LED lights is much more effective for controlling the biological clock than white light for its deeper impact on the melatonin inhibition.

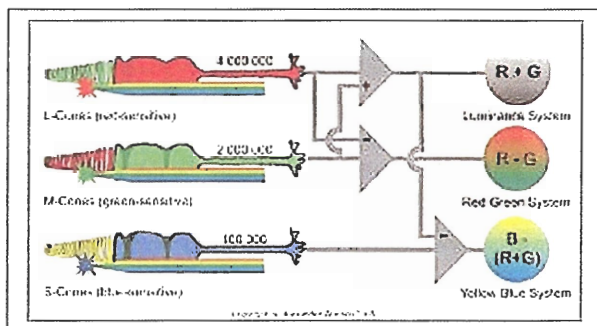
Energetic Pathways and Circadian Clock

When light shines on a human being, it has a number of different effects:

We use light for orientation in time and space, as a source of energy as well as for information purposes. Our system has to know if it is day or night, summer or winter, dangerous or safe outside and so on. Since man lost his hairy coat, the body had to change and improve the light processing mechanisms not only in the unsheltered skin, but also in the regions of the brain which are responsible for the hormonal and vegetative homeostasis. The region of interest is the hypothalamus with the appending pituitary gland which is accountable for endocrine control and coordination. In recent decades another endocrine organ, the pineal gland, also gained in



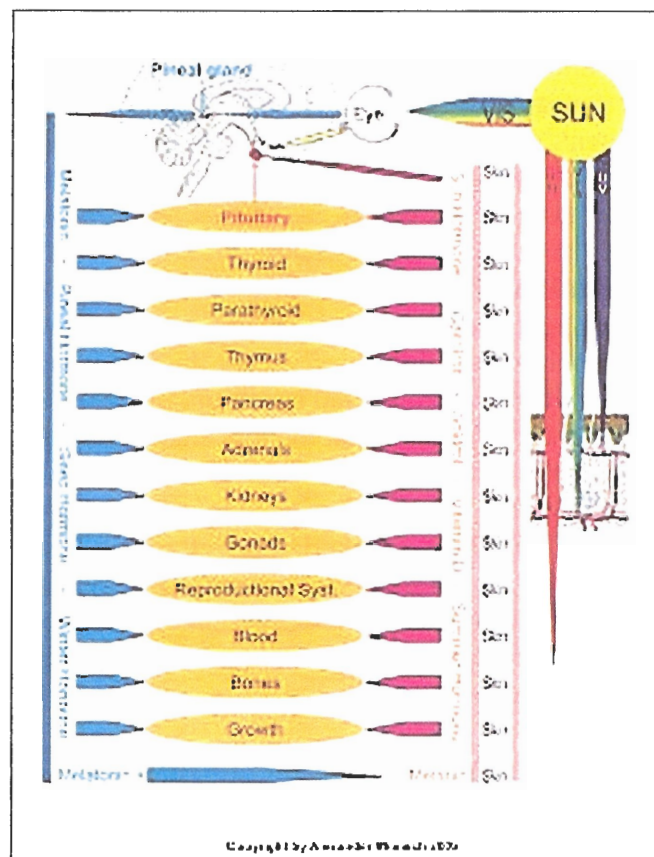
importance. In the past five years we are confronted with new scientific insights describing how the controlling mechanisms between light, circadian clock and pineal gland really work. A new melanopsin pigment-containing receptor system was found in the retinal ganglion cell layers that is sensitive to blue light and connects to the hypothalamus, pituitary and pineal gland. The human eye seems to harbor a sensor system for the measurement of the color temperature for incoming light. Why do we need this and what are the consequences for artificial lighting?



Blue Is Different

Blue light plays an extraordinary role in the eye. Regarding the process of vision the blue light hampers the formation of a sharp image on the retina, therefore nature applies some optical tricks to enable focused vision: on one hand the macula lutea or yellow spot, area of sharpest vision, carries the yellow pigment for filtering out excrement blue portions; on the other hand the receptors for blue are pretty infrequent compared to the green and red ones. An average eye bears about four million red receptors, two million green receptors and only one hundred thousand of the blue species.

While blue tinted light reduces sharp vision, it has the highest impact on the energetic portion of the optic nerve by telling the organism that it must be pretty sunny outside. But it is not really the blue our body clock is looking for: in nature bright blue light always comes together with ultraviolet radiation. The hypothalamus has to coordinate different hormone concentrations and adapt them to the environmental conditions. There is one very important hormone that is not excreted by a gland but produced directly in the skin under the influence of ultraviolet radiation with wavelengths between 290 and



320 nm: the so-called Vitamin D. As vitamins by definition are substances the body cannot produce self-governed, *Sun Hormone* or *Solitol* is a much better expression for this particular substance. Solitol is antagonistic to Melatonin and a number of other hormones, so it is essential for the system to foresee the dispersion of this sun hormone in the organism by extrapolating the amount of ultraviolet radiation outside. While the UV builds up Solitol in the capillary layers of the skin, other hormones like steroids are destroyed under the influence of this radiation. This light-driven endocrine cutback normally is compensated by the activation of the retinohypothalamic tract with consecutive distribution of releasing factors and new hormone production.

Energy Fools the Brain

The problem now occurs when we use artificial light sources with high color temperature that tell the energetic pathway through the eye that there is a high amount of UV outside. The organism starts producing new stress hormones and waiting for Solitol – but Solitol doesn’t come, while existing stress and sex hormones are not destroyed because there is no UV in the light and the skin is covered by clothes. The result is an increase of stress and sex hormones with typical consequences for health (under long term conditions): cardiovascular diseases and hormone-dependent cancers.

SUNLIGHT (5700 K)			
Location of Effect	ACTH	Steroids	Solitol
CNS	↑	↑	-
Skin	↓	↓	↑

ARTIFICIAL LIGHT (5700 K)			
Location of Effect	ACTH	Steroids	Solitol
CNS	↑	↑	-
Skin	-	-	-

Salutary Light

The positive thing is that we do not have to wait for tomorrow’s inventions: we can start right now in improving the artificial lighting conditions, if we respect the chronobiologic effectiveness of the different lamp types. Chronobiologically effective does not always mean healthy. Depending on the intended purpose it might often be more nonhazardous to use the chronobiologically neutral light sources. Avoiding mercury-based light sources and white LED lights (both show high color temperatures) may be a rough rule of thumb. Another sign for unnatural light is the difference between color temperature and true temperature. The following table gives better orientation:

ATTRIBUTES OF ARTIFICIAL LIGHT SOURCES			
LIGHT SOURCE	COL. TEMP. (K)	TRUE TEMP. (F)	CB EFFECT.
Red LED	1000	< 212	---
Orange LED	1500	< 212	--
Yellow LED	2000	< 212	-
Candle	1500	1500	-
Incandescent Lamp	2000 - 2600	2000 – 2600	0
Incand. Halogen Lamp	2600 - 3300	2600 – 3300	+
Fluorescent Lamp	2700 - 4000	< 212	++
Full Spectrum Lamp	4000 - 6000	< 212	+++
White LED	4500 - 10000	< 212	++++
Blue LED	>12000	< 212	+++++

Let there be healthy light!

William Henning on Ductions and Phototherapy

Ray Gottlieb, O.D., Ph.D., Dean CSO

Dr. Henning was a contemporary of H Riley Spitler. They were rivals. Like Spitler, Henning was a pioneer in ocular phototherapy. Both of them wrote books, taught courses, had a following and invented and sold phototherapy devices. Both were holistic, they looked at vision as part of systemic physiology. Henning called his approach Chrome-orthoptics. It combined therapeutic lenses and prisms, orthoptics and colored light therapy. Spitler and the College of Syntonic Optometry won the day. Henning's chrome-orthoptics faded away and we lost something, too. Fortunately his writing survives. (See below.) This article covers a tiny part of Henning's approach, an appetizer to make you crave more.

According to Henning: "The combination of color and orthoptic therapy sets in motion a train of psychophysical changes that result in a redistribution of energy. This harmonizes the ocular pattern but it does not stop there. These changes are transmitted to all parts of the body, and unless the condition has progressed beyond certain limits, the body will correct itself. The fact that various physical conditions are associated with definite ocular syndromes does not mean that the physical condition is being treated. The general improvements that often follow the reconditioning of a pair of eyes is attributed the elimination of obstacles that interfere with the compensatory and rebuilding powers of the body."

"We must, however, recognize the limits of the body to readjust itself. Therefore, determine as near as possible whether or not there are any physical disorders with which the body is unable to cope without the aid of a physician. The indications in the analytical routine usually give us sufficient data

for intelligent questioning and when we know the common symptoms associated with various physical disorders, we are in position to draw fairly accurate conclusions."

For some patients the cause and treatment will be clear, but other cases require more subtle or complex analysis. Symptoms can mask the underlying pathology or missing data make definitive diagnosis impossible. The important thing is to be aware that visual signs and symptoms are not necessarily primary and we must learn to think outside of the ball, so to speak, to find the best treatment.

DUCTION RECOVERIES



Dr. William Henning

Duction recoveries were very important in Henning's approach. He states that whenever all (in, out, near and far) ductions are low, the individual is chronically ill whether they know it or not. These patients could immediately be referred to their physician or given a few treatments of RED-INDIGO ($\alpha\omega$) and ductions re-tested. The assumed cause was emotional if recoveries increased but if not, retention of waste products was considered and the color changed to YELLOW-GREEN ($\mu\delta$). If the patient still shows no improvement, he would be referred.

Low base-out recoveries (near and far) suggest past or present pelvic problems: sex organ malfunction, genitourinary tract, thyroid gland. RED-INDIGO ($\alpha\omega$) was indicated for low base-out recovery. Henning also considered RED-INDIGO ($\alpha\omega$) the emotional stabilizer. The emotions being closely related to the reproductive organs, emotional upset (irritability, hypertension, rapid

heart, hyperthyroidism) often accompany pelvic disorders. Emotional disturbances may be due to financial worries, a disappointment in love, bereavement, mismating, nagging, poor self-image, brain trauma, etc.

This week I was reminded of how much my optometric thinking has been influenced by Henning. I was explaining to my 20 year-old patient, and her mom, the results of her initial vision exam. What stood out in her analytical were very low base-out recoveries (zero) and, according to Henning, this finding indicates sexual or pelvic problems possibly related to emotional disturbance. When I mentioned this, the two women looked at each other in amazement. The medical history had indicated a psychiatric disorder for which she was taking two anti-psychotic medications but I hadn't asked her about menstrual problems. She told me that she thought that hormonal disturbances around her period were causing her psychiatric problems but her psychiatrist always ignored this suggestion. She and her mom were impressed that this was revealed in her vision.

RED-INDIGO ($\alpha\omega$) was used to raise lowered responses in the involuntary system (reduced accommodation and pupil responses) associated with emotional upset. RED-INDIGO ($\alpha\omega$) was also indicated when the minus lens to blur at near is low relative to plus. If the low base-out recovery findings did not immediately come up after a few sessions, the case was not amenable to chromorthoptic training alone. If the weakness were due to a focal infection, the patient might feel temporarily relieved but the low findings would persist.

Low base-in recoveries at both far and near suggested metabolic, nutritional disturbance; gastric, renal, hepatic congestion, caused by stagnation or retention of waste products due to overeating, insufficient rest, or other forms of abuse. YELLOW-GREEN ($\mu\delta$) was prescribed for low base-in recovery. YELLOW-GREEN ($\mu\delta$) was thought to eliminate excess waste by stimulating increased flow of secretions, greater motor activity (convergence) and improved oxidation.

Emotional stress could also cause waste retention because it might also retard abdominal circulation and general metabolic processes. This was ascertained by asking the patient a few pointed

questions. The reproductive and alimentary systems also interact. Emotional problems might also cause loss of appetite, spastic constipation, or other digestive disorder or it could be happening the other way around. If emotions were the primary cause, reducing the emotional upset could relieve the digestive problems.

If the findings indicated YELLOW-GREEN ($\mu\delta$), but there was discomfort at the time of treatment, then BLUE-GREEN ($\mu\nu$) or BLUE-INDIGO ($\nu\omega$) was used until the symptoms subsided. Under such circumstances corrective frequencies were not applied at the same visit.

Related frequencies: On the stimulating side was RED-BLUE ($\alpha\nu$) and RED-YELLOW ($\alpha\delta$). The most outstanding property of RED-YELLOW ($\alpha\delta$) as respiratory stimulation, so that if the patient's breathing is very shallow RED-YELLOW ($\alpha\delta$) would have been the most logical frequency to employ. RED-BLUE ($\alpha\nu$) was thought to stimulate vaso-constriction and was not much used with kids. It was used for teen to 50 years to increase low blood pressure and deficient abdominal circulation. The patient's age was very important in how Henning thought about etiology and treatment.

AGE CONSIDERATIONS

Children age ten and younger with low base-out duction recoveries, especially if underweight, were thought to suffer from retarded glandular development calling for RED-INDIGO ($\alpha\omega$) and related frequencies. Low base-in recoveries in this age group were thought to derive from nutritional disturbance calling for YELLOW-GREEN ($\mu\delta$) and related frequencies. In these children it was important to inquire in depth about diet for unless that was improved, if found deficient, the prognosis was doubtful.

If all four duction recoveries measured low, but all other analytical findings were normal, the child was assumed to be emotionally disturbed. The cause might be malnutrition, over attention, emotional or physical shock, etc. In these cases, Henning gave chrome-orthoptics its best shot before referring for medical help. In the event that several treatments with RED-INDIGO ($\alpha\omega$) failed to increase the recoveries, the color was switched to YELLOW-GREEN ($\mu\delta$). If response was still

minimal, treatments were changed to RED-YELLOW ($\alpha\delta$) for a few more sessions. If still no improvement, lenses and prisms were added to increase stimulation of the "automatic system" (accommodation and pupil). At first -0.50 D lenses were worn while looking at the RED-INDIGO ($\alpha\omega$). If that didn't work, the lens power was gradually increased in -0.25 steps up to -2.00 D. Finally two and then four base-in prism was combined with the -2.00 lenses. If still no response the child had a medical problem and was referred.

Low base-out recoveries in patients between years 10 through 25 indicated emotional upset and suggested RED-INDIGO ($\alpha\omega$) as the primary treatment. Because emotions played the greatest role at this age, RED-BLUE ($\alpha\nu$) was used rather than RED-YELLOW ($\alpha\delta$) if RED-INDIGO ($\alpha\omega$) was not effective. When venereal disease or some type of pelvic obstructive or inflammatory process was suspected, both RED-INDIGO ($\alpha\omega$) and YELLOW-GREEN ($\mu\delta$) were called for. If the underlying problems appeared emotional in such a case, the treatment was predominately RED-INDIGO ($\alpha\omega$) followed by a few minutes of YELLOW-GREEN ($\mu\delta$).

According to Henning, the most common emotional disturbance in optometry had to do with sexual repression or obsession. This was particularly true for teens and young adults with symptoms of ocular discomfort but little refractive error.

From 25 to age 45 years YELLOW-GREEN ($\mu\delta$) and RED-INDIGO ($\alpha\omega$) were regarded as equally important. If the problem was obviously metabolic or toxic, YELLOW-GREEN ($\mu\delta$) was given.

In women past middle age, low base-out recoveries indicated a chronic or acute inflammatory processes of the pelvis, manifesting as ovaritis, endometritis, malignant or benign tumor, or purely a chain of syndromes commonly found during menopause. In middle-aged men, prostrate, bladder, or perhaps adrenal disturbances were suspect. In obvious cases medical referral was immediate but in other cases chrome-orthoptic practitioners might have treated a few times with YELLOW-GREEN ($\mu\delta$) or related frequencies,

retested and, if no improvement, changed to RED-INDIGO ($\alpha\omega$) or its related frequencies. If still no improvement, the patient was advised to seek medical evaluation.

Above 45 years general physical disorders were considered more complex and aging individuals become less responsive to treatment. Thus, YELLOW-GREEN ($\mu\delta$) became more important and the need for RED-INDIGO ($\alpha\omega$) and its related frequencies diminished.

What color am I going to use with my patient? Probably I'll try RED-BLUE ($\alpha\nu$). Why? Because in the syntonics literature RED-BLUE ($\alpha\nu$) is suggested for female problems. (I once gave this with a woman who had been trying for years to get pregnant without success. A month after the RED-BLUE ($\alpha\nu$) treatment she did conceive. She was very pleased and joked that my syntonizer got her pregnant.) I might also at some point add or alternate with AMBER (δ) treatments. This is also suggested in the syntonics literature (see my paper "Syntonic Advanced Filters" in the *Blue Book*.) If she doesn't improve with these, I'll look more thoroughly at Henning's suggestions and change treatments accordingly.

I hope this overview will stimulate your interest in Henning. His work goes way beyond what was mentioned here. His books are out-of-print and not readily available. However, if there is sufficient interest, the College of Syntonic Optometry will make copies of his work available. Let us know.

Henning's publications include:

1. William Henning, N.D., O.D., *The Fundamentals of Chrome-Orthoptics* (Actino Laboratories, Chicago, IL 1936)
2. William Henning, N.D., O.D. *The Practice of Modern Optometry* (Actino Laboratories, Inc. Chicago, IL, 1939)
3. William Henning, N.D., O.D., *Procedures in Refractive and Functional Disorders of Vision*, (Buckeye Press Columbus, OH. 1940)

Changes effected in optometric measurements and functional visual fields in athletes by exposure to syntonik stimulation

Peter Heinrich

Aim of this Study

The aim of this study is to determine whether a measurable improvement in visual skills and functional visual fields can be obtained when a number of athletes are exposed to a set program of Syntonik (coloured light) stimulation.

Methodology and Subject Criteria

Sample: Seven athletes taking active part in “open” sporting activities who have normal colour perception and had not had any previous sports vision enhancement programs. 2 other subjects started the program, one turned out to be colour defective and the other dropped out because of work pressures.

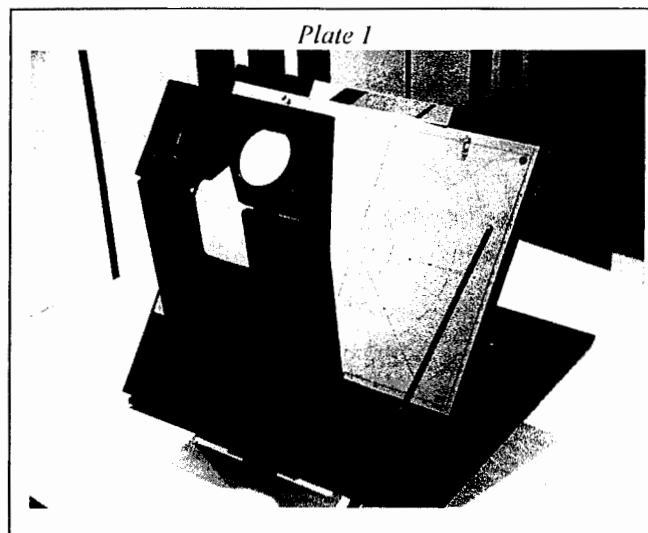
Pre-testing will consist of the following:

1. **Case history** including trauma history, illnesses, high fevers, head or neck injuries, allergies and toxicities, current correction, use of imagery and visualization in their sport, use of protective eyewear, and their concerns about vision in their sport.
2. **Signs and symptoms** including:
 - a. Blurring of vision
 - b. “Eye on the Ball” problems
 - c. Concentration problems
 - d. Day/Night difficulties
 - e. Headaches
 - f. Reading problems
 - g. Glare problems
 - h. Handwriting
 - i. Hearing skills
 - j. Eye strain – asthenopia
 - k. Endurance
 - l. Fluctuations in VA
 - m. History of strabismus and amblyopia
 - n. Specific Signs & Symptoms pertaining to their particular type of sport
3. **Examination** including: *(See Table 3)*
 - a. Unaided VA (static)
 - b. Retinoscopy
 - c. Subjective refraction (Far point and at 40 cm)
 - d. Aided VA's (static)
 - e. Phorias (Far point and at 40 cm)
 - f. Ductions (Far point and at 40 cm)
 - g. Positive and negative relative accommodation.
 - h. Plus acceptance
 - i. Stereopsis – Titmus fly test.
 - j. Colour perception – Ishihara (Farnsworth test not available at time of testing)
 - k. Alpha omega pupil response indicative of emotional fatigue syndrome as well as indicative of reduced functional visual fields.

- Tested with the Slitlamp using a horizontal slit on the lower pupil margin shining light into the pupils which initially contracts but after continued exposure dilate once more or vascillate between contracted and dilated – indicating an exhausted adrenal system.
- m. Ophthalmoscopy and external examination of eyes.

n. **Functional Colour Visual Fields** using the Indigo Technologies Field Charter. (see Plate 1)

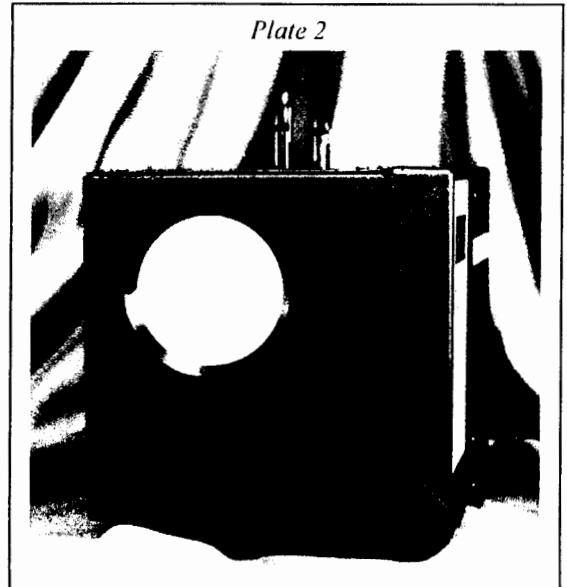
- This procedure is done *without* spectacles as the spectacles emphasise the central vision and reduce the functional field.
- Use a white 4 m/m target moving from non-seeing to seeing, reporting first movement and then colour.
- Measure the blind spot with the same 4 m/m white target from seeing to non-seeing. Enlargement may indicate head traumas.
- Repeat with 4 m/m red, green and blue targets reporting only colour *not* movement. Normally green is closest to center, then red and then blue. Fields inside of 20° are regarded as needing attention. 20° to 30° after treatment are regarded as satisfactory results. If the fields are not symmetrical – meshing or overlapping – it may indicate toxins in the body. Note that if the patient has an exophoria this is even more likely.
- Record the average of the horizontal and vertical measurements as shown in table 1.



Samuel Pesner OD (1995) stated: “Visual field charting as used in Syntonic Optometry is a measurement taken through the visual system of the total sensory input, integration and output response of the individual to a visual stimulus...when there is an interference in the neural flow of input-process-output, a reduced response is detected in the form of a reduced white or colour field.” He continued: “Functional visual field charting in Syntonic Optometry is not for detection of pathology or to indicate the desirable colour frequency for treatment. It is for the discovery and demonstration of functional visual defects, to confirm that it is an Optometric problem, and to answer the fundamental question of whether the therapy is working or not. It is the most sensitive and rewarding diagnostic tool we have to monitor progress in any visual training program. With a Syntonics program in particular we expect to observe measurable changes in functional fields as treatment progresses.” It is also important to note that in pathology of the visual apparatus, the colour field size is affected far earlier than the white field size.

- vi. **10 sessions of Syntonic phototherapy** using the Atomic Technologies SRS II instrument designed by Dr. Jacob Lieberman (see Plate 2) according to the following protocol:
- Session 1 –
 - 5 minutes each of **Ruby** – for ‘emotional fatigue’ (alpha omega pupil, adrenal fatigue, poor coping, mood swings, frustration) and **Lime** – for ‘chronic syndrome’ (physiological, toxic, neuroendocrine) at a flash rate of 7 Hz.
 - 10 minutes of full spectrum exposure – 20 colours at 30 seconds each, **starting at the red end of the spectrum, ending with purple, magenta, scarlet and white.**
 - Session 2 –
 - 5 minutes each of **Ruby** and **Lime** at a flash rate of 7 Hz.
 - 10 minutes of full spectrum exposure – 20 colours at 30 seconds each, **starting at the violet end of the spectrum, ending with purple, magenta, scarlet and white.**

- Session 3 –
 - 5 minutes each of **Ruby** and **Lime** at a flash rate of 7 Hz.
 - 15 minutes of full spectrum exposure – 20 colours at 30 seconds each, **starting at the red end of the spectrum, ending with purple, magenta, scarlet and white.**
- Session 4 –
 - 5 minutes each of **Ruby** and **Lime** at a flash rate of 7 Hz.
 - 15 minutes of full spectrum exposure – 20 colours at 30 seconds each, **starting at the violet end of the spectrum, ending with purple, magenta, scarlet and white.**
- Session 5 –
 - 5 minutes each of **Ruby** and **Lime** at a flash rate of 7 Hz.
 - 20 minutes of full spectrum exposure – 20 colours at 30 seconds each, **starting at the red end of the spectrum, ending with purple, magenta, scarlet and white.**
- Session 6 –
 - 5 minutes each of **Ruby** and **Lime** at a flash rate of 7 Hz.
 - 20 minutes of full spectrum exposure – 20 colours at 30 seconds each, **starting at the violet end of the spectrum, ending with purple, magenta, scarlet and white.**
- Session 7 –
 - 5 minutes each of **Ruby** and **Lime** at a flash rate of 7 Hz.
 - 25 minutes of full spectrum exposure – 20 colours at 30 seconds each, **starting at the red end of the spectrum, ending with purple, magenta, scarlet and white.**
- Session 8 –
 - 5 minutes each of **Ruby** and **Lime** at a flash rate of 7 Hz.
 - 25 minutes of full spectrum exposure – 20 colours at 30 seconds each, **starting at the violet end of the spectrum, ending with purple, magenta, scarlet and white.**
- Session 9 –
 - 30 minutes of full spectrum exposure – 20 colours at 30 seconds each, **starting at the red end of the spectrum, ending with purple, magenta, scarlet and white.**
- Session 10 –
 - 30 minutes of full spectrum exposure – 20 colours at 30 seconds each, **starting at the violet end of the spectrum, ending with purple, magenta, scarlet and white.**



- vii. **Repeat the pre-testing** and evaluate changes.
(See Table 3 and Plates 3 – 9)
- viii. **Question patient** as to any changes in signs, symptoms and especially as to changes noted in performance, attitude or concentration during sport activities.

Tabulation of Data:

Table 1. Functional Colour Visual Fields - Pre-syntonic intervention:

Subject (Age) (Sport)		White Field		Red Field		Blue Field		Green Field	
		Nasal	Temp	Nasal	Temp	Nasal	Temp	Nasal	Temp
DH (Tri-athlete)	OD	29.9 / 29.2		19.0 / 23.7		18.3 / 22.2		14.5 / 12.5	
	OS	23.5 / 26.3		18.2 / 22.5		19.2 / 16.1		13.8 / 14.3	
CH (Clay Pigeon Shooter)	OD	35.1 / 32.5		29.0 / 26.2		25.0 / 19.7		26.8 / 21.8	
	OS	34.0 / 32.4		23.8 / 21.8		18.8 / 18.3		21.9 / 19.8	
HH (Clay Pigeon Shooter)	OD	26.2 / 25.1		17.4 / 21.3		10.1 / 8.5		14.3 / 12.5	
	OS	27.6 / 29.0		23.7 / 19.4		16.4 / 12.5		17.1 / 15.9	
JS (Clay Pigeon Shooter)	OD	28.6 / 29.3		19.7 / 25.1		16.6 / 20.8		12.7 / 18.5	
	OS	32.1 / 30.9		24.9 / 22.6		20.8 / 21.0		12.7 / 15.2	
AR (Rugby Coach)	OD	30.0 / 26.5		11.9 / 12.0		13.8 / 13.4		7.3 / 8.8	
	OS	30.5 / 29.7		13.5 / 17.5		20.2 / 22.9		9.7 / 9.9	
AL (Martial arts instructor)	OD	33.3 / 31.7		20.5 / 23.5		29.4 / 28.7		17.9 / 25.7	
	OS	33.9 / 31.5		25.4 / 26.2		30.6 / 28.7		29.1 / 26.8	
NB (Martial arts instructor)	OD	31.0 / 30.4		13.5 / 12.4		17.7 / 19.5		8.5 / 8.0	
	OS	32.5 / 30.4		13.0 / 11.9		17.8 / 20.5		9.6 / 8.9	
Average	OD	30.6 / 29.2		18.7 / 20.6		18.7 / 19.0		14.6 / 15.4	
	OS	30.6 / 30.0		20.4 / 20.3		20.5 / 20.0		16.3 / 15.8	

OD/OS in degrees (°) Recorded as (See Plates 3 – 9) : OD Temporal field average / OD Nasal field average
OS Temporal field average / OS Nasal field average

Table 2. Functional Colour Visual Fields - Post-syntonic intervention:

Subject (Age) (Sport)		White Field		Red Field		Blue Field		Green Field	
		Nasal	Temp	Nasal	Temp	Nasal	Temp	Nasal	Temp
DH (66) (Tri-athlete)	OD	34.5 / 30.6		23.0 / 28.7		22.2 / 23.8		17.2 / 22.5	
	OS	30.0 / 30.3		22.6 / 24.3		23.9 / 21.0		22.5 / 16.5	
CH (56) (Clay Pigeon Shooter)	OD	35.9 / 34.4		32.5 / 28.9		32.8 / 28.2		31.6 / 28.4	
	OS	36.4 / 33.2		33.1 / 31.3		32.8 / 30.9		32.5 / 30.8	
HH (41) (Clay Pigeon Shooter)	OD	31.3 / 30.4		30.5 / 30.4		28.8 / 29.5		29.5 / 27.4	
	OS	33.9 / 32.1		30.8 / 29.7		29.0 / 28.8		24.8 / 26.7	
JS (43) (Clay Pigeon Shooter)	OD	34.1 / 32.4		30.5 / 30.9		30.8 / 32.4		32.8 / 32.5	
	OS	35.0 / 33.3		34.7 / 32.0		33.2 / 31.3		32.3 / 30.3	
AR (32) (Rugby Coach – School)	OD	34.8 / 27.5		27.3 / 24.3		30.1 / 28.0		30.3 / 26.1	
	OS	34.7 / 33.0		30.8 / 30.6		33.1 / 31.8		32.5 / 31.3	
AL (37) (Martial arts instructor)	OD	35.2 / 33.6		27.8 / 29.6		31.1 / 30.5		27.5 / 30.0	
	OS	35.3 / 32.8		32.6 / 30.7		34.5 / 30.8		31.5 / 29.4	
NB (23) (Martial arts instructor)	OD	33.4 / 31.8		15.3 / 16.3		22.0 / 22.0		12.8 / 14.0	
	OS	23.5 / 28.6		14.8 / 14.3		23.8 / 25.0		13.9 / 12.5	
Average	OD	34.2 / 31.5		26.7 / 27.0		28.3 / 27.8		26.0 / 25.8	
	OS	32.7 / 31.9		28.5 / 27.6		30.0 / 28.5		27.1 / 25.4	
% Change	OD	+11.8/+7.8		+42.8/+31.0		+51.3/+46.3		+78.0/+67.5	
	OS	+6.8/+6.3		+39.7/+36.0		+46.3/+42.5		+66.3/+60.8	

- OD/OS in degrees (°) Recorded as:
 - OD Temporal field average / OD Nasal field average
 - OD Temporal field average / OS Nasal field average

Conclusion:

There is a marked increase in the functional visual fields especially in the colour fields, viz.:

White fields: Right increased 9.8%
Left increased 6.6%

Red fields: Right increased 36.9%
Left increased 37.6%

Blue fields: Right increased 48.8%
Left increased 44.4%

Green fields: Right increased 72.8%
Left increased 63.6%

These increases were accompanied by subjective reports of improvements in sport performance in almost all cases (see below).

Table 3. Refraction results

(Changes indicated in bold below)

(LIP) = Lens in place

Subject DH

Test	Pre- Syntonics	Post Syntonics	Normal values
Unaided VA	R <6/60 L <6/60	R <6/60 L <6/60	
Subjective Refraction (#7)	R +3.00 / -1.25 x 95 L +3.00 / -1.00 x 85	R +3.00 / -1.00 x 95 L +3.00 / -1.00 x 85	
Aided VA	R 6/5 L 6/5	R 6/5 L 6/5	
Horizontal Phoria at 6 M (#8)	Orthophoria	1 exophoria	Orthophoria
Convergence at 6 M (#9-10)	X / 6 / -2	X / 3 / 1	7/20/10
Divergence at 6 M (#11)	5 / 2	3 / 1	9/5
Distance Vertical Phoria (#12)	Orthophoria	Orthophoria	Orthophoria
Horizontal Phoria at 40 cm (#13b)	Isophoria	1 exophoria	6 exophoria
Vertical Phoria at 40 cm	Orthophoria	Orthophoria	Orthophoria
ACA Ratio	3.5 / 1	4 / 1	4/1
Plus acceptance (#14b)	+2.25 D	+2.25 D	
H/Phoria through #14b plus (#15b)	6 exophoria	10 exophoria	6-8 exophoria
Convergence at 40 cm (#16)	X / 4 / 3	X / 4 / 1	14/21/15
Divergence at 40 cm (#17)	X / 18 / 13	X / 17 / 14	14/22/18
PRA (#20)	+3.00 D (LIP)	+4.00 D (LIP)	-2.00 to -2.25
NRA (#21)	+7.50 D (LIP)	+7.00 D (LIP)	+2.00 to +2.25

Subject CH

Test	Pre- Syntonics	Post Syntonics	Normal values
Unaided VA	R 6/10+ L 6/9-	R 6/9+ L 6/9+	
Subjective Refraction (#7)	R -0.75 D L -0.75 D	R -0.75 D L -0.75 D	
Aided VA	R 6/5 L 6/5	R 6/5 L 6/5	
H/Phoria at 6 M (#8)	1 exophoria	0.5 exophoria	Orthophoria
Convergence at 6 M (#9-10)	X / 6 / 3	7 / 4	7/20/10
Divergence at 6 M (#11)	10 / 18 / 6	10 / 8	9/5
Distance Vertical Phoria (#12)	Orthophoria	Orthophoria	Orthophoria
H/Phoria at 40 cm (#13b)	3 exophoria	10 exophoria	6 exophoria
V Phoria at 40 cm	Orthophoria	orthophoria	Orthophoria
ACA Ratio	1.5 / 1	2 / 1	4/1
Plus acceptance (#14b)	+2.25 D	+2.25 D	
Near Phoria Through #14b plus (#15b)	4 exophoria	4.5 exophoria	6-8 exophoria
Convergence at 40 cm (#16)	X / 19 / -4	X / 18 / 0	14/21/15
Divergence at 40 cm (#17)	X / 20 / 13	X / 24 / 18	14/22/18
PRA (#20)	Plano (<i>LIP</i>)	Plano (<i>LIP</i>)	-2.00 to -2.25
NRA (#21)	+2.75 D (<i>LIP</i>)	+2.50 D (<i>LIP</i>)	+2.00 to +2.25

Subject HH

Test	Pre- Syntonics	Post Syntonics	Normal values
Unaided VA	R 6/7.5 L 6/7.5	R 6/5 L 6/5	
Subjective Refraction (#7)	-0.75 / -0.25 x 15 -0.50 D	-0.25 D -0.25 D	
Aided VA	R 6/5 L 6/5	R 6/5 L 6/5	
H/Phoria at 6 M (#8)	3 exophoria	1 exophoria	Orthophoria
Convergence at 6 M (#9-10)	X / 18 / 14	X / 15 / 7	7/20/10
Divergence at 6 M (#11)	8 / 2	8 / 2	9/5
Distance Vertical Phoria (#12)	orthophoria	Orthophoria	Orthophoria
H/Phoria at 40 cm (#13b)	4 exophoria	2.5 exophoria	6 exophoria
V Phoria at 40 cm	Orthophoria	orthophoria	Orthophoria
ACA Ratio	0.5 / 1	Orthophoria	4/1
Plus acceptance (#14b)	+1.00 D	+0.25 D	
Near Phoria Through #14b plus (#15b)	4.5 exophoria	3 exophoria	6-8 exophoria
Convergence at 40 cm (#16)	X / 13 / 3	X / 15 / 9	14/21/15
Divergence at 40 cm (#17)	X / 11 / 7	X / 21 / 14	14/22/18
PRA (#20)	-3.00 D (<i>LIP</i>)	-2.00 D (<i>LIP</i>)	-2.00 to -2.25
NRA (#21)	+1.50 D(<i>LIP</i>)	+2.50 D (<i>LIP</i>)	+2.00 to +2.25

Subject JS

Test	Pre- Syntonics	Post Syntonics	Normal values
Unaided VA	R <6/60 L 6/24-	R 6/10 L 6/10	
Subjective Refraction (#7)	+0.25 / -2.50 x 15 +0.25 / -2.50 x 172	+0.25 / -2.50 x 15 +0.25 / -2.50 x 172	
Aided VA	R 6/5 L 6/5	R 6/4.5 L 6/4.5	
H/Phoria at 6 M (#8)	1 esophoria	1 esophoria	Orthophoria
Convergence at 6 M (#9-10)	X / 24 / 2	X / 25 / 6	7/20/10
Divergence at 6 M (#11)	8 / 1	8 / 3	9/5
Distance Vertical Phoria (#12)	Orthophoria	Orthophoria	Orthophoria
H/Phoria at 40 cm (#13b)	5 esophoria	3 esophoria	6 exophoria
V Phoria at 40 cm	Orthophoria	Orthophoria	Orthophoria
ACA Ratio	6 / 1	5 / 1	4/1
Plus acceptance (#14b)	+0.75 DS	+0.75 DS	
Near Phoria Through #14b plus (#15b)	2 exophoria	1.5 exophoria	6-8 exophoria
Convergence at 40 cm (#16)	X / 27 / 7	X / 21 / 6	14/21/15
Divergence at 40 cm (#17)	X / 28 / 24	X / 24 / 19	14/22/18
PRA (#20)	-1.75 DS (LIP)	- 1.50 DS (LIP)	-2.00 to -2.25
NRA (#21)	+3.00 DS (LIP)	+3.50 DS (LIP)	+2.00 to +2.25

Subject AR

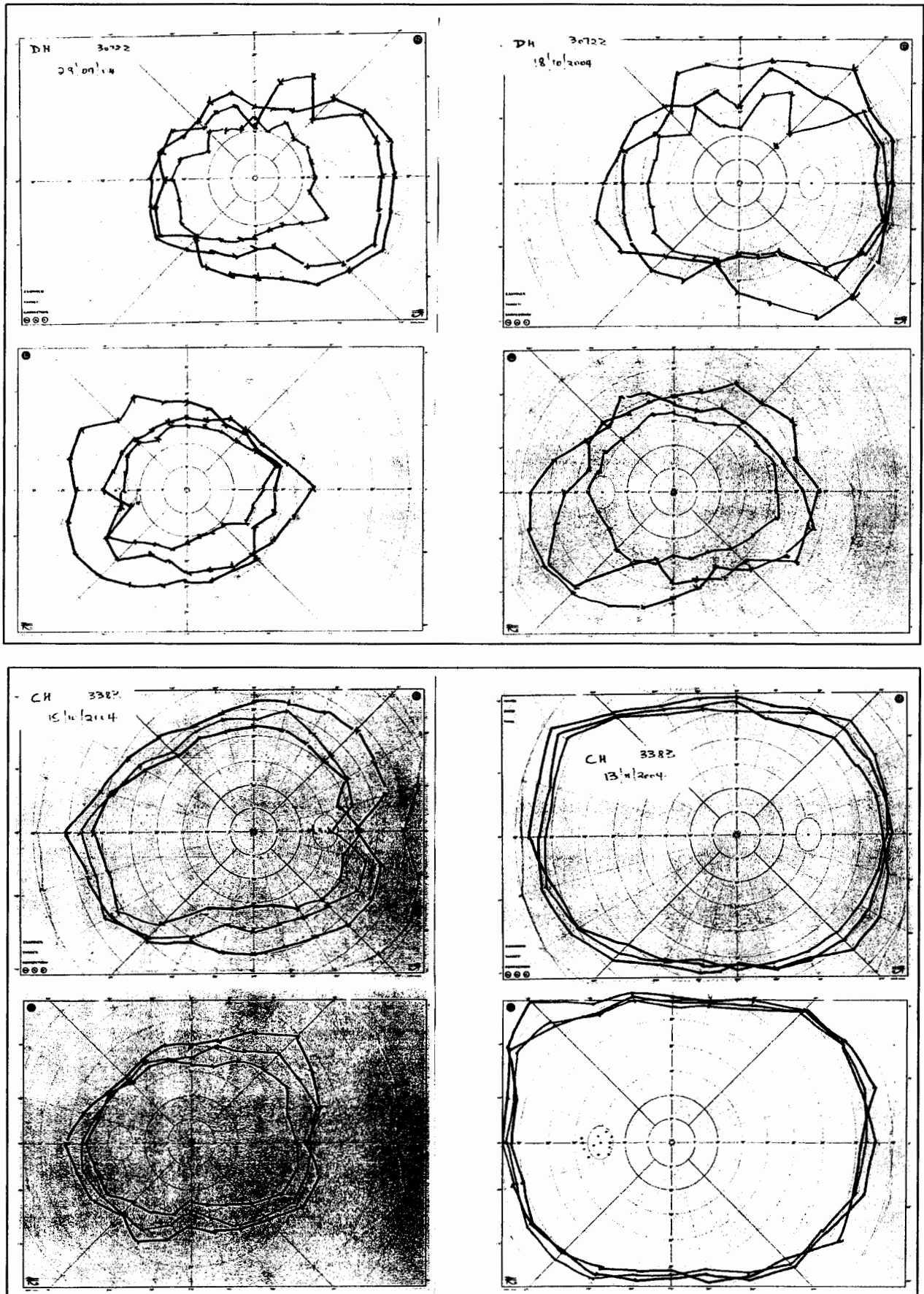
Test	Pre- Syntonics	Post Syntonics	Normal values
Unaided VA	R<6/60 L<6/60	R<6/60 L<6/60	
Subjective Refraction (#7)	R -5.00 D L -5.00 D	R -4.75 D L -4.75 D	
Aided VA	R 6/7.5- L 6/5	R 6/5+ L 6/5	
H/Phoria at 6 M (#8)	3 exophoria	5 exophoria	Orthophoria
Convergence at 6 M (#9-10)	X / 4 / 3	X / 6 / 4	7/20/10
Divergence at 6 M (#11)	3 / 1.5	7 / 5	9/5
Distance Vertical Phoria (#12)	0.5 Base down	Orthophoria	Orthophoria
H/Phoria at 40 cm (#13b)	7 exophoria	7 exophoria	6 exophoria
V Phoria at 40 cm			Orthophoria
ACA Ratio	Orthophoria	Orthophoria	4/1
Plus acceptance (#14b)	-0.25 D	+0.25 D	
Near Phoria Through #14b plus (#15b)	6 exophoria	7.5 exophoria	6-8 exophoria
Convergence at 40 cm (#16)	X / 7 / 6	X / 12 / 4	14/21/15
Divergence at 40 cm (#17)	17 / 24 / 16	X / 20 / 17	14/22/18
PRA (#20)	-4.25 D (LIP)	-4.25 D	-2.00 to -2.25
NRA (#21)	+2.25 D (LIP)	+1.25 D	+2.00 to +2.25

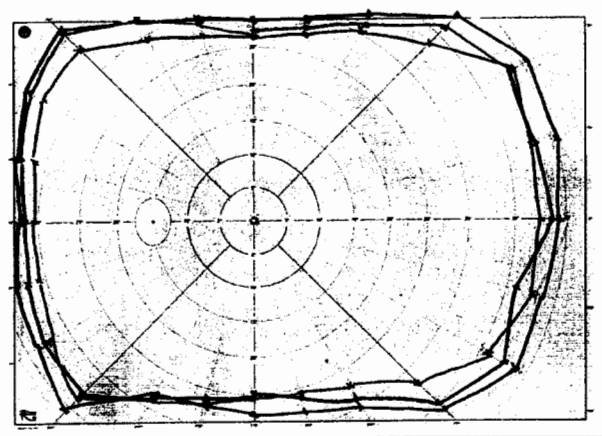
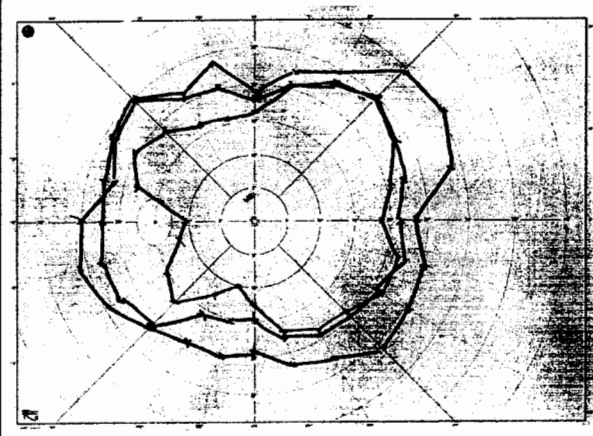
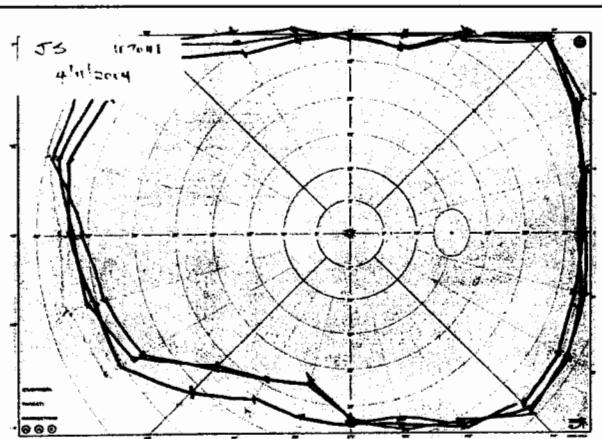
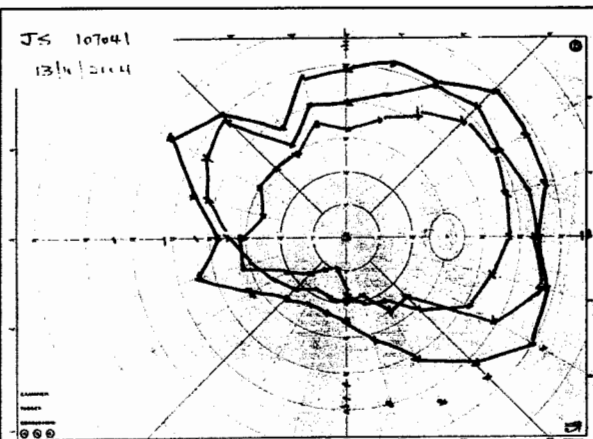
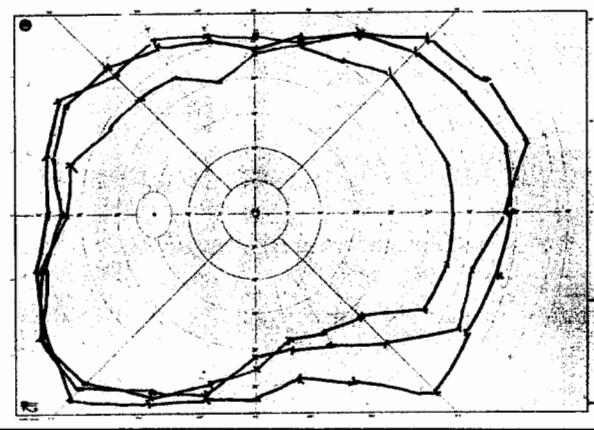
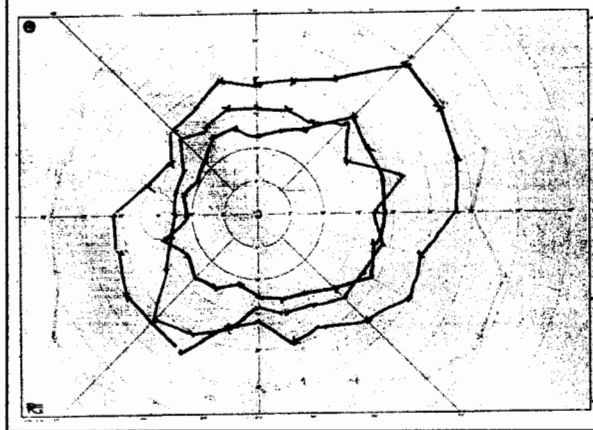
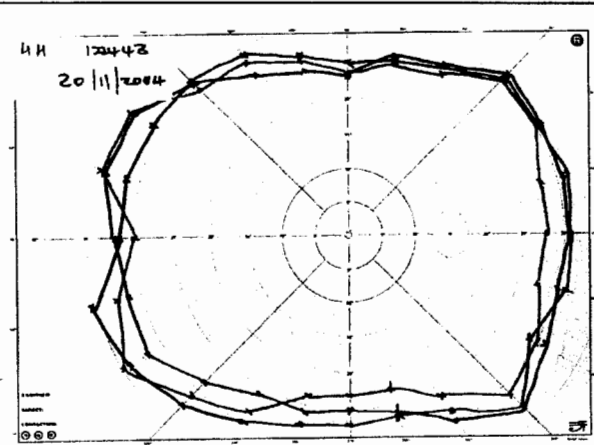
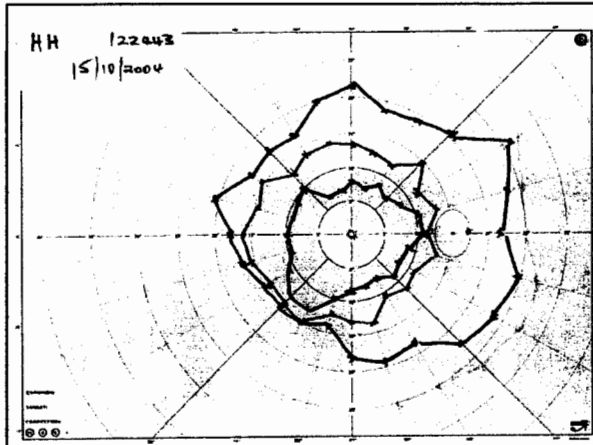
Subject AL

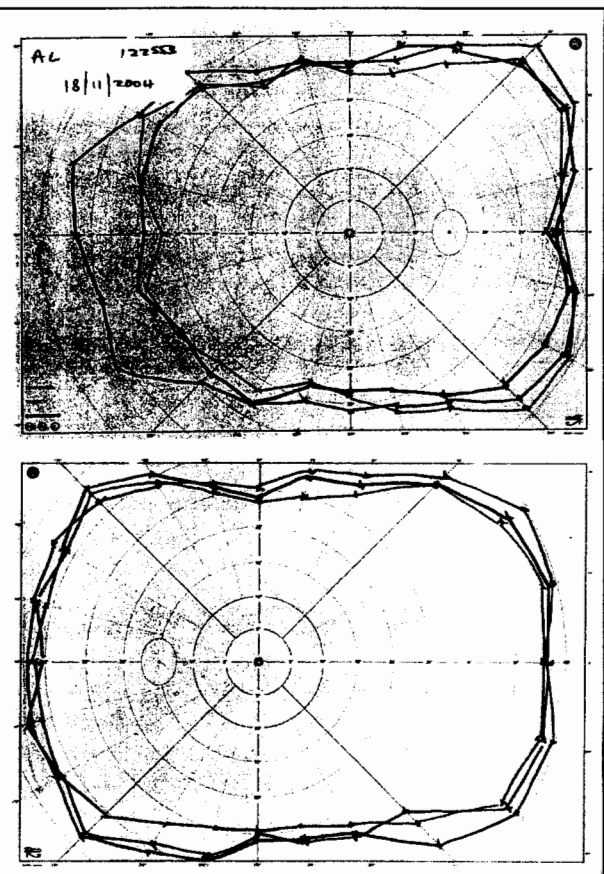
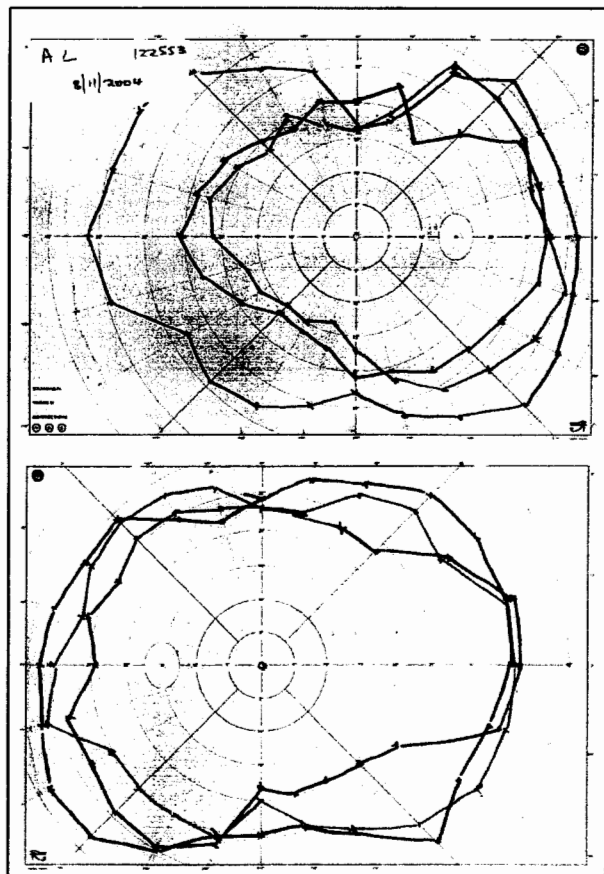
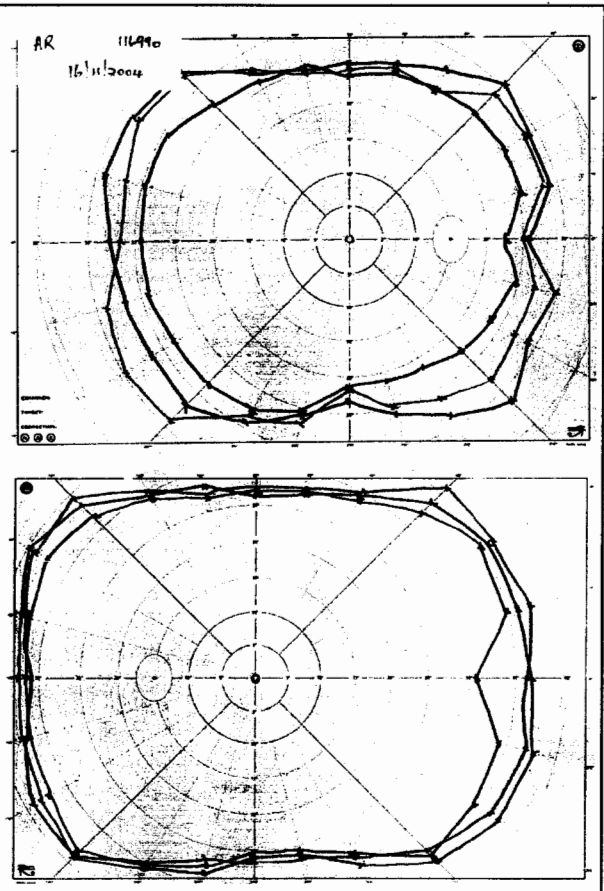
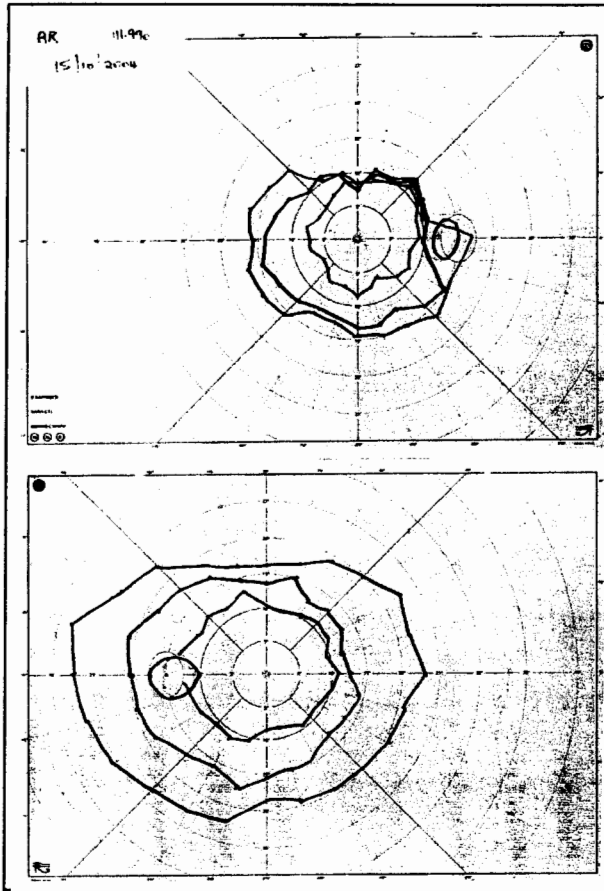
Test	Pre- Syntonics	Post Syntonics	Normal values
Unaided VA	R 6/6- L 6/6-	R 6/5 L 6/5	
Subjective Refraction (#7)	-0.50 / -0.50 x 85 -0.75 D	-0.25 / -0.50 x 85 -0.50 D	
Aided VA	R 6/4.5 L 6/5+	6/4.5 L 6.4.5	
H/Phoria at 6 M (#8)	1 exophoria	orthophoria	Orthophoria
Convergence at 6 M (#9-10)	X / 23 / 13	X / 20 / 13	7/20/10
Divergence at 6 M (#11)	7 / 3	8 / 5	9/5
Distance Vertical Phoria (#12)	Orthophoria	Orthophoria	Orthophoria
H/Phoria at 40 cm (#13b)	2 exophoria	1.5 exophoria	6 exophoria
V Phoria at 40 cm	Orthophoria	Orthophoria	Orthophoria
ACA Ratio	3 / 1	4.5 / 1	4/1
Plus acceptance (#14b)	+1.00 D	+0.50 D	
Near Phoria Through #14b plus (#15b)	5 exophoria	7 exophoria	6-8 exophoria
Convergence at 40 cm (#16)	X / 15 / 5	X / 11 / 8	14/21/15
Divergence at 40 cm (#17)	X / 17 / 13	X / 20 / 18	14/22/18
PRA (#20)	-4.50 D (LIP)	-3.50 D (LIP)	-2.00 to -2.25
NRA (#21)	+2.75 D (LIP)	+3.25 D (LIP)	+2.00 to +2.25

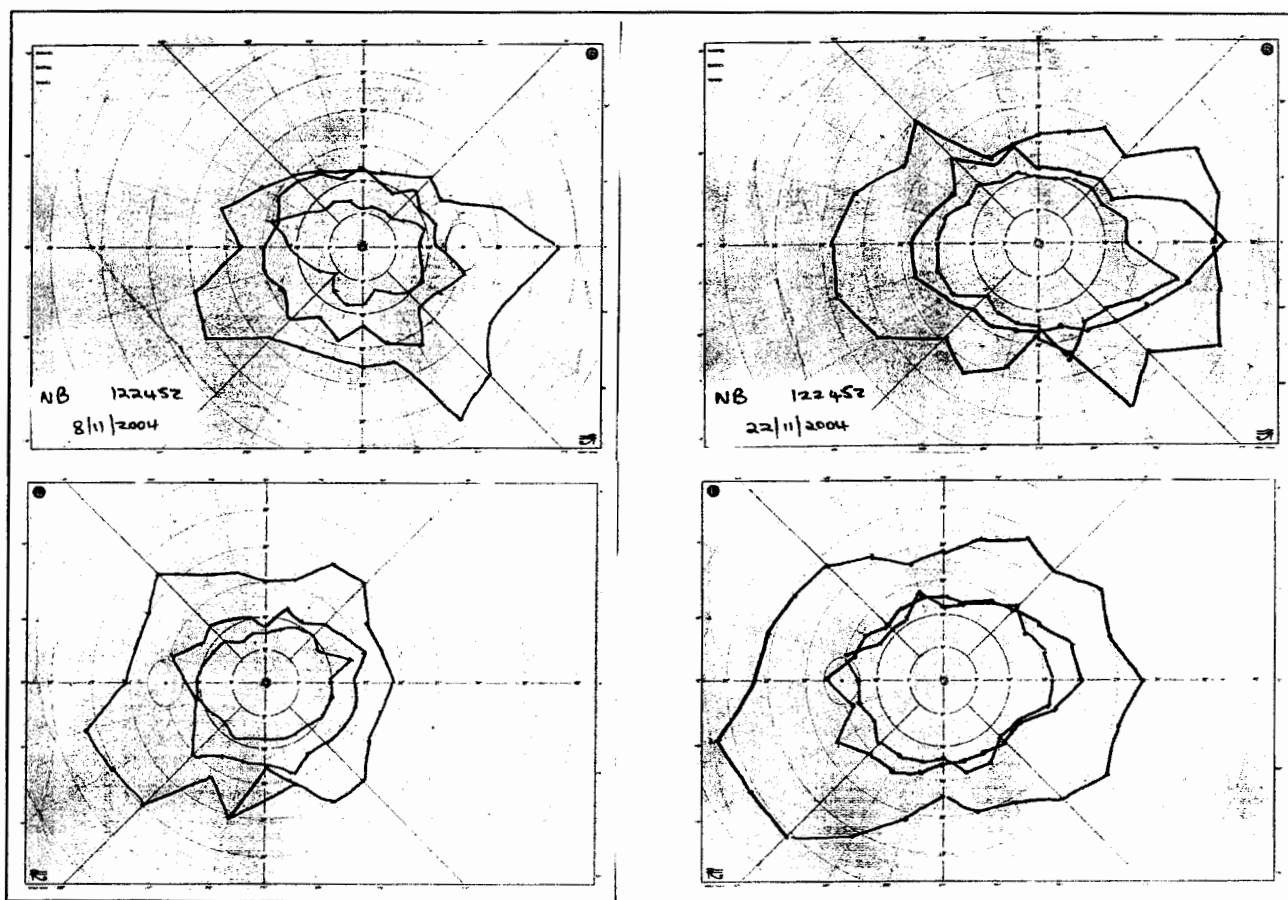
Subject NB

Test	Pre- Syntonics	Post Syntonics	Normal values
Unaided VA	R 6/5 L 6/5	R 6/4.5 L 6/4.5	
Subjective Refraction (#7)	-0.50 / -0.25 x 87 -0.50 D	Plano / -0.25 x 90 Plano	
Aided VA	R 6/5 L 6/5	R6/4.5 L6/4.5	
H/Phoria at 6 M (#8)	1 esophoria	1.5 esophoria	Orthophoria
Convergence at 6 M (#9-10)	X / 28 / 12	17 / 17 / 10	7/20/10
Divergence at 6 M (#11)	12 / 8	6 / 2	9/5
Distance Vertical Phoria (#12)	orthophoria	Orthophoria	Orthophoria
H/Phoria at 40 cm (#13b)	6 exophoria	6.5 exophoria	6 exophoria
V Phoria at 40 cm	Orthophoria	orthophoria	Orthophoria
ACA Ratio	1.5/1	2/1	4/1
Plus acceptance (#14b)	+1.50 D	+0.25 D	
Near Phoria Through #14b plus (#15b)	9 exophoria	7 exophoria	6-8 exophoria
Convergence at 40 cm (#16)	X / 18 / 2	X / 15 / 7	14/21/15
Divergence at 40 cm (#17)	X / 20 / 12	X / 11 / 7	14/22/18
PRA (#20)	-4.50 D	-2.75 D	-2.00 to -2.25
NRA (#21)	+4.00 D	+3.50 D	+2.00 to +2.25









Observations on the above refractive changes:

Changes in the optometric measurements were, as seen from the individual tables above, noteworthy because of the changes in unaided vision, subjective refraction, aided vision, phorias, a balancing of the accommodation and vergence readings (i.e. nearer to the expected norms) and in some cases a change in the AC/A ratio. This bears out the statements of the effects on vision training programs. Note that this was achieved without any other interventions such as visual training. Since vision training is proved to be successful in treating binocular functions, how much more effective could it be if Syntonics was added to the program. How much quicker the results could be achieved?

Interesting personal experiences/anecdotes reported during the therapy:

AS

- After 6 sessions of Syntonic phototherapy he reported that in clay pigeon shooting practice he had shot a '98 out of 100' where he had previously been shooting under 90 as a rule.
- At a provincial shoot in Natal shortly after completing the 10 sessions, he won both gold and silver medals.
- He reported that, where previously he had seen a blur leaving the trap house when taking a bead (aim) on the corner of the trap house, he now not only saw the clay leaving, but imagines he can see the rim on side of the clay.
- He reported that when he was shooting the 'duck' in skeet (a clay launched from the trap house right next to the shooter), he normally tended to shoot behind the clay, now he was leading the clay, shooting in front, in that his previous conditioning told him that he had previously first seen the clay a distance away, now, seeing it sooner, he had pulled the trigger too quickly. Practice will recondition this in time.
- His children previously had delighted in scaring him from hiding, but since the therapy he picks them up easily with his peripheral vision before they can jump out and scare him.

AL

- He trains students in 'Amok' blade-fighting and his weak spot has always been the stomach area, particularly to horizontal cross-cuts. He now blocks and parries cuts to this area as easily and quickly as any other area.
- He reports that his peripheral awareness is noticeably sharper and he feels that he has "all the time in the world" to react to attacks in various different disciplines of combat.

CH

- In a sporting discipline CH has always had difficulty with certain 'birds' (Clays). In the Club's Christmas shoot, he had no difficulty in 'powdering those particular birds. He is delighted!

Conclusion:

The study has shown that significant and measurable functional visual field changes can be achieved with the application of coloured light therapy, and that vision therapy programs can be enhanced and speeded up by the parallel use of syntonics phototherapy. It also demonstrates the importance of the use of functional colour visual field screening to monitor prognosis of visually focused therapy of any kind.

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Skeffington Circles and Functional Visual Fields

Geoff Shayler BSc FCOptom FCSO

In this article, I want to consider a slight variation on Skeffington's Four Circles and how they relate to the syntonistic optometrists understanding of functional visual fields.

The following explanation of the four circles comes from an article written by Keith Holland B.Sc, FCOptom, FCOVD, FAAO, DCLP :-

Skeffington, who is recognised as the father of Behavioural Optometry, introduced the four circles concept in which vision, as the dominant mode for information processing, is viewed as the emergent of four underlying sub-processes; Anti Gravity, Centering, Identification and Speech/ Auditory

The first circle, "**Antigravity**", encompasses all the processes that tell us '*Where we are in the world.*' This includes the abilities of the body to respond to gravity through the vestibular mechanisms, and use of proprioceptive processes to tell us where our body parts are in relation to gravitational forces acting on us. Carl Pribram has shown that vision is both a bottom-up and a top-down process, with multiple connections between other sensory systems and the retina. The eyeball is far more than a simple sensing device.

Consider also that more nerve fibres leave the optic nerve at the LGN and pass to the superior colliculus than exist in the auditory nerve itself. It would seem that this branch is heavily implicated in the integration of visual information with vestibular/ balance and proprioceptive information.

The second circle, "**Centering**" is about locking on to a target, or image of a target, and involves all those range finding systems so that we can direct action to the target. In effect, the centering system tells us "*Where is it?*" Included within this is the vergence system, that allows us to 'range find,' utilising the twelve extra-ocular muscles. Also of importance are the body movements that allow us to 'square up' to the object of interest in order to minimise the effort of ocular control, and optimise efficiency of seeing. We cannot see everything in our visual world all the time, and we must make constant decisions as to what we are going to 'look' at, and centering makes this happen.

The third circle, "**Identification**," includes every thing that helps us answer the question, "*What is it?*" Interpretation of peripheral visual information, enabling accurate positioning of foveal vision in order to facilitate accurate identification requires efficient figure ground relationships.

Current work on magno- and parvo- cellular pathways of visual control, reviewed by Tychsen[i] has confirmed this concept. Only when the object of regard is centered effectively can the accommodative processes ensure that it is the clearest object in our space world, and the one that is given maximal attention. The perceptual processes that allow interpretation to occur complete the "AH-HA!" process of cognition.

The fourth circle "**Speech-Auditory**," (or "Communication"), encompasses the processes that allow us to communicate our ideas and thoughts. It is both internal and external. Internal recognition of an object must involve some form of labeling - whether verbalised or not. Where we do not 'label' the object or event, then it has passed us by.

With this model of vision as the background, Skeffington proposed an alternative approach to development and treatment of visual anomalies. Classical theory holds that refractive and binocular deviations are due to biological variation, heredity and growth.

The so called nearpoint stress model however suggests that visual development is shaped by our environment - and by our reaction to it, and in particular, how we react to near objects.

There is ample evidence in the literature that sustained close work causes stress in the visual

system: for example see references at end of article, ii-xiv.

This then is the crux of the behavioural theory of vision, first described by Skeffington, purely on the basis of clinical observations, but subsequently

amply borne out through clinical and theoretical research.

"That... nearpoint stress results from the biologically unacceptable, socially compulsive, visually near-centered task... that becomes a drive to centre nearer in visual space."}

In simple terms we can consider Skeffington's concept of the four circles in the following diagram. Moving clockwise from bottom left we start at:-

The first circle, **Antigravity**, i.e., *Where am I in space?*

The second, **Centering**, helps us to identify *Where is an object in space?*

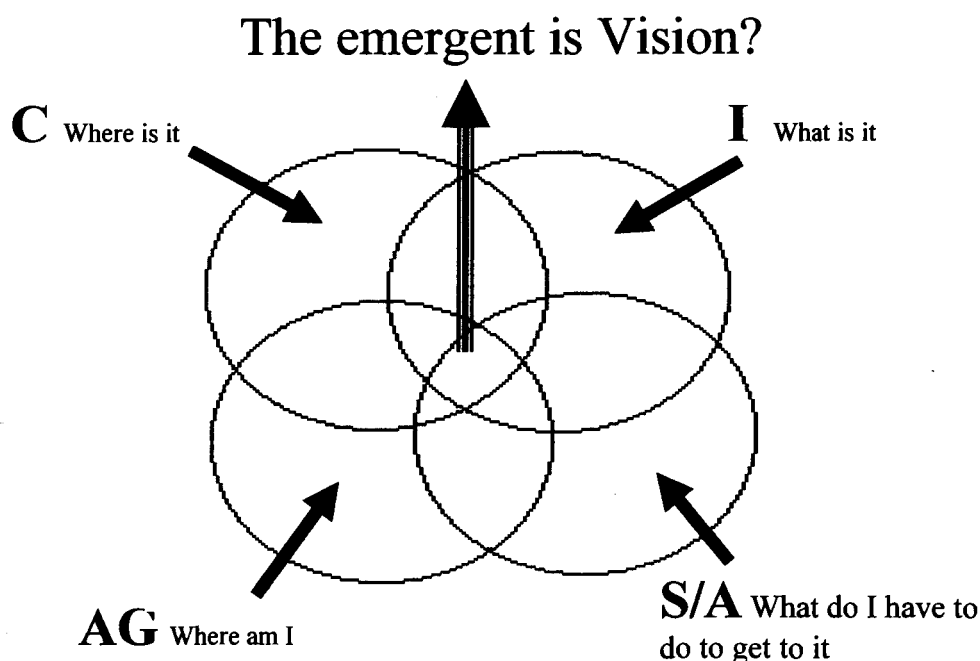
The third, **Identification**, helps us identify *What is "It" (the object)?*, and,

The fourth, **Speech / Auditory**, helps us put our thoughts into words.

I have considered the fourth circle in a slightly different way as "What do I have to do to get to **It**", i.e. how we organize our selves through our visualization processes

The emergent from the interlacing of these four circles can be conceived as Vision (or the Visual Process)

Skeffington's Four Circles



What happens when the functional visual fields are contracted as we see so often among children with learning difficulties?

Circle 1: *We are going to have problems with space, posture and balance.* Our peripheral (magnocellular) system is responsible for balance. Take away the periphery and we will see that posture and balance problems ensue. See the difficulty these children have walking along a balance beam. These children are often characterised as being clumsy as they are not aware of their surroundings

Circle 2: Due to their small fields we will identify problems with eye tracking, convergence, accommodation, etc. *This leads to the problems of trying to find an object; they don't know which direction to look.* These children have difficulty copying from the blackboard to their book and then finding their place back on the board again.

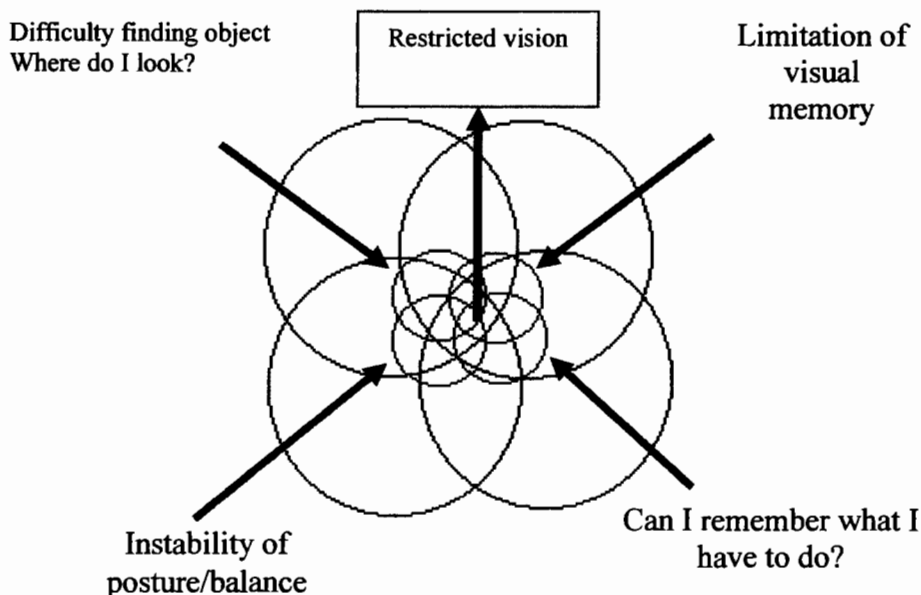
Circle 3: *Limitation of visual memory.* Often if a child with reduced fields is shown a new word in a book, when he sees it again five seconds later he may not recognize it

A simple demonstration which allows the parent to see the relationship between fields and balance.

- 1) Get the parent to cover one eye and stand on one leg and be aware of their balance
- 2) Repeat the activity whilst holding a tube or rolled up sheet of paper to the open eye (keeping the other eye covered)
- 3) The child will often find it quite funny to see mum trying hard not to fall over!

Circle 4: *Can I remember what I have to do.* If a child with vision related learning difficulties is given a series of instructions, he may forget what he has to do. For example, Mum says "I want you to go upstairs, clean your teeth, put on your brown shoes, and bring your jacket down with you." You will be lucky if he remembers anything when he reaches the top of the stairs, and, when mum wonders where he has got to, she finds he is playing with a toy he has found!

Summary of the effect of reduced fields on the Four Circles



Vision Therapy using Skeffington's Four Circles

Using the Skeffington concept, behavioural optometrists will spend a lot of time using training activities to develop deficits in visual processing in each of the Skeffington categories:-

- 1) Antigravity – *where am I* - training activities devised to improve posture, balance, postural/primitive reflexes, etc
- 2) Centering - *where is it* – training activities devised to improve pursuit tracking, saccadic eye tracking, convergence, accommodation, accommodative facility, etc
- 3) Identification - *what is it* – training activities devised to improve visual discrimination, visual closure, visual perception, visual memory, etc
- 4) Speech / auditory - *what do I have to do to get to it* – training activities devised to improve visualisation, sequencing, laterality / directionality, developing ideas / concepts, etc.

A syntonist's view of the Four Circles

For me, syntonist optometry is based around the inability of some individuals to adequately process peripheral information as measured by campimetry and to use optometric (syntonist) phototherapy to develop that peripheral awareness.

I have therefore considered the effect of a reduced functional field of vision on the four circle concept:

As shown by the diagram above, *ALL* areas of Skeffington's circles can be considered to be negatively affected by a reduced functional field of vision.

If there was a technique available to improve the functional visual field, then we should be able to improve performance in each, and all, of the "circles."

Optometric (syntonist) phototherapy is an available and proven technique that has been used for over seven decades, that quickly enables the optometrist to expand the deficient fields of his patient.

By integrating syntonics with optometric vision therapy (OVT), optometrists are able to collectively develop each of the four areas identified by Skeffington, and therefore, the visual system is able to normalise quickly and hence significantly improve the patients overall efficiency and well being. We should not discount the value of optometric vision therapy. Ingersoll[xv] showed that syntonics without OVT initially reduced the visual efficiency of children in his school, but when integrated with OVT they made rapid progress as they were additionally able to understand how the eyes should operate and co-operate to enable an efficient visual process.

Fast Track Vision Therapy (as recommended by Dr Wayne Pharr OD FCSO) [xvi]. In my practice, we see children for 1 hour in the morning and 1 hour in the afternoon (minimum 3 hour gap between appointments) every day (Monday to Friday) for 2 weeks. Major improvements in all areas of visual function are quickly evident for most patients. At each session, the patient undergoes 20 minutes appropriate syntonics and 40 minutes OVT designed to improve the five "F"s, Fields, Fixations, Focus, Fusion and Flexibility². During these 20 therapy sessions we utilise 6 or 7 activities out of about 40 available over this time scale to

- a) avoid boredom, and
- b) to use different techniques to develop the same process, i.e, focusing can be trained with, near/far Hart chart, by the use of plus/minus flippers, "tromboning", or the HTS computer system.

(With severe visual processing problems such as amblyopia and strabismus, more OVT with syntonics may be provided 3 months later if appropriate)

Benefits of this intensive therapy:

- a) The child just misses 2 weeks of schooling, (much the same as if he was ill with a virus). If you schedule a child to come in weekly, on a regular basis, he will miss many weeks of the same subject, which is obviously *more* detrimental to his education.

- b) The child who has learning difficulties is often trying very hard at school, and is tired on getting home, hardly ready to settle down to school homework *and* home vision therapy.
- c) The therapist has total control of all activities, the patient can be pushed up to, but not beyond his ability. Activities that are found to be not suitable for a particular child can be quickly changed.
- d) The therapist is able to continually monitor the child, and to discuss progress and development strategies with the optometrist on a regular basis, and finally,
- e) If people do need to travel long distances, they can arrange local accommodation for this short period, rather than keep travelling long distances at regular intervals for many months.
- f) The practice staffing and time scheduling can be more efficient.

This intensive program is often not possible with adults due to work / family commitments, and here we generally do an initial consecutive 2 session/day, 2 day trial for both the patient, and us, to see if OVT can be beneficial, and if so, we set up a further 16 sessions with, preferably, a minimum of 3 sessions per week, as recommended by Charles Butts [xvii] (It is rare *not* to find improvement in fields with adults during the trial period)

We expect to see large improvements in all areas of vision during this time and we generally only do a small amount of home OVT following this intensive in-house training to finish off any areas that can still be helped.

The one exception to this is when developing the primal (primitive) reflexes [xviii], where exercises are carried out as home therapy over 4 to 6 months and monitored monthly.

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Color Fields, Intoxication, and Reading Disability

Sarah Cobb

Visual field charting goes back hundreds of years, but with the exhaustive analysis of 30,000 cases by Dr. T. A. Brombach, syntonometric optometry pay attention. As an optometrist, Brombach understood that many of the symptoms his patients complained about such as headaches, fatigue, poor concentration and blurring of print were actually signs of *intoxication* and not readily corrected with a lens prescription.

In his case histories, he noted exact amounts of *exogenous* toxins consumed by his patients each day. He asked how many cigarettes, how many drinks of alcohol, how much coffee, tea or soda, was taken each day. He asked specific questions about the teeth, such as number of root canals and sinus or tonsil infections to determine if his patient was being poisoned from a toxin within, *endogenous*, or without *exogenous*.

The field chart was administered several times throughout the day. In the morning, before any drinking or smoking, the field was taken giving the best possible field for that individual. Consequently, an evening field, after a day of abuse, would indicate the most toxic stage of the day. The delicate interweaving of the blue and the red with green collapsed meant a greater state of intoxication than if the green interlaced with a red and or blue.

Color fields measure disturbances in function due to stress, trauma or toxicity. Interlacing and inversion of color fields are the analytical factors that present the basis for a proper interpretation and classification of the various stages of intoxication. Intoxication also affects the tonicity of ducts, a slow recovery usually apparent. Also, general visual efficiency is poor with a highly intoxicated patient.

Green is the color most drastically affected by chemical change in the organism. Its constriction is traceable to a focal infection that is exuding toxins into the system. This can be a side effect of root canals. Other examples include: abscessed teeth, acute tonsil infection, acute Sinusitis, and poisoning from alcohol, paint, drugs, or a general systemic infection. Reduced sensitivity to green could also indicate tissue edema, especially in the pulmonary or cardiac region. It can be related to immune dysfunction and therefore involve difficulties with the thymus gland.

A chronic systematic infection will constrict the **red** field and is indicative of a *depressive state of exogenous intoxication*. This can happen when a focal infection develops into a general infection, causing health problems that are chronic in nature and indicate congestion, especially in the circulatory system. Constrictions in the red field could also accompany high blood

pressure, diabetes, adrenal dysfunction, and chronic fatigue. Visually it indicates trouble in the retina itself, or nerve pathway. Intoxication from a systemic reaction to coffee or tobacco can constrict the field, often causing it to interlace with green. With red constriction, careful charting of the area between the blind spot and the fovea with colored probes should be done, because in toxic amblyopia, scotomas develop around the fovea first with loss of color perception indicated, before becoming an absolute scotoma.

The **blue** field is the largest of the three. It represents the energetic integrity of the heart and adrenal system. A specific heart involvement will constrict the blue field. Often individuals with blue constrictions experience migraine headaches and sometimes sinus infections. Blue field constrictions also relate to adrenal fatigue and emotional exhaustion.

Brombach described a typical patient with interlaced fields, who had come in with headaches, fatigue, blurring and poor concentration. When the doctor learned the man was drinking 8 cups of coffee a day, he told the man to abstain for 48 hours and then come in for another field test. The man followed the doctor's orders and the field tests lack of interlaced colors was proof that it was the coffee that was giving him the symptoms.

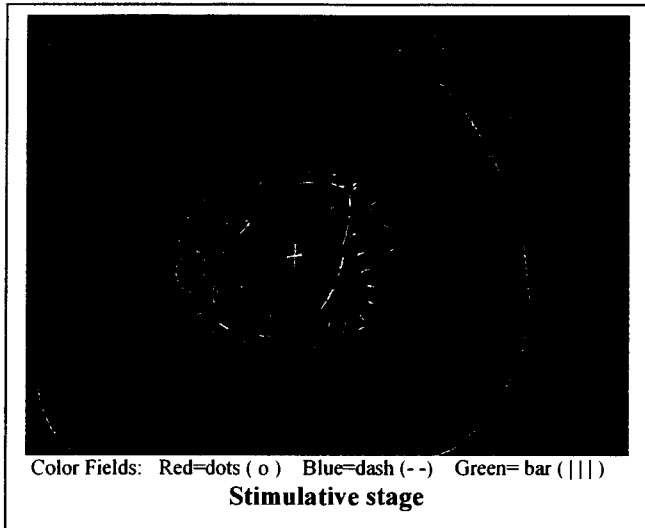
Brombach advised the man to give up coffee but when he refused the doctor compromised. He told the man to have just one cup of coffee and come in for a field test. The 3rd field test confirmed, through its lack of interlaced fields, that the man's constitution was able to withstand one cup of coffee a day without the toxic symptoms.

Fatigue

Fatigue plays another interesting part of deteriorating acuity. As one grows more fatigued, the white form field collapses in the non-dominant eye faster and to more of a degree than the dominant eye. This can compromise fusion. Constriction of red and green can indicate a general toxemia. When all color fields are constricted, often physical, or emotional traumas are in the acute stage.

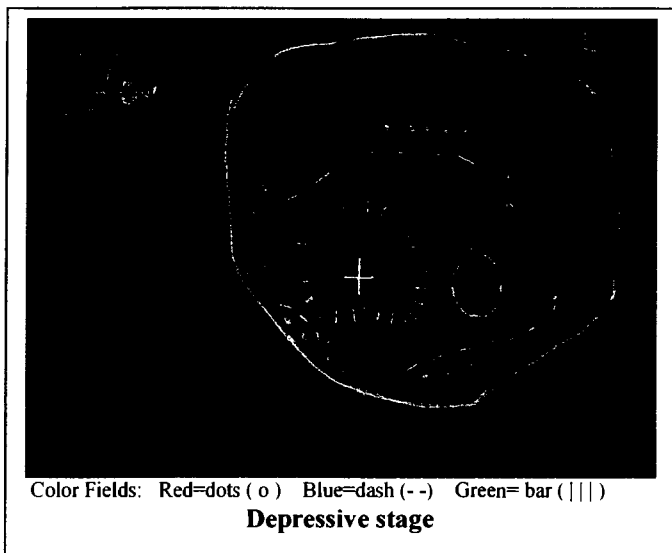
To fight fatigue, many of us use stimulants like caffeine. The field responds this way. In many instances, the causative toxic agent will first produce a stimulating effect, called the **stimulative stage** of intoxication. When the fields show an interlacing effect of green over red, together with a general increase of the entire field, the presence of a stimulative intoxication is indicated. The symptoms of general exhilaration are present until the maximum range of stimulation is reached.

This is indicated by a complete reversal or inversion of the green color field outline over red.



Symptoms

The next stage is the **depressive stage**, characterized by a contraction of color fields with often one eye more constricted than the other. The interlacing has moved further into the



periphery with the red over blue and finally the complete inversion of red over blue in one eye. There are symptoms of distress such as headaches, sluggishness in response to stimuli, poor concentration and generally a melancholic outlook in life. By this stage the ductions are poor, the accommodative reserve is usually low and a tendency toward increased exophoria at near is noted. At this stage, according to Brombach, certain letters can appear to fade and disappear entirely while reading.

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The third or **degenerative stage** of intoxication is sometimes called toxic amblyopia. Central scotomas can develop and reading ability becomes more affected. In the degenerative stage of intoxication, often early stages of scotomas are present. Because green and red are the colors of the nerve fiber, they are first affected. Red or green or even blue scotomas form first before a lesion develops and the scotoma becomes absolute. The visual symptoms include ocular discomfort, reading disability, and fading portions of the page.

Signs and symptoms of field constriction include: photophobia, discomfort, headache, poor concentration, difficulty reading, nervous symptoms, and fatigue. If the condition is allowed to worsen, scotomas form on the retina, compromising acuity.

Generally the causes of field constriction are: nicotine, caffeine, alcohol, drugs, and other chemicals. Other causes include: conditions involving inflammation, infection and injury, as well as both physical and emotional stress.

According to Dr. Larry Wallace, color fields also provide information for gauging both the physical and the emotional state of the individual. His article is posted on the College of Syntonic Optometry's website:

www.syntonicphototherapy.com

Reading Disabilities

Dr. Hugh Webb, an optometrist who worked with Brombach, wrote about reading disabilities in the OEP papers dated June 1924. He documents 383 school children with enlarged blind spots, all who were considered reading problem cases. It was found that poor readers tended to exhibit slower speeds of both picture and word recognition. Webb explains that since the eye fixates, taking in a certain amount of text during each fixation, the extent of the central field may influence the speed of perception in reading by limiting the extent of the line perceived at each fixation.

Vision is influenced by toxic conditions. Changes in the peripheral limits of the color field shows it earlier and more graphically than any other tests. Lenses and prisms won't eliminate poisons even though they may offer temporary relief from visual fatigue. Brombach did not claim that campimetric field charting was the panacea of eye problems, just part of a complete eye examination after it was correlated with other data. It is, however, the only source of information in certain types of lesions in the brain and optic tracts from trauma and disease. It gives information about the state of toxemia, both endogenous and exogenous and differentiated between the two. Finally, it shows the reasons for many reading problems in disclosing permanent or temporary compromised areas, often near the fovea, not normal to the individual.

Light and True Nature

Nishant Mathews

Davies is an elderly Californian woman who had a stroke. She cannot talk any more, so she communicates via a writing pad. On the day that Len, her psychiatrist and friend brought me to visit, she wrote that she is restless and feeling *stuck*.

Len introduced me to Davies as a man who helps people relax with themselves using color lights.

Davies picked up her writing board and wrote, "OK."

I stood behind her and used a Lumalight color flashlight to apply colors to her face and head. I offered purple across the forehead for brain coordination.

Blue in the occipital notch for peace and relaxation.
Pink over the top of the head.

Then I took my seat about 1 ½ meters away from her and shone green towards the heart center.

The total time about seven minutes.

Davies is quiet for some time, then she picks up her board and writes, "I feel all loose and floppy all over." I smile and nod.

She erases this message and writes, "I feel like I have been in a Zen monastery for 20 years."

I take the board and write, "Welcome Home."

She writes, "I can't believe that just a few minutes of color light can affect me so deeply."

I write, "You are light. We are all made of light. This is where we come from and where we go back to."

She smiled and we sat in silence a few minutes before finishing the session there.

Later, Len told me she was peaceful for the next three weeks of his visits, as though she had passed through some big barrier.

As a therapist who uses light. I am always curious: what is it doing? How does it work?

What happened with Davies? How?
What system explains it?

I was also impressed that such a little amount of light could touch her so much and so quickly. She had lived a normal, ordinary life without any esoteric tendencies. Was it the light that gave her the sense of "being in a Zen monastery for 20 years, or did the light touch something that was already intrinsic to her and switch this something back on?"

I suspected that it was a combination of both, but the biggest payoff was in her recovering the deep relaxation that was always inside her.

The light had invited her into an experience of her True Nature.

If we want light to help people experience aspects of themselves which are often lost or forgotten, then there are two paradigms that can be our best friend.

First, we have to see people as a field of consciousness. This field is a big envelope of consciousness, information, and energy that surrounds all of us. We write information into our field in color patterns, and when we shine color light into the field, we can interact with this field of consciousness in a language that it already knows. While we all know that light works with through the eyes, through the skin, through the meridians, through the chakras, we also have to

consider the field of a person as a whole. This is another level where things can work, and often the most powerful option.

It's the field which has the most direct connection with the consciousness layer I call True Nature.

Second, is the *quality of intention that guides the light*. Color lights are powerful tools, but they become more precise and powerful tools when combined with intention. I believe that the light will go where we intend it to go and affect what we intend to be affected. Shining light with an intention of affecting the field of a person will do just that just as shining light in the eyes of a person in order to affect the endocrine system will do just that also. Light will go where we aim it.

In the Sufi world, the intrinsic qualities of people are often expressed in colors.

These are known as Lataifs.

- Red is associated with the right side of the body and the capacity for courage and action and strength.
- Yellow is on the left side of the body and relates to joy, intelligence, and lightness of spirit.
- Green is in the heart center and evokes love and compassion.
- White is in the solar plexus and relates to the quality of will.
- Black is in both the lower belly and the third eye. It carries the wisdom that comes out of deep peacefulness.

These are our resources, our capacities. They are as natural to us as arms and legs and eyes. These capacities, like the rest of our bodies, are manifestations of our True Nature. They will spontaneously manifest when they are required, or they can be conditioned, like our vision, into marginal and selective appearances..

When we map someone's field, we could see it as a loss of their field of vision, we could also see it as a loss of their sense of themselves. The retracted field and the associated colors tell us what inner qualities are being contracted or are unavailable right now. I suspect that we will find that first there is a loss of contact with our own beingness, and then second this becomes a distortion in the visual field.

As a therapist, I'm always asking myself, "Where is the being here? What part of it got lost? Why? What do we have to go through to recover it?"

These deep intelligence qualities that we all have are not hidden or forgotten for nothing. There are some deep wounds around them—fear, sadness, grief, loss, anger and others of the 7 dwarfs.

The first priority is to recognize these coverings and bring light to them. Color light can handle and detoxify just about anything. Once the guardians are melted with light, then you can shine light into the core places and wake them up.

It doesn't take a lot of therapy or a lot of time, just clarity and intention. After detoxification, color light has the ability to help us see things in a new light. It is a tool for fresh understanding.

Understanding is a function of the heart, and color light helps us open our heart to our selves so that we can be with our experiences without fear, guilt, or blame. In this way we can "digest" the old experiences, we can metabolize them into useful information and energy for living our lives in a fresh way.

As the heart relaxes in understanding, a new sense of our being opens up. It is as though the door to our connection with our True Nature swings open. For some people, just putting the toe in the water of True Nature is enough. For others, it is an encouragement to go very far and very deep into an experience of the self that is not limited to the personality. These experiences can last a few seconds, a few hours, sometimes for days or even months.

These baths in True Nature give us a new ground in ourselves. They bring back the original love, vitality, and clarity of our essential self. Frequent journeys into the essential self leave us with a profoundly new sense of who we are and how we can live our daily lives. They give us a real ground under our feet.

The cascade of detoxification, understanding, and True Nature can happen almost instantly. In fact, it does. It depends on the capacities of the therapist and clients to bring attention to the layer of experience that is the most pertinent for the situation at hand

One last story that I would like to share with you is from Mary, a friend who was terminally ill with brain cancer.

She tried radiation, surgery, homeopathy, herbs, and vitamins by the handful. They were all palliative, but nothing worked. The tumors kept reappearing and growing and her body functions began to steadily fail. When it was clear that her body was unable to cope any further, she asked my partner Komala and me to come be with her and a small group of friends for her last days.

Mary had lived a life of grace, adventure, and creativity. She was determined that her last days would reflect the same style as the rest of her life. Even with the tubes in her arms and the morphine patch, she was a radiance in her bedroom. Most of her friends did not know how to be with someone who was ostensibly dying yet full of a New England no nonsense vigor. I remember shaking my head as I heard her declining a telephone offer for her trade equipment. "Lousy offer. Nobody is going to take advantage of me!" she said as she dropped the phone down.

When we were alone together, fear started creeping up. She would talk about wanting to escape, wishing that she had left better relations with some of her family members. She was regretting not being able to see her grandson grow through school. She went into a brief heart failure and then revived with the help of some acupuncture needles. It was a terrifying experience. She was clearly rattled at the prospect of a painful uncomfortable death.

At this point I began practicing a Tibetan practice of breathing in her disturbance to my heart, and sending out light and love to her. I also began giving her a sequence of color light specifically designed to counteract fear and raise the confidence of the heart. Each time we did this, the pain and fear levels would subside. At first she would talk about the changes she felt, later on she would pass into sleep.

Her last night was marked with the rattle of pneumonia in her lungs. She couldn't hold her head up any more, and the marked sound of each pull on the oxygen tanks was another miracle. Komala sat the night through by the side of her bed while I slept nearby.

In the grey light just before dawn I woke up and offered to trade places with Komala. Sitting in the chair next to Mary, I felt helpless and resigned. Mary's head barely rose for a breath any more, the sounds on the oxygen equipment were more infrequent and labored. I took a pink light, the color that connects us with peacefulness and Spirit, and began stroking this light back and forth across her head. To my utter amazement, she sat straight up in bed and held her head erect. It was as though she had walked right out of her morphine daze. I felt us synchronize together, then I put the light over the top of her head, the place where there is a natural opening for leaving the body consciously. Two or three times I circled the light close to her head, then with a whisper I took the light up off the body. She came with it.

In the next instant the light bulb popped in my hand. I heard her say, "Hey, this isn't so bad." There was no more sound from the respirator. Mary had left. Gracefully. As the other friends slowly gathered, I sat for a long time in the light grey room. I felt like I had witnessed something profound, a miracle, a send off that truly honored the way she lived and opened the way for her new journey. I felt embraced by something enormous, deeply touched, full and empty.

It was a privilege to join her in True Nature.

These colors resonate the True Nature in a way which helps us to meet the stuff that we all meet in a more confident and creative way. In a sense, they put ground under our feet.

- 1) Loss ---- Golden Light
- 2) Emptiness ----Blue, or possibly Grey
- 3) Meeting parts of ourselves we have tried to repress ----Lime Green, or Green
- 4) Loss of control ---- Blue
- 5) Recognizing incompleteness of our lives experiences ----Lavender or Pink
- 6) Pain and/or discomfort ----If actual pain, use Blue, if anticipated pain, Yellow
- 7) Emotional pain---- Pink, Green, Yellow, and/or Violet
- 8) Dramatic change of gestalt ---Gold or Violet
- 9) The Unknown ----Grey, Blue, Green, or Yellow
- 10) Embarrassment ----Maroon.

ANALYSIS OF COLOUR VISUAL FIELDS

Denise Hadden

Introduction

Colour visual fields are the primary diagnostic tool in deciding whether Syntonic Phototherapy will be of benefit in the treatment of a patient. Much work has already been done in the analysis of each particular colour field plotted, and this has certainly laid the groundwork for further advances in our understanding of peripheral awareness. Without peripheral field evaluation it is hard to conclusively determine the advantageous or indeed disadvantageous effects of Syntonics.

Previous work has described the method of determining colour fields as plotting four or eight cardinal points with a colour target. The analysis of this resultant field has been restricted to noting the size of the field by diameter, and watching the incremental increases during the process of light therapy. Interlacing fields indicate either a physical or emotional toxicity and Larry Wallace has already detailed the different physical, mental, and emotional meanings attributed to the different colour fields. Irregularly shaped blind spots are known to signify the need for craniosacral or chiropractic intervention. [Fast, Pharr & Shayler]

My own research work into visual fields over the last few years has evolved because of a chance incident during charting the fields of a patient. I found that by plotting every few degrees one frequently obtained very irregular patterns. Placing an iridology chart over this field enabled the diagnosis of physical conditions and emotional states. Moreover, follow up fields after syntonics would reveal changes in their field shapes that matched the physical and emotional changes that the patient was experiencing.

This method of diagnosis introduces another way of determining the priority areas of imbalance in a patient. It also allows the patient to attend to and witness his capacity to open to a conscious and fulfilling life.

The Field

Colour visual fields provide a wealth of information in. Fritz Popp and others have described the biophoton

field that surrounds living organisms as being highly complex, self-tunable, oscillating fields of energy. This 'light field' regulates and controls all our life processes. When we plot visual fields, we are measuring information that the brain receives from the eyes and the eyes receive from the 'field'. In the same way as we emit a spectrographic pattern of our electromagnetic field, we can plot colour emanation from the brain. This visual field or 'light field' then describes the emergent biophoton field of a human being.

A field is considered to be an area of space containing positive and negative energies within which a force influences movement. The emission and reabsorption of energy creates the constant flow within this field. There is no 'mass' which affects our lives. It is only 'charge' which propels us through life.

How then, is it possible for a visual field to be symmetric? If it is not symmetric-then what shape should it be? How does it change? Are we in a position to determine the reasons for the changes in order that we may guide our patients to greater understandings and awareness of themselves.

Diagnosis of patterns in visual fields has been an engrossing body of work for me. It was entirely stimulated by my insistent mentor who refused to answer any of my questions until I had done proper visual fields. Thanks again, Stewart.

Irregular Fields

After charting thousands of visual fields, one develops an ability to anticipate the size of field. So when the expected shape does not appear, it provokes a curiosity to explore further. The first irregularities that I became aware of were restrictions in the upper half of the field, mainly around the 90 degree axis. I attributed this to bushy eyebrows, or my particular campimeter, and having no resource that could explain this frequent response, I laid it aside as some interesting anomaly which would some day make sense.

Through a fortuitous experience when I was charting the fields of a friend who had cancer, I found a deep restriction on the 90 degree axis. An iridology chart happened to be on

my desk and I realized that this line denoted the 'Connection to life' line. Without hesitating I said 'Ursula, you don't want to live any more.' She looked totally shocked for a few seconds and then burst into tears. This profound awareness explained why she had been unable to halt the progress of her cancer with any form of treatment. On a conscious level she wanted to live, on a sub-conscious level she had no desire to continue with life. She was completely unaware of this until she 'saw' it in her visual field.

Understanding the patterns and changes in visual fields allows a greater discernment and prediction of the physical and emotional changes that patients are likely to experience. Each pattern exposes an array of information that is largely subconscious. Through skillful counseling or coaching we can encourage patients to consciously co-create the opening of their fields. By bringing attention and awareness to the areas that are blocked, and in combination with Syntonics, we facilitate the rapid release of blocked emotions and physical pains.

Iridology and Visual Fields

The iridology chart as we know it provides us with an accurate mapping system with which to analyse colour visual fields. Colour visual fields show interference in the neural input/output response and therefore present a highly accurate map of the entire physical body and the mental/emotional processes. The specific shape of the field reveals the pattern of energetic information that emanates from the brain via the iris fibres.

Obtaining such specific information requires a more detailed method of charting fields. By plotting points every few degrees a pattern of complex circularity, undulations and distortions reveal the image of our solid and energetic bodies. These undulations are similar to the collarette of an iris.

The pattern of the colour visual field exposes an array of information of which the patient is rarely consciously aware. Matching the iridology chart over the field shape exposes the areas of blockage or imbalance and acts as an indicator to the patient that certain physical and emotional conditions are present. This process is extremely empowering for the patient.

It brings their attention and awareness to the specific areas of their lives that have had most impact on their mental and physical health.

The synergism of patient, practitioner and emanating field allows the facilitation of a process that stimulates the release of stored emotion. The crux of the patients issue is generally revealed on the very first assessment.

Researching the various iridology charts and connecting them to numerous colour fields reveals fascinating information. The area between 11 and 1 o'clock relates to all the functions of the brain. The remainder of the field [i.e., from 1 o'clock through to 11 o'clock] indicates the physical state of the organs.

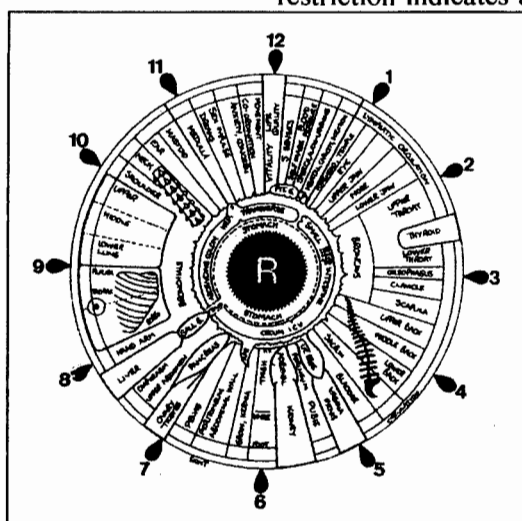
The following brain zone interpretations were compiled from books by Farida Sharan and Dorothy Hall.

12:00 Life Force/Vitality Zone

This shows the degree of connection to life. Severe restriction indicates a loss of desire to carry on, thoughts of suicide or deep depression. When there is no restriction, a sense of abundance, exhilaration, and vitality is present.

Dreams / Hallucinations/ Perversions Zone

Preserving and protecting one's sexual energy promotes powerful creative impulses. Sex can be used as a battlefield or there may be complete lack of interest. This area is also affected by the adjacent mental area where anxiety and fear can override sexual feelings and inhibit natural loving and caring.



Anxiety Zone

This zone describes the 'fear responses' of the individual, which can relate to birth trauma as well as physical and emotional circumstances. The adrenals are directly opposite this zone and when both are restricted the pattern of behaviour is chronic and compulsive.

Sensory Motor Zone

This area governs muscle coordination, fatigue and strength. The mental state is fear, uncertainty and lack of confidence.

Five Senses Zone

How we experience pleasurable stimuli is recorded here. It stems from severe criticism and guilt and relates to denying ourselves of life's most treasured moments.

Perfectionism/Blood Pressure Zone

This area governs blood pressure regulation, decision making and ideals and goals. The blood pressure relationship is a defense against stress. One's sense of self and how we push ourselves to achieve our dreams is the issue here.

Communication Zone

This determines how we function within our family, work and society. Restrictions show an inability to concentrate, dyslexia, stuttering and reveals a high level of stress.

Creative Intelligence/Intuition Zone

This area affects memory, reasoning and willpower and indicates when inspiration is blocked due to chronic apathy and negativity.

Balance/Equilibrium Zone

This area covers equilibrium in its physical, mental and emotional aspects. Severe restrictions can show multiple sclerosis, epilepsy and dizziness.

Medulla zone

This controls respiration, coughing, sneezing, hiccoughs and vomiting and reveals a severely mentally controlled individual.

Diagnosis of Visual Fields

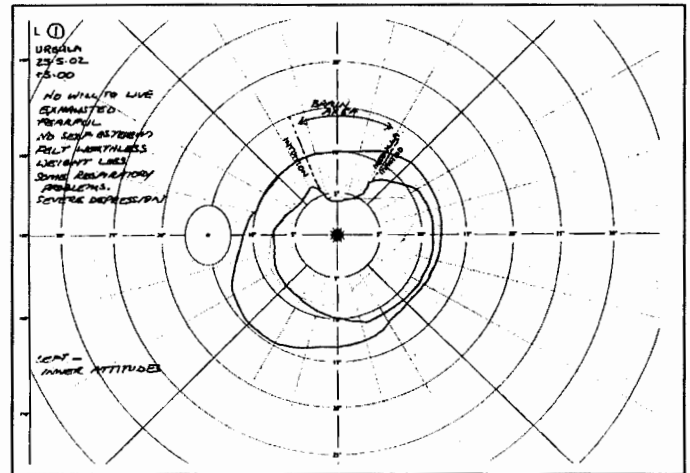
Field constrictions indicate whether patients are happy, or depressed, love life or are ready to end it. By placing an iridology chart on top of a field one can determine the areas of the body that are most diseased or traumatized. Constrictions in the upper half of the field relate to mental and emotional instability and those in the lower half relate to physical imbalances. Hence a constriction in the top half would indicate depression or a loss of direction in life. The lower half would indicate difficulties with the abdominal area, liver, kidneys and the legs. It also shows an inability to be grounded and focused in life. Changes in the right eye reveal the readily available energy and those in the left eye the energetic level of self worth.

Imbalances frequently have their roots in the diagonally opposite area-supporting the belief that our emotional blocks appear in our physical bodies.

The way in which a field moves demonstrates the willingness or capacity of the patient to change. We close down our peripheral fields in an effort to minimize or totally block out disturbing information. No amount of light therapy will convince a patient to open their awareness to an irresolvable personal

situation. Fields typically stay stagnant or move into a 'holding pattern' when the patient is unable to shift perspectives. Patients may also begin a 'wobbling pattern' where the fields produce troughs and valleys at different points. This indicates a system that still cannot release the block, but merely redirects the imbalance to another area.

Both these situations should be regarded as indicators that the patient is traumatized. Extreme reactions require great care in handling the patient with possibly the support of a psychotherapist. Mild reactions respond well to termination of syntonics for a short period. Combining alternative healing methods with syntonics quickly normalizes a distorted field. Once the decision is made to release the emotional block, the field often bounces out and the sense of freedom in the patient is palpable.



Children do not often present with severely distorted fields. They appear to minimize rather than distort. These tiny fields are typical of ADD and ADHD and cerebral palsy children.

Field Patterns of Specific Diseases.

Field watching can become addictive. Discovering that there were different patterns to different diseases was a fascinating process. There are specific shapes that appear time and again and others that will still reveal their meaning.

My notes relate to diagnosis using the right eye iridology chart.

The area that I see most consistently depressed is in the upper field, between 11 o'clock and 2 o'clock. This signifies a general depression of emotions, a loss of vitality and connection to life and an inability to voice how you are truly feeling. I see it mostly in adults and teenagers. It is particularly sad to see it in a child as it signifies a deeply traumatized state. Children more typically will diminish

their fields rather than depress them in one area, and on opening them, do so in a fairly regular pattern. Most people will initially deny feeling depressed, but will eventually [often within a few minutes] acknowledge this to be true.

The 1 o'clock area, when depressed, confirms sinus infections and the difference between right and left eye charts will even show on which side the sinus is worse. Asthma sufferers show a reduction in the area of the lungs [8-10 o'clock].

One glaucoma sufferer who had field loss in the right lung area, also had suffered severe asthma all her life. After syntonics treatment her field improved, her eye pressures stabilized and she was able to stop using her asthma pump for the first time ever.

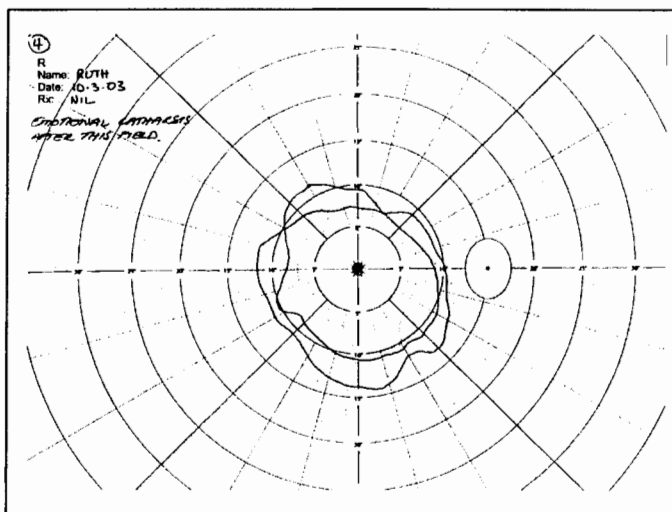
Oval fields are typically seen in hyperactive thyroids. The flattening over the brain area is due to the extreme mental exhaustion from the body being on high alert all the time and the horizontal meridian reveals the hyperactivity of the lungs and thyroid areas. Fibromyalgia and Chronic Fatigue patients show a warped field of severe depression in the 3-5 o'clock zones and the opposite 9-11 o'clock zones- their backs, necks, adrenals and anxiety area of the brain bearing the weight of tension.

Differences between the right and left eye charts indicate the imbalances between outgoing energy[R] - how much you use up during the day, and internal energy [L] -how much you have stored. This is similar to saying the right chart denotes the amount of money you are spending and the left chart shows how much money you have in the bank to spend [not including your overdraft].

Bipolar patients may begin with 'relatively' normal fields in that they only look flattened, but begin syntonics, and the picture can change dramatically. They are quickly put off balance and their fields begin to undulate almost through 360 degrees. Continuing with treatment most often just moves the undulations so that the crests and troughs are at different points around the diameter of the field.

When this type of field presents it is wise to be wary of the responses that phototherapy will produce. These kinds of patterned movements are our subconscious attempts to deny and desensitize traumatic emotions from surfacing. Any distorted field is a sublimation of the physical sensations [of touch, taste, hearing, vision and smell] that allow us to bury our feelings. Bringing

what we are not seeing to conscious awareness allows emotions to be released and the healing process begins.



I have begun research into the fields of AIDS patients. This was difficult to maintain because the clinics are cesspits of infection and my immune system was unprepared for the bacteria there. AIDS patients whose CD4 counts are lower than 100 and who are not on antiretrovirals [ARV's] typically have tiny fields-3-5 degrees. I found one newly diagnosed AIDS sufferer with a restriction in the field around the sexual organs zone on the iridology chart. She also showed a severe restriction in the liver zone and was eventually diagnosed as having liver cancer as well as AIDS. Those AIDS patients who are on ARV's show fairly average fields of 10-15 degrees monocularly. Long term AIDS patients who are consistently maintaining treatment with good dietary and lifestyle habits show 15-18 degree fields monocularly with no specific undulations.

What then would we find in certain types of people, the victim, the narcissist. What about the terrorist? Is there a field shape that would indicate the propensity to be of a certain psychological nature?

If we regard our visual fields as being similar to that of a cell wall [a boundary], we know that our survival depends on our ability to take in nourishment and excrete waste. Our boundaries should allow us to take things in, keep things out and open up when appropriate. As Christine Caldwell states in Getting Our Bodies Back, "There are three possible states for us to be with regard to boundaries: fusion, contact and isolation." Fusion denotes the victim who would rather be co-dependant. The extreme state of this is an adult field of 0-5 degrees. Contact is our ability to touch our energy boundaries with others with ease and joy. Isolation is also a 0-5 degree field-but has separated to the point where others are alien. There is no melding or blending as in codependency. Would this be the field of a terrorist?

Holistic Methods of Increasing Fields.

Many of the patients that I see are already on a journey of personal empowerment and self discovery. They come to see me with a specific request to expand their conscious awareness of themselves. They know already that their eyes hold the capacity to see what they feel fearful of seeing. Their journeys are not only with light, but using light as another method to release the addictive and destructive patterns that prevent them from loving themselves and others unconditionally.

Working with these patients has shown me that although light creates rapid and often miraculous changes in people, other healing modalities can also increase field size and regularity. My own personal experience of knowing one Christmas that if I did not take an extended leave I would surely die, led to me watching as my field inexorably increased without any light, but after a six week spiritual retreat! Extended deep rest increases a visual field, spiritual retreats increase visual fields and any form of meditative practice also enlarges it.

One patient presented with a considerably reduced field and a flattened brain area. She expressed desire to begin a light program and that day she did 10 minutes of full spectrum [this means 15 seconds of each of twenty colours]. She planned to return the following week to begin the full program. The following week she returned for a consultation. I was a little confused, as there was no need for me to see her again before she began the syntonics program. She sat down and in an animated voice asked me to re-do her fields. She said that she had gone to do a Reiki 1&2 weekend after seeing me and her experience had been profound. She felt that her field had opened by itself and that she did not think she needed any treatment. During the course,

the teacher had used her to demonstrate a Reiki treatment and during this she 'saw' each of the colours of the spectrum in brilliant clarity. It had caused such a release of emotion that she cried for some time afterwards. Her field had increased from 10 to 18 degrees over a weekend with nothing other than the 10 minutes of spectrum and the Reiki treatment. A kinesiologist who came for syntonics balanced herself using kinesiology techniques after each session of light. Her field was also initially considerably reduced. Her fields rapidly changed and normalized at a rate far faster than I had anticipated, and she left feeling more empowered and joyful than she had felt in years.

Homopathically a reduced upper field indicates depression, and the appropriate remedies encourage a faster normalization of the fields.

Coaching on Fields

More recently I have discovered the power of words, judiciously chosen, that allow us to walk with a patient around the boundaries of their colour visual fields.

Coaching is a method of using highly specific questions that enable you to directionalise the consciousness of a patient, thus assisting them to find solutions to their problems and gain insights which will enrich their experience of life.

Small fields are expressions of how we see the figure and not the ground, how we numb and desensitize our periphery in order to maintain control. The boundaries of these fields define the way we see the world. It is not only our visual perception that is diminished. We are prisoners of our own language, locked into a particular shape or pattern that defines our life experience. Verbal methods direct our attention to the other side of the boundary- the 'off roads'- seldom used paths which lead us to deep awareness and new perspectives.

Conclusion

It appears that the movement of a 'light field' is the way that we reinforce our beliefs in our world. Mapping the changes in people's fields brings their attention to the emotions that are the roots of their imbalances or diseases and creates a place for change. Bringing awareness without judgment to the patient allows us to gently coach them through the maze of distorted opinions to a much brighter vision of their true potential. As Carolyn Myss states: "Your world can change once you decide that you and not your shadow will create your future."

Illustrations and Charts

1. Iridology chart reprinted from Dorothy Hall.
2. Chart -UvM. No will to live. Exhausted, fearful, felt worthless, weight loss, some respiratory problems, severe depression. Her life was one of great loss and abandonment.
3. Chart -RM. Myopic, vitreous tears, drusen, fibromyalgia, chronic fatigue, slightly low thyroid. After Mu Upsilon and Rainbow she had an 'emotional catharsis'. Sudden understanding that she held herself together when her Mother died and that all the pains in her body and back were because of this.

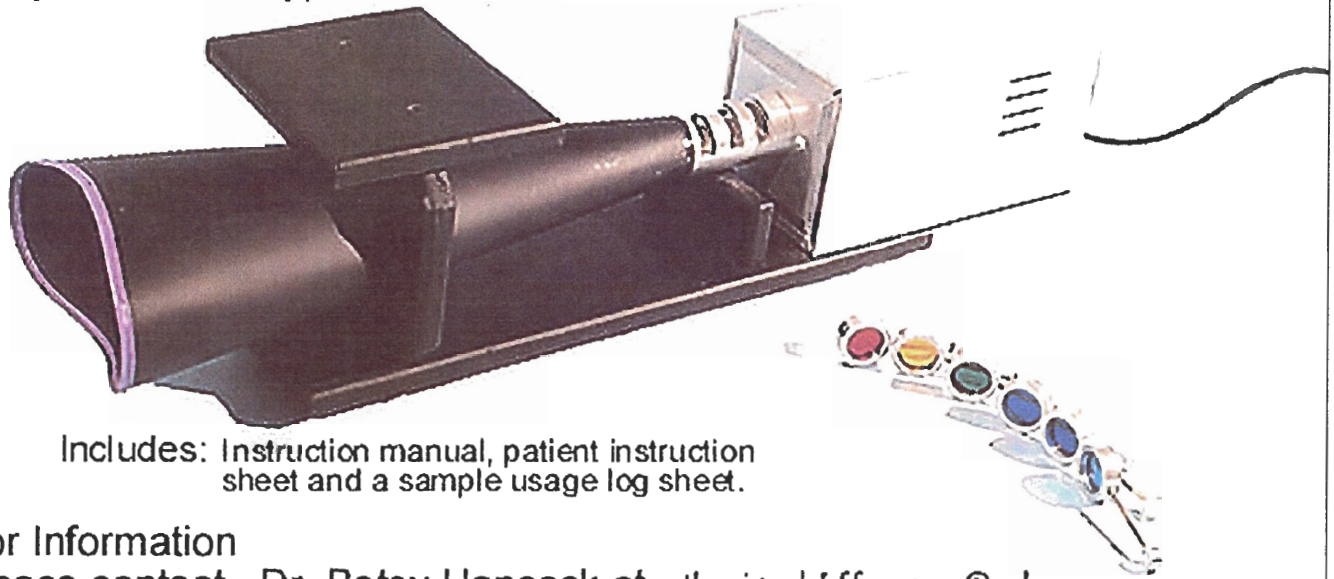
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Sewall, Laura 'Sight and Sensibility'
Khan, Pir Vilayat Inayat 'Awakening'

Hancock Home Therapy Syntonics Unit

This lightweight, portable unit features a low operating temperature and is designed to complement the College Syntonics Unit. Designed by Walton M. Hancock, Professor Emeritus, Department of Industrial Engineering, University of Michigan and Dr. Betsy Hancock, O.D. as a patient rental unit. The sturdily constructed unit uses glass filters identical to those of the college machine numbered to correspond with the syntonic colors for easy patient use.



Includes: Instruction manual, patient instruction sheet and a sample usage log sheet.

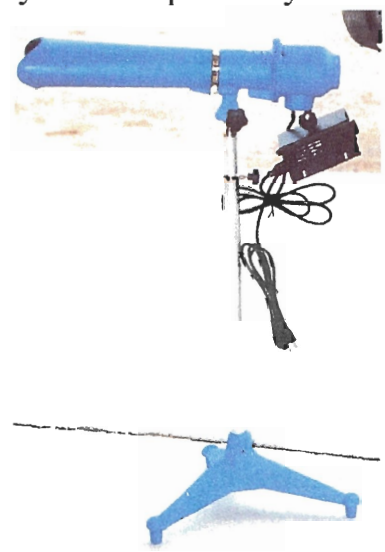
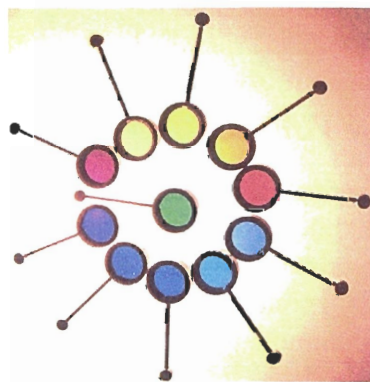
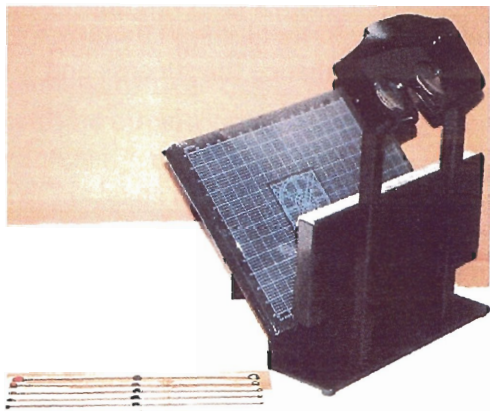
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Guide to Structure/Functional/Behavioral Therapeutic Modalities-- Conventional Vision Therapy, Syntonic Phototherapy and Orthokeratology for Myopic Patients

Larry Wallace, O.D

Abstract

Vision therapy, as an adjunct to Orthokeratology, makes sense, not only from a clinical and scientific basis, but, from a practice management standpoint as well. The vast majority of ortho-k is to treat and reduce myopia. Myopia may have a genetic predisposing underpinning, but is more a result of compromises in visual functioning. While ortho-k addresses the structural components of myopia by reshaping the cornea and altering refractive error, vision therapy can treat the poor visual skills which contribute to the structural adaptation that result in myopia. Additionally, two clinical findings can shed light on imbalances in the endocrine and nervous systems by pupil responses and kinetic field testing. If a pupil exposed to direct illumination fails to hold constriction and begins to re-dilate the patient usually suffers adrenal fatigue. In Syntonic Optometry this condition is called an alpha-omega pupil and is a major signpost of autonomic imbalance. Restoring more balance to the autonomic nervous system will support normal pupillary and accommodative function.

MYOPIA CONTROL/ORTHOKERATOLOGY/VISION THERAPY/SYNTONICS

Introduction

The development of refractive error is often a case of function determining structure. The adaptation to near point stress results in distortions to corneal shape, axial length, accommodation, posture, perception, and even personality. Myopia is a disorder of lifestyle as well. The child who spends hours a day at near centered tasks will often develop myopia as means of great clarity and comfort at near at the expense of distance acuity.

Stresses on the visual system need not be a lifestyle choice at all. Children who suffer chronic ear infections, high fever, minimal brain injury, and exposure to toxins, all are at greater risk of developing refractive conditions and visually-related learning disorders. This is due to the imbalances such experiences create in the autonomic nervous and endocrine systems. The visual system is supported by the hormonal and nervous systems to such an extent that chronic imbalances in these systems will recondition the ocular motor skills. This can lead to loss of efficient visual processing and to stress that will cause a child to avoid near demands or adapt by becoming myopic.

A comprehensive behavioral and functional approach to myopia, including conventional vision therapy (VT) and syntonics, will help treat underlying causes of myopia and will only serve to enhance the success and long term results of ortho-k.

Comprehensive Visual and Pupillary Function Analysis: Step 1

This begins with a complete visual analysis that includes testing binocular function at far and near, accommodative facility, oculomotor skills of fixation, saccades, and pursuits, and kinetic visual fields. When the sympathetic nervous system is overworked, the pupil loses parasympathetic tone and the pupil cannot sustain its normal ability to hold contraction to light. The pupil shares the same innervation as the ciliary muscle, causing abnormal accommodative function.

Imbalances in the autonomic nervous system (ANS) also will be revealed in kinetic field testing. This is accomplished best using a campimeter and measuring motion fields and blind spots at near in a monocular

situation. A one degree target is used to plot visual awareness in the central 40 degree testing area. The blind spot and color fields for green, red, and blue are also plotted. Constrictions and enlarged blind spots are often discovered. This is especially so for patients with a history of fevers, ear infections, and head trauma. A detailed description of this procedure created by the modern father of syntonics, Charles Butts, O.D., is available from the College of Syntonic Optometry.

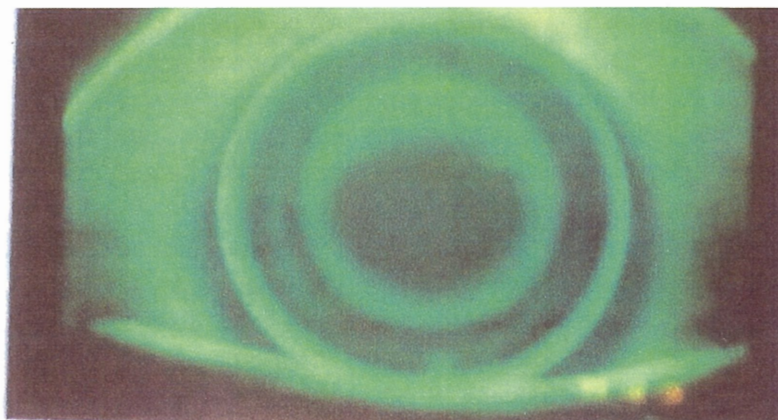
When the fields have reduced sensitivity, the visual system loses speed, endurance, and processing efficiency. The ability to track depends on the speed of the magno cellular system. Deficiencies in peripheral processing are implicated in many reading disabilities. The enlargement of the blind spot can indicate optic nerve or cortical dysfunction. It also indicates acute stress in the visual system. Field defects measured in this fashion demonstrate functional compromises not easily seen in static threshold testing.

Conventional VT Treatment: Step 2

Reduced convergence and accommodative skills can be treated with a wide range of therapeutic approaches, including lens and prism rock, vectographs, stereographic instruments, computer orthoptics, rotators, and a wide range of home therapy devices and exercises. Through a learning based system of therapeutic activities a patient can improve visual motor skills and visual fitness to reduce the visual stress so prevalent in our near centered world.

Concomitant Syntonic Phototherapy: Step 2A

Those findings above also can be used in a therapeutic approach employing Syntonic optometric phototherapy after revealing imbalances in the ANS and endocrine systems and help diagnosis and treatment. Therapy utilizes specific frequencies of colored light in twenty minute sessions, two to three times a week for up to 20 times. Syntonic therapy is significantly shorter than conventional vision therapy. It can be integrated with any vision therapy approach to enhance and improve



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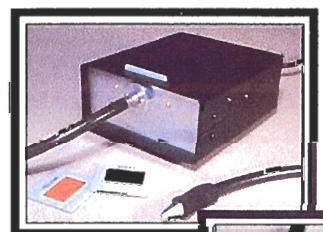
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clinical outcomes. A progress evaluation at the middle and conclusion of syntonics will assist you for modifying the VT activities.

Syntonic Phototherapy's action is by way of the retinal-hypothalamic pathway where light frequencies serve to affect changes in the hypothalamus, midbrain, pituitary and pineal glands, as well as the brain's electromagnetic balance. The result is more balance in the homeostatic regulation of the nervous and hormonal systems. When the proper support is restored, many visual conditions are normalized. When the proper support is in place, learning based therapies, such as visual skills training are greatly enhanced.

Through classical vision therapy and syntonics, a neurological and functional approach can work concomitantly with the structural treatment provided by ortho-k or corneal refractive therapy. The use of multiple reverse curves and high Dk GP contact lenses can correct up to 6.0 diopters of myopia with overnight wear. The modern lens modalities can accomplish this in as little as three days and usually not more than two weeks.

Ortho-k has been a safe modality for over 40 years. Early pioneers, often taught under the auspices of NERF (National Eye Research Foundation), developed newer techniques and materials which have led today to enormous interest and research as a very viable and safe alternative to refractive surgery. The development of corneal topography allows the visualization of curve and tissue changes for accurate fitting and treatment.

Much of my ortho-k treatment involves children with emerging myopia less than 3.0 diopters. They almost always have comprised binocular and accommodative skills and a lifestyle of near centered demands. These young people also have constrictions in posture, functional visual fields, and perceptual flexibilities so common in the myopic syndrome. It only makes sense to treat the whole person as much as possible. So we train the ocular and sensory motor skills, prescribe stress reducing lenses for near work, visual hygiene, balance the neuro-hormonal system with syntonics, and modify the structural anomalies with ortho-k lenses. The multiple therapeutic approach produces the fastest, deepest most lasting changes in the myopic patient.

I have found over the years that those who maintain adequate skills will have much fewer regressions in myopia than those whose skills begin to deteriorate. This also means less future lens changes in order to control corneal molding. In the same vein I find that those lenses that perform well also change myopic behaviors which are reflected in well maintained functional skills. When a spike in myopia occurs, there is usually an increase in near centered visual demands. A total evaluation of skills, hygiene and lenses performance is required.

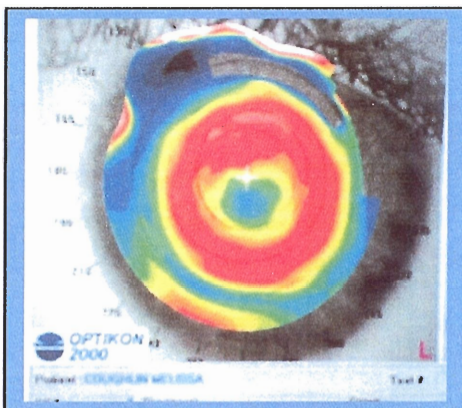
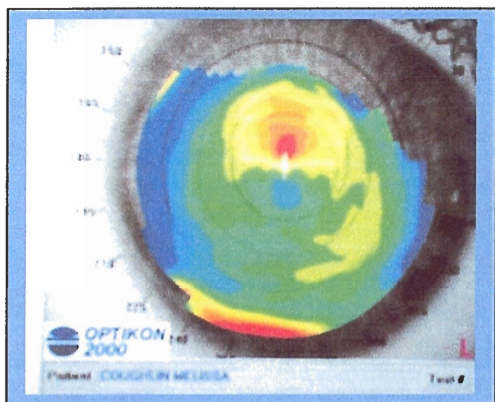
The elimination of spectacles or daily wear contact lenses for distance frees the patient from the dependence of a device that emulates a myopic free lifestyle. This supports behavioral changes as well. The outcomes surpass surgical approaches since function and structure are *both* changed and there is no loss of body tissue. The corneal effects also are completely reversible within a few weeks after ortho-k lenses are discontinued. Several examples will illustrate this approach.

Case 1: Esophoria and the Chronic Syndrome

SJ, age 7, first seen in February 2003, was a shy, introverted, avid reader and complained of far blur. Her acuity was 20/100 OU and refraction: -1.50 OU.

- *4 prism diopters of esophoria at far and near
- * very constricted fusion ranges at far and near
- * reduced accommodation
- * constricted visual form fields
- * keratometry was OD. 45.00/46.25/ with temporal K's of 42.75. OS was 45.25/46.25/43.25.

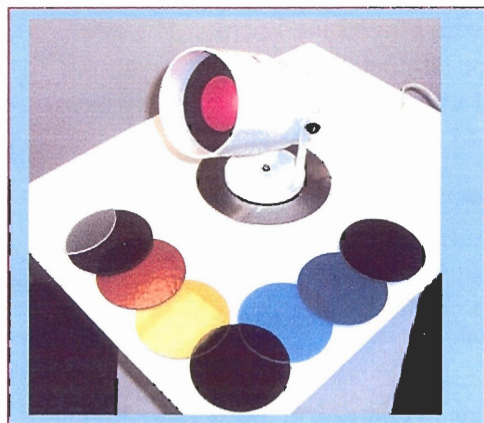
She was given eight weeks of classical vision therapy combined with a syntonix Rx for the alpha-omega and chronic syndromes. She was out of balance in both her emotional and physical well being as determined from her case history, alpha-omega pupils, and visual field defects. This employed the filter combinations of ruby and yellow-green for 20 minutes each session to produce an exophoric reflex, stimulate accommodation, and stimulate her neuro-hormonal system for physiological and emotional balance. SJ was prescribed Contex's OK-E reverse geometry overnight lenses made in Boston XO material with an eccentricity value determined from corneal topographical readings. Within three weeks, unaided visual acuity was 20/20 OU, refraction was plano OU and K's were OS 44.75/45.50/43.00 and OS 44.50/45.00/43.50. K readings reflect a reduction and increased sphericalization.



Vision skills continued to improve and by April all visual skills were within normal limits. Also a change in behavior was noted with less shyness and more extroversion.

She was examined November 2004 with still 20/20 OU, plano OU, normal binocular and accommodative skills, with no esophoria, and following a wearing schedule of four nights a week. SJ now was very self assured and outgoing in her personality. She did not exhibit myopia in her visual analysis or her behavior.

Numerous members of the Contact Lens Manufacturers Association (CLMA) provide ortho-k GP (oxygen permeable) designs and authorized laboratories can provide consultant advice for all ortho-k designs, including the Paragon corneal refractive therapy program. Contact Paragon to become a certified practitioner. Both the laboratories and materials for orthokeratology can be found by searching the CLMA website at and its educational arm, the GP Lens Institute at Additionally on these sites is a listing of the CLMA-sponsored GPLI on-line 90-minute symposia, where practitioners discuss ortho-k and are led by the GPLI's Executive Director, Ed Bennett, O.D. with selected faculty. You also can call Pam at 1-800-344-9060 for information.



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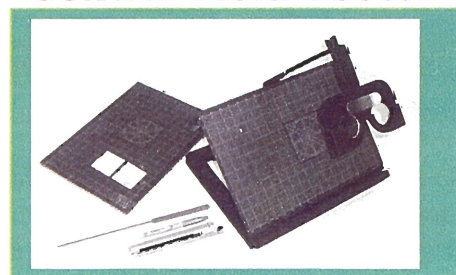
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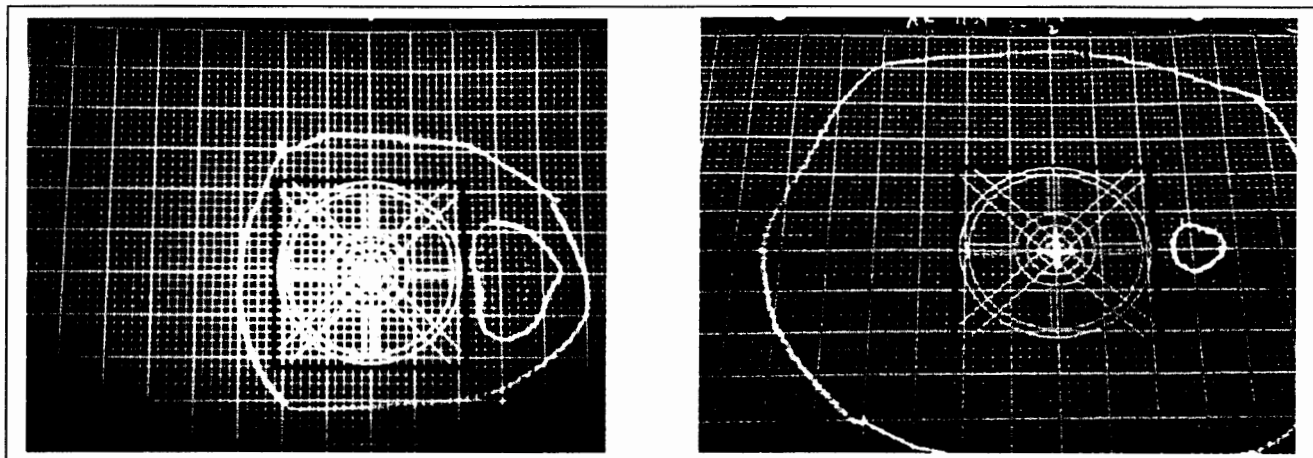
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Case 2: Acute Syndrome for Exophoria with Headaches and Head Trauma.

AK, age 14, was first seen December 2003 with a complaint of headaches in school. She exhibited near visual fatigue and blur in one eye. Uncorrected best acuity was OD 20/200, OS 20/25. Visual analysis revealed refraction OD -2.00 D with acuity at 20/25, OS -.50 D, with 20/20. There was OD suppression at far, binocular and accommodative skills were reduced and visual fields were constricted, including enlarged blind spots OU, especially OD. She began vision therapy and a syntonix Rx of indigo and blue green. The Acute Syndrome filter combination was prescribed to reduce blind spots, headaches and exophoria. After six



weeks her skills were greatly improved with visual field defects (see figures above) suppression and headaches gone. With her myopia unchanged, she elected to begin ortho-k. Original K's were OD: 46.50/46.00/44.75, OS: 46.25/46.75/44.50. She was fit with OK-E overnight reverse curve lenses based on eccentricity values and the amount of myopia targeted for reduction. Within four weeks acuity was 20/20 unaided, refracting at plano in each eye. The K's became: OD 45.00/45.50/44.50/, OS 45.25/45.75/44.75.

At the last evaluation in October 2004, her unaided acuity was 20/20 and still refracting at plano OU. Binocular skills were excellent without suppression. The ortho-k lenses were worn three to four nights a week, which maintained her myopia correction and 20/20 unaided acuity. This previously very sedentary individual, was on the varsity crew team. She now has a much more outgoing personality.

Case 3: Chronic Syndrome in the Athlete with Physiological Imbalances.

JW, by contrast to AK, already was a good athlete. He was first seen in May 1999 at age 12 with an interest in vision improvement so he would be free of any vision devices as he played ice hockey. His acuity was 20/50 and refracted at -1.50D OU. He was not much of a reader nor student. He had poor binocular function, convergence insufficiency, poor accommodative skills, and normal visual fields. His visual endurance was poor as well as his overall energy levels. His K's were: OD 42.25/44.00/38.75; OS 42.50/43.25/40.00.

JW began vision therapy and was fit with OK-3 lenses from Contex Lab. He also was prescribed a syntonix Rx of yellow-green to balance JW's physiology, enhance binocular endurance and treat an embedded visual pattern, which include a myopic adaptation. These are part of treating The Chronic Type Syndrome. Within three weeks of overnight ortho-k contact lens wear, he had unaided 20/20 acuity in each eye. K's were more spherical at OD: 41.50/42.50/40.00 and OS: 41.75/42.50/40.50.

Over the years JW would have spikes in myopia regression with lens decentration and increasing convergence insufficiency. After reinstituting more VT, the myopia would be eliminated and often the lens fit would improve. As his visual skills remained stable, he became an excellent student and his hockey

prowess continued to grow. He eventually was offered a scholarship at an elite prep school and is now a high school All American in ice hockey.

Conclusion

The improved visual skills and myopia elimination with ortho-k were credited as major factors in JW's excellent academic and athletic achievement. His, SJ and AK's outcomes are routine and illustrate how easily myopia is controlled with ortho-k lenses. Ortho-k contact lenses keep getting better and better in terms of high Dk GP materials, comfort and clinical outcomes. Research is exploding in the field of ortho-k and refractive therapy. Ortho-k offers a long-standing, proven treatment modality unavailable in traditional vision therapy approaches. RGP lenses in general are very helpful in controlling the progression of myopia. Utilizing these products and approaches adds another dimension to your therapy practice. What is most rewarding is the change seen in the patients' quality-of-life through this multifaceted approach to myopia control. Besides the improvement in visual functioning, there are changes in the total person. These are easily seen in their behavior, productivity and performance. The combination of vision therapy, syntonics, and ortho-k serves not only to enhance clinical outcomes, but, adds significantly to the economic and personal satisfaction of the practitioner.

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INTERVIEW WITH CHARLIE

by Sarah Cobb

I first met Dr. Charlie Butts about 10 years ago while I was searching for treatment for my 90 year old father's macular degeneration. After several strokes, my father came to live with us, complaining that he couldn't see. Everything we could think of to help him was done. A series of acupuncture treatments improved the acuity in the better eye from 20/40 to 20/25, I thought he had been "cured." But he still couldn't read and complained that he couldn't see well.

After 25 years in vision therapy I did not know of syntonics. Charlie explained that my Dad's field had collapsed and offered to take a look at my father, Charlie was on a trip from Missouri to Texas! When I saw the collapsed field measurements, I understood why Dad was unable to function visually.

Charlie, along with syntonics, gave my father 5 years of reading that he wouldn't have had and convinced me of the power of light. Now, as Journal Editor, it is a privilege to not only give voice to light but also to learn as much as I can from Dr. Charlie Butts and the great masters of this field. They have been so generous in helping with the healing knowledge of syntonics. If you have any questions to propose for this column, please email sarah@lightandeye.com.

Q1. What should the eyes be doing when taking Syntonic treatment?

Answer: I always told my patients to move the eyes slowly around. By this I used the collimating lens as the target. By this method you are stimulating much more of the retina.

Q2. Could you comment on the treating chronic eye problems with syntonic phototherapy?

Answer: Most chronic eye problems are caused by visual stress, physiological stress, emotional stress and trauma. Any one of the above will affect all of those above. Therefore, you have to determine which one is causing the visual problem. This is done by a battery of optometric tests that should have been described in your basic. Review- history, 21 point visual exam, string test, alpha omega pupil test, functional visual field, and observations. Skipping and doing a poor job only muddles your findings. Once you have determined the cause, then you have to determine the proper filter to correct the visual problem. BUT, with the proper filter, used with the syntonizer, we can correct 80% of the chronic problems.

Q3. If a patient's fields looked normal, under what conditions would you offer syntonics as treatment?

Answer: There are many cases where you can do syntonics. Referring to the previous question. Many optometric findings can be out of balance, we can correct the visual complaints. Example, low fusional reserves, accommodative amplitude both with headaches alpha omega pupil to name a few.

Q4. How important is the office setting when providing optometric phototherapy?

Answer: In my opinion—In office is the only way to practice syntonics. In fact, you can count on one hand where I tried home therapy (they were family, where I could monitor them every day). Reason—you have no idea how the patient will respond to the therapy. You may have made it too strong or they have a reaction to the filter. If you send it home you have no idea until you see them back maybe two weeks. WOW, you already have lost them. I saw my patient's everyday. Especially children. I asked them questions and touched them to let them know I was there. It also is very important to have your therapist in the room to monitor all patients. I always set appointments so I had between two and three patients at a time.

Q5. If a patient had a chronic health condition [no head injury], restricted fields and dilated pupils, would you consider the dilated pupil an acute condition? What frequency would you start with?

Answer: No the alpha omega pupil is also a chronic condition and should be treated that way. The frequency recommended would be mu delta [20] then after the fifth treatment add alpha omega [10] mu delta [10], always start with the physiological.

Q6. Is ionization important?

Answer: If you want to know how the filters work, you should study. I suggest reading Spitler page #145 – 146 on Ionization. To better understand read the whole chapter on Physics of Light. Without ionization syntonics would not work.

Q7. What makes a great Syntonist?

Answer: By study and doing.

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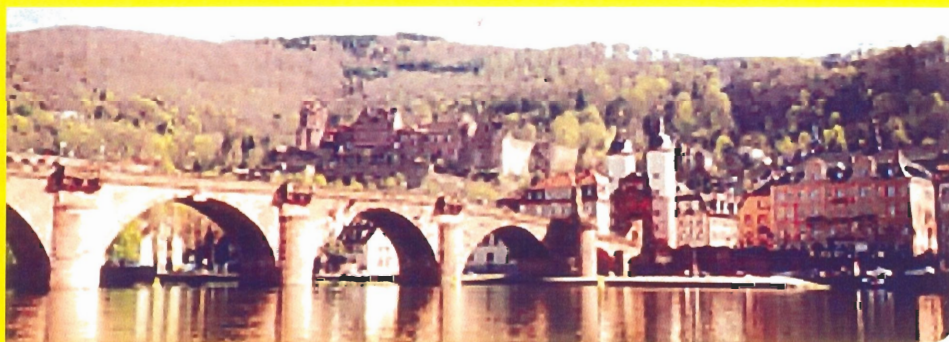
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