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THE PATH OF DISCIPLESHIP

by

Dinshah P. Ghadiali

A Discourse Given On His 56th Birthday, November 28, 1929

The home of the Initiates is in the future to be in the United States Of America; but, those who will fulfill that high destiny will have to undergo the most severe discipline to befit themselves for the task. The Path Of Discipleship is beset with numerous thorns and obstacles. For the material occidental mind to realize the subtleties of the highest in Metaphysics is a very difficult process. The innumerable steps to be taken to attain the goal of spiritual salvation, means exemplary patience, unswerving faith and undoubted courage of convictions to force through the veils of ignorance enveloping the average mortal. Mankind is accustomed to looking forward for quick compensations; in the Path Of Discipleship, it is all give and no take. It means self-subjugation, self-sacrifice, self-denial, self-help, so one may be fit to help others. It is a long and winding path, but, the reward at the end of it is always present in the shape of knowledge of the highest character.

There are many periods during Chelaship (Discipleship), when the purposes and intents, moods and motives of the aspirant for the Apex, are sorely tried. He is given orders to execute that on their face appear impossible or impracticable; he is given tasks that appear degrading or humiliating; he is blamed for occurrences out of his reach; he is surrounded with difficulties hard to overcome; in short, everything is done to discourage him and upset his equilibrium, to find out whether he is just a curiositymonger or an earnest soul truly seeking for the knowledge of the beyond. His self-esteem, honor, ability, bravery, integrity, resourcefulness, force of moral character, potentialities, trustworthiness, creative genius, congeniality, fortitude, valor, self-dependence, all the best in human upbuilding qualities are tested, sifted, strained, probed and investigated. Should he go through the trials unscathed, he is elevated, otherwise he falls on the wayside as another pebble on the beach of Occultism.

The tests of his physical build begin the Path. Later, his Physical or Emotional Vehicle, which has the power of transportation is tested for its development. The tests for this include those on the sublevels of Solid, Liquid, Gas and Fire. When the time arrives, the Disciple finds himself suddenly facing during "sleep" a high "mountain" with himself on one side and the Master on the other. He has to meet Him. The unready Disciple begins to scale the "mountain" like an Alpine Climber determined not to be afraid of the altitude; the more he climbs, the higher grows the "mountain"; he fails in the Solid Test. The ready Disciple realizes the glamor and knowing the power of the Physical Vehicle for Etheric Transportation, smiles at the "mountain" and wishes to go through its pores. His wish promptly fructifies and he finds himself at the feet of the Master in a moment! He passes thus the Solid Test.

A "raging river" is now seen with a "beautiful deer" about to be slaughtered by the knife of a cruel hunter. The Disciple trained in the noble quality of Mercy, seeing this tragedy about to be enacted, receives an inner call to jump into the "river" to save the "animal," but, he never learnt to swim, so he hesitates. He fails in the Liquid Test. The Disciple ready for progress, knowing the potentiality of the Physical Vehicle, jumps in and finds the mirage gone! He thus wins in the Liquid Test.

In an open space, the Disciple standing on the ground, notices a "torrid tornado" approaching. It is only a matter of a few seconds when he would be engulfed and annihilated. The unready Disciple runs to escape the "hot blasts" and fails in the Gaseous Test: the ready one wishes an ascent and mounts straight upward! He passes thus the Gaseous Test.

Thinking now of coming down, the Disciple casts a glance at the Earth below and finds that the dry grass is on fire. The flames ascend high to the sky and the heat momentarily becomes unbearable. The unready one being confused fails in the Fire Test; the ready Disciple invokes the name of his beloved Master and surrenders his body to the "Fire" saying, "I am coming to meet Thee in the Higher Levels, O Gururaj!" He passes the Fire Test and is elevated to the rank of an Accepted Disciple.

Such are the ways of Discipleship. Before any Progress can be made, many are the thrice bitter experiences the person has to undergo to awaken to his responsibilities and to realize the profundity of the sphere of extraordinary knowledge he is endeavoring to penetrate. The work is all uphill and throughout discouraging; there is none to sympathize or pat the back; there is nothing to be glad about or suffer elation: Kicks, bangs, slaps, and pending, disasters and discouragements in all shapes accompany each of his efforts. His rest is disturbed - in fact, he is restless in his search for the Higher. He must pay heavy penalties. His treatment is to all aspects positively inhuman and cruel, yet, that in itself is the seed of his final emancipation from material ties. He has to break the shackles that gravitate him to the material level. Self-thoughts, Doubts, Superstitions, Organic Likes, Hatreds, Objective Likes, Formless Likes. Vanities, Angers, Ignorances all are to be condemned and conquered. All this is no easy task for the struggling soul. Years being merely jiffies in the count of Eternity, roll by without any obvious progress or advancement and the danger lies in giving way to temptations that pull down. It is clear that very few are built to go through the ordeals and still fewer pass the muster in the final rounds.

My advice in this matter is to forget the past, think not of the future, but, keep on steadily doing duty one hundred percent, in the present conscientiously and the balance will take care of itself under the inexorable Laws Of Cosmic Energy.

DINSHAH PESTANJI GHADIALI
The Indian Scientist

Sketch of his Activities on his First Arrival
in the United States Of America,
From THE NEW YORK TIMES, March 11, 1896.

SAYS X-RAYS ARE NOT NEW - PRINCIPLE AN OLD ONE

The "Parsee Edison" Says Many Discoveries Are Made in His Country
-- His Plans Here.

Dinshah Pestanji Ghadiali, known in India as the "Parsee Edison," late electrician to his Highness Maharaj Rana Sahib of Dholpur State, is in this city on a tour of the world.

It was Dinshah who electrified the members of the Aldine Club Monday night, on the occasion of their jubilee reception, by impromptu remarks, in the course of which he said the principle of the Roentgen X-rays was not new in the East.

Dinshah yesterday explained to a reporter for THE NEW YORK TIMES his name and the Parsee system of nomenclature. "Dinshah" is his own name. It means "Emperor of Religion." "Pestanji" is his father's name. It means "One with the Holy Body." "Ghadiali" explains the occupation. It means watchmaker.

"A Parsee reading my visiting card," he explained, "would know all about me. He would read 'Dinshah, the son of Pestanji, the watchmaker.'"

The Parsee is of slight build, and below the average height. He wears a small black mustache, and his coal-black hair and eyebrows and dark Indian skin are relieved by the large, soft, glowing black eyes common to the East. He talks excellent English, fluent and grammatical. Although not yet twenty-three years old, he has been a lecturer six years on a variety of deep subjects connected with electricity, magnetism, odic force, heat, light, and various phases of the vital forces.

His father, a leading repairer of chronometers in Bombay, being of orthodox views, was opposed to his son's enthusiastic study of electricity and kindred subjects.

"My father went to bed at 10 o'clock," he said. "I used then to creep into the room and begin my studies. I worked all night, and when my father rose at 5 o'clock in the morning, I retired to sleep for three hours."

Dinshah's ardor was unquenchable. During the lonely hours of the night he worked away at the manuscript of a book which was to be the first fruits of his studies. His father knew nothing of it. At length it was finished--thirty-two hundred pages in thirty-one chapters, the work of six years and the result of untiring effort. But it shared a fate similar to that which

overtook the second volume of Carlyle's "French Revolution." The index was already in the hands of the publishers when the body of the work was stolen with Dinshah's valise at the station of Hyderabad, and nothing has been heard of it since.

Dinshah is not only a Parsee. He is a Zoroastrian. He wears a grand medal of the Independent Order of Good Templars, and is a member of those numerous societies of India and the East which believe that there are latent in man forces of a kind that can raise him to the condition and power of a god, if properly cultivated and developed.

He never leaves his head uncovered, wearing a Parsee turban by day, and a tight-fitting skull cap at night. The magnetic extremities of the body he believes should always be covered, so as to prevent the loss of vital magnetism, which is otherwise always passing out of the body and being wasted.

"From time immemorial," he said, sitting on the edge of his bed in his ascetic quarters, "India has been the home of spiritual culture and spiritual discovery. Most of the discoveries, so called, of modern science, were known in the East ages before. They were laughed at and ridiculed by the scientists of the West, until, forced finally to take note of them, they changed their names and paraded them as their own discoveries. Mesmerism and hypnotism, known for several thousand years in India, offer an eloquent example of this.

"The X-rays; yes! They are wonderful, indeed, and I am probably the first Parsee to hear of them, for when I left India two months ago, there was no knowledge abroad of the discovery.

"The X-ray is a lower manifestation of the astral light on the physical plane, and as such has long been known to Eastern occultists.

"The fourth dimension of matter, or the ultra-gaseous state, or the radiant medium, exists everywhere. In the East we have always believed in it. It even exists in the pores of matter and is capable of permeating the most solid body, so called. Were this medium not existent, what is cohesion or repulsion? What is gravity? For, without the combining energy of the ultra-gaseous particles, and without their correlative affinity, the whole mass of the world would disintegrate and fall to pieces.

"It has been known all along that light is capable of traveling without air, for the atmosphere extends only some 200 miles above the earth. But light cannot travel without vibrations and the astral light is the vibrations of that ethereal medium which brings the light to our atmosphere."

Some persons ask, "Why can't we see that vibration? Why is it that the Eastern adepts cannot show to us that light as ordinary light, &c? I ask, Has any Western scientist ever seen electricity moving? I might as well say, Let them show it to me

or I will not believe in electricity. 'Ah! but it appeals to other senses,' you say. 'We see the effects of electricity even if we do not see it moving.' Remember, then, electricity is a physical agent. The astral light is an ethereal agent. Physical forces can be recognized by physical means; astral, or ethereal forces can only be recognized by the ethereal eye, which is only to be developed after passing a certain stage of vigorous mental culture.

"The East has never known in its physical bearing the Roentgen X-ray, but has known the very principle that guides it. The Eastern masters of the occult knew the fundamental, hidden, occult principle of the rays. Nobody has ever seen these rays, and they are physical. How can you, then, expect to see the rays which are far more ethereal? It is quite impossible. If you wish to see such things as the student of Eastern yoga see, there is only one thing you can do. That is to develop the latent powers in your own self.

"It seems to me that those who study electricity and magnetism cannot but be convinced that even some physical effects of electricity remain up to this time unexplained. The time will perhaps come when these unknown things will be recognized and acknowledged as working forces; when the Western scientists will lay aside some of their prejudices and, with an unbiased mind, study the religious and spiritual side of the East, which has ever been and ever will remain the land of mystery."

Dinshah's eyes gleam and flash when he talks, and his face illumines with the ardor of unquenchable enthusiasm.

Before going to San Francisco, on his way back to India, he will deliver lectures in this city. In India, his lectures have included such subjects a "Expenditure of Vital Energy, or, a Comparison Between the East and the West;" "Influence of the Solar System on Man," Sound, and Ethereal Force," "Odic Force, or Ultra-Magnetism, and the Doctrines of Zoroaster;" "Man as Master of Electricity," "Suicide, a Vice of the Present Day;" "The Magic Power of Words and Incantations," and "Thought is Energy and Will is Power."

"I have come here," he said, "to learn physical powers and to show to the people the existence of spiritual powers."

Dinshah is an ardent admirer of Tesla, with whom he has a slight acquaintance, and of Edison. "Only I pity them," he said, laughing, "because they don't get time even to eat or to enjoy the luxuries of life."

Dinshah was the first lecturer on electric light in India. He says if Tesla were to go there the people would make a hero of him.

THE THERAPEUTIC VALUE OF LIGHT AND COLOR

by Kate W. Baldwin, M.D.,
Former Senior Surgeon, Woman's Hospital,
Philadelphia, PA.

(Abstract of paper presented at the clinical meeting of the Section on Eye, Ear, Nose and Throat Diseases of the Medical Society of the State of Pennsylvania, held at the Medico-Chirurgical Hospital, Philadelphia, October 12, 1926. Reprinted from the Atlantic Medical Journal, April, 1927.)

In the effort to obtain relief from suffering, many of the more simple but potent measures have been overlooked while we have grasped at the obscure and complicated.

Sunlight is the basic source of all life and energy upon earth. Deprive plant or animal life of light, and it soon shows the lack and ceases to develop. Place a seed in the very best of soil or a human being in a palace, shut out the light, and what happens? Without food (in the usual sense of the term) man can live many days; without liquids a much shorter time; but not at all without the atmosphere which surrounds him at all times and to which he pays so little attention. The forces on which life mostly depends are placed nearly or quite beyond personal control.

For centuries scientists have devoted untiring effort to discover means for the relief or cure of human ills and restoration of the normal function. Yet in neglected light and color there is a potency far beyond that of drugs and serums.

In order that the whole body may function perfectly, each organ must be a hundred percent perfect. When the spleen, the liver, or any other organ falls below normal, it simply means that the body laboratories have not provided the required materials with which to work, either because they are not functioning, as a result of some disorder of the internal mechanism, or because they have not been provided with the necessary material. Before the body can appropriate the required elements, they must be separated from the waste matter. Each element gives off a characteristic color wave. The prevailing color wave of hydrogen is red, and that of oxygen is blue, and each element in turn gives off its own special color wave. Sunlight, as it is received by the body, is split into the prismatic colors and their combinations, as white light is split by passage through a prism. Everything on the red side of the spectrum is more or less stimulating, while the blue is sedative. There are many shades of each color, and each is produced by a little different wave length. Just as sound waves are tuned to each other and produce harmony or discords, so color waves may be tuned, and only so can they be depended on always to produce the same results.

If one requires a dose of castor oil, he does not go to a drug store and request a little portion from each bottle on the shelves. I see no virtue, then, in the use of the whole white light as a therapeutic measure when the different colors can give what is required without taxing the body to rid itself of that for which it has no use, and which may do more or less harm. If

the body is sick it should be restored with the least possible effort. There is no more accurate or easier way than by giving the color representing the lacking elements, and the body will, through its radioactive forces, appropriate them and so restore the normal balance. Color is the simplest and most accurate therapeutic measure yet developed.

For about six years I have given close attention to the action of colors in restoring the body functions, and I am perfectly honest in saying that, after nearly thirty-seven years of active hospital and private practice in medicine and surgery, I can produce quicker and more accurate results with colors than with any or all other methods combined -- and with less strain on the patient. In many cases, the functions have been restored after the classical remedies have failed. Of course, surgery is necessary in some cases, but results will be quicker and better if color is used before and after operation. Sprains, bruises and traumata of all sorts respond to color as to no other treatment. Septic conditions yield, regardless of the specific organism. Cardiac lesions, asthma, hay fever, pneumonia, inflammatory conditions of the eyes, corneal ulcers, glaucoma, and cataracts are relieved by the treatment.

The treatment of carbuncles with color is easy compared to the classical methods. One woman with a carbuncle involving the back of the neck from mastoid to mastoid, and from occipital ridge to the first dorsal vertebra, came under color therapy after ten days of the very best of attention. From the first day of color application, no opiates, not even sedatives, were required. This patient was saved much suffering, and she has little scar.

The use of color in the treatment of burns is well worth investigation by every member of the profession. In such cases the burning sensation caused by the destructive forces may be counteracted in from twenty to thirty minutes, and it does not return. True burns are caused by the destructive action of the red side of the spectrum, hydrogen predominating. Apply oxygen by the use of the blue side of the spectrum, and much will be done to relieve the nervous strain, the healing processes are rapid, and the resulting tissues soft and flexible.

In a very extensive burn in a child of eight years of age there was almost complete suppression of urine for more than 48 hours, with a temperature of 105 to 106 degrees. Fluids were forced to no effect, and a more hopeless case is seldom seen. Scarlet was applied just over the kidneys at a distance of eighteen inches for twenty minutes, all other areas being covered. Two hours after, the child voided eight ounces of urine.

In some unusual and extreme cases that had not responded to other treatment; normal functioning has been restored by color therapy. At present, therefore, I do not feel justified in refusing any case without a trial. Even in cases where death is inevitable much comfort may be secured.

There is no question that light and color are important therapeutic media, and that their adoption will be of advantage to both the profession and the people.

MISCONCEPTIONS OF SUGARS - CARBOHYDRATES - DIABETES -INSULIN

A Revelation Excerpted and/or Revamped From Dr. Dinshah P. Ghadiali's Work
by Sarosh Dinshah Ghadiali, Revised to 1983 Data. (c)1986

Dinshah often said, "If you want to weaken the power and energy of a strong person, instill in his mind some FEAR and his doom is sealed!" He felt the grip of Practitioners on the 'layman' lay in the usage of pompous-sounding terms which did not get at the root-cause of disorders, but served to instill such fear in the unwary. Just tell someone he will die in six months of Cancer, Tuberculosis or more recently AIDS, and ???! You get the point of 'fear'...

Our discussion here lies in Sugars and Diabetes, and control by Insulin. Diabetes was defined by the famous Sir Dr. William Osler as one in which the form of Sugar eliminated in the Urine is Grape Sugar and it must be eliminated for weeks, months or even years; also that such elimination should take place after the ingestion of moderate amounts of Carbo-Hydrates. Thus, it would take a long time to decide with certainty that the sufferer has the dreaded Diabetes Mellitus and might be six-feet below the Ground before such decision might be reached.

DIABETIC DIET-LIMITED STARCHES/SUGARS. Under the misconception that sugar in the Urine is Diabetes, eating of Starch and Sugars are severely curtailed, if not eliminated and the sufferer's life becomes a living 'hell'... To start the Cure in Diabetes, Dr. Frederick Banting of Toronto, Canada was endorsed by the American Medical Association as the savior of the Diabetic through usage of his Insulin, which has been known as a drug since 1911. Insulin was originally a one-shot cure. The Nobel Prize was awarded with \$40,000 to Dr. Banting. After usage it was found it wore off within six months, later monthly, and today dosages are monitored by taking sugar readings and increasing or decreasing dosages as it is needed, on a daily basis, to maintain the metabolism...

INSULIN NO CURE. According to the U.S. Census Bureau and recent World Almanac Figures deaths per 100,000 population are as follows: 1912 -15.0; 1924 - 16.4; 1925 - 16.09; 1926 -18.0; 1927 - 17.5; 1928 - 19.0; 1929 - 18.6; 1930 - 19.0; 1931 - 20.4; 1932 - 22.0; 1933 -21.3; 1934 -22.1; and still more recently: 1983 - 15.1... It would appear we are still at 1912 levels before the introduction of Insulin.

PASSING SUGAR IN THE URINE is not necessarily Diabetes! If one experiences fatigue, mental strain, financial worry, disappointment in Love, Digestive and Assimilative Lymphatic disturbance, Sugars may be found in the Urine of even a normal or healthy person!

FURTHERMORE, one must understand that in Diabetes, the elimination of Sugar in the Urine does not mean the sufferer has MORE Sugar hence it passes out in the Urine, but in fact, has LESS Sugar due to Carbo-Hydrate depletion AND THUS NEEDS TO EAT MORE SUGAR TO COMPENSATE FOR THE LOSS!!!

ROTATION OF AXIS OF LIGHT REAL KEY!! The whole misunderstanding in the phenomenon is in sheer ignorance of the Laws regulating Polarized Light and the Rotation of the Axis of Light by certain Crystals. All starches and Sugars ingested, are taken by the Liver and stored therein in the form of Animal Starch or Glycogen (H10 C6 O5) (Through Spectral Analysis we can say RED 10, YELLOW 6, and BLUE 5)... When a call for Energy comes, this stored Glycogen breaks into other Sugars (Hexoses with six atoms of Carbon

(Yellow)), chief among which are Grape Sugar (Dextrose) and Fruit Sugar (Levulose). The Chemical Formula of BOTH the mono (single) Saccharides is the same: H12 C6 O6 (RED, YELLOW AND BLUE, RESPECTIVELY, Spectrally speaking). HOWEVER, Dinshah gives herein the needed KEY: The DEXTROSE turns the beam of Polarized Light to the RIGHT, with the LEVULOSE turning the Beam to the Left! The Levulose is taken into and consumed as needed by the Body Tissues; but the DEXTROSE in Diabetes is NOT assimilated and escapes into the Urine.

DEATH FROM CARBO-HYDRATE STARVATION: When a Practitioner stops ALL Starches and Sugars from the 'DIET' of the Diabetic; he stops activities from both Levulose and Dextrose. Without Carbo-Hydrates from the Sugar, the Lungs which function through the Carbon and the Hydrogen become defective in Oxidation. The tinkering continues until finally a Coma occurs and the poor sufferer eventually dies of Carbo-Hydrate Starvation.

PITUITARY GLAND SENSES INSULIN IN THE SYSTEM. By analysis of the Blood, the Pituitary senses excess levels of Insulin in the Blood Stream, and signals the Pancreas to lower its levels... by tinkering with sugar-level devices, less or more OUTSIDE INSULIN is 'prescribed' and the Pituitary Gland compensates back and forth for the errors in the person administering dosages to the Sufferer. In today's Climate, the sufferer self-administers his dosage, and literally kills himself -- over a period of time. The Wholistically-inclined Practitioner ASKS HIMSELF "WHY IS THE PANCREAS FAILING... AND WHAT CAN I DO TO HELP/AID THE PANCREAS REGAIN ITS OWN INNER EQUILIBRIUM???" ONCE SOMEONE TAMPERS WITH THE SUFFERER'S BLOODSTREAM AND DOSAGES FROM OUTSIDE the hapless sufferer NEVER REGAINS HIS HEALTH... AND USES THE INSULIN-CRUTCH EFFECTIVELY THE REST OF HIS LIFE... UNTIL HE OVER/UNDERDOSES HIMSELF INTO THE GRAVE. An unnecessary Tragedy!

THE FINAL WORD? Dinshah advocated resuming the normal USAGES OF ALL STARCHES AND SUGARS, and recognizing DIABETES TO BE A METABOLIC DISTURBANCE in assimilation he recommended Usage of Yellow-Green (Lemon) Wave Length Systemic and watching the Heart/Lung ratio to be 4-1; Orange Lowers the ParaThyroid and Increases the Thyroid Operation, for better Lung Oxygenation; The Scarlet will Increase Blood Circulation, Purple Reducing it. The Ratio is your Guide.

*** **

DIABETES AND OBESITY

An Analysis Culled from Col. Dinshah P. Ghadiali's Works,
by Sarosh Dinshah Ghadiali (c)1986

In the late 1930's, at Episcopal Hospital, Philadelphia, Pa. some 200 women were examined, and 36 had potential Diabetes, another 92 were found actually suffering from the malady.

They concluded from the Study, that EXCESSIVE WEIGHT predisposed one to the Disorder. DINSHAH CLEARLY ADVISED HIS FOLLOWERS THAT THE OPPOSITE WAS TRUE. Dr. Dinshah Ghadiali stated, "The condition known as 'Diabetes' CAUSES the OVERWEIGHT CONDITION. Obesity indicates deposition of useless adipose Tissue, and that Tissue IN PLAIN UNDERSTANDING means UNUSED CARBO-HYDRATES."

Dinshah further advised and his studies show that "DIABETES" is nothing other than a DISORDER OF NUTRITION! (A slowing down of the Lymphatics). He felt it 'child's play'

to remove OFTEN IN 30-days or less! "The sole Salvation of the Diabetic is usage of my Food System; eject all "Practitioners" from your home, turn to usage of Color to correct any Imbalances and NO RESTRICTIONS ON SUGARS AND CANDY!!!" Dinshah strongly felt persons who DESIRED CANDY AND SWEETS were clearly showing their almost MORBID need for Carbo-Hydrate. (We are NOT speaking of common devitalized WHITE SUGAR of course).

Dinshah often stated Plumpness and Obesity were NOT the same! Plumpness is a good attribute from proper and Adequate Nutritional practices. Obesity resulting from defective assimilation and thus storage of adipose Tissue. Lemon and Yellow Wave Lengths will bring this "Demon" disorder under control in short time, he frequently stated. All HydroCarbons and CarboHydrate Essences Vibrate (Oscillate) on the Red and Yellow Frequencies. Take exercise in moderation, change food habits to Dinshah's Way, and dreaded disorders of Arthritis, Lumbago, Rheumatism and Diabetes all succumb, according to his Investigations and Case Histories. And no need for Herbs, Medicines, Drugs or Insulin...

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NICK'S MAILBAG

(In the May 1987 HBL there is a response to the above article which is very pertinent. It is (C)1987 by S.D. Ghadiali and reprinted here with permission.)

I just received your Diabetes article (Nov. 30, 1986 - HBL) and I noted on the bottom of page 2 the rotation of polarized light for Levulose and Dextrose. (Dextrose is the commercial name for Glucose). In checking on this interesting phenomenon, I found that the specific rotatory power of Levulose is -88.5 degrees, whereas the specific rotatory power of Glucose stabilizes as +52 degrees. Very strange -and now I find in my notes (copy enclosed), that in the synthesis of drugs they can produce a left and right handed Glucose. I thought you might be interested. Best wishes.
(Name deleted, Here are the accompanying notes:)

"Left and Right Drugs, from "SCIENCE", June 1984. Many chemicals exist in right and left handed forms, depending on whether the chemical in solution turns polarized light right or left. An optically pure solution contains only one of these forms. Living things usually can use only one form of a chemical. Humans metabolize only right handed glucose, for instance. Left handed glucose, although still sweet, passes through the (HUMAN) system untouched.

"Left handed Adrenaline is much more potent than right handed. Right handed Ephedrine actually interferes with its opposite.

"Traditionally, scientists have had to use whatever form of chemical they could find in Nature. To make its counterpart, they put the Compound through a series of reactions that produce a mixture they want, and crystalize the form they want. ALPHA-PINENE (made by pine trees) Some trees produce only the Right Handed form and others

only the Left Handed. In a series of reactions, ALPHA-PINENE endows its optical purity on a compound called a borane which can be converted into any original molecule."

NICKS EDITORIAL COMMENTS: Ephedrine is an alkaloid, (H15 C10 N O). The Color Spectrum shows Red 15, Yellow 10, Green 1 and Blue 1.

ADRENALINE is the trade name for Epinephrine. It is the active Principle of the Suprarenal Capsule. The Chemical formula is (H13 C9 N O3). Its Color Spectrum reads Red 13, Yellow 9, Green 1 and Blue 3.

The tremendous effects of both on the Blood Pressure comes essentially from the Red/Yellow (Orange) Power. But, Dinshah has always maintained that anything that can affect the Heart so greatly must have "traces of Lithium, Potassium, Rubidium and Strontium as well as Manganese in it to endow it with its power over the Heart." Dinshah gave the Diabetes discussion on polarized crystals many years ago. It is NOT the demon the scientists have created; the answer lies in the SUGAR'S ROTATION.

Use of Colors on Roads May Lighten Auto Toll

MIAMI BEACH, Fla.—The driver is a safe driver," said nation's highways soon may be color-co-ordinated, a convention of road pavers has been told.

"Color is a newly important factor in highway safety," John P. Walaschek said. Although experiments in painting roads a rainbow of color began quietly only six years ago, he said, "this is not something in the far away future."

It's already been used successfully to cut down death and accidents in California. Walaschek told the National Bituminous Concrete Assn. convention.

Tentative Palette

Walaschek said a tentative palette has been agreed on in consultation with two government officials. It is:

Orange — for deceleration roads and exits;

Red — for approaches to stops and dangerous intersections;

Green—for through lanes;

Yellow—for safety zones, and

Blue—for school zones.

"Dashing, vivid colors alert drivers, and an alert

driver is a safe driver," said Walaschek, of the market development division of the Neville Chemical Co., Pittsburgh.

San Diego Example

In San Diego County, he said, six accidents involving fatalities took place on a new expressway ramp in 1962.

"The county was so upset, it was going to tear out the exit entirely," he said. Instead, they painted the entire approach ramp yellow, he said.

"Now a motorist can see it a quarter of a mile away," he said. "And this has solved the problem. There have been no major accidents there since."

Feb. 4, 1965

Source Unknown

ROLE OF LIGHT IN HUMAN HEALTH GIVEN NEW IMPORTANCE

"Super Nutrient" Lacking in Most Artificially Illuminated Rooms, Scientists Warn

By Patricia McCormac
United Press International
Los Angeles Times, Feb. 17, 1980

A nutrient that travels at a speed of 186,000 miles a second from a source 93 million miles away rates with food, water and air as part of the life-support system on earth.

It is light from the sun.

But light also comes from man-made sources, and therein lies a number of problems.

The wrong kind of artificial light can make students irritable in school, reduce production among factory workers and make office workers sluggish.

Not enough of the right kind of light can interfere with calcium absorption in the elderly and contribute to brittle bones, scientific studies show.

On the positive side, light can be used to control jaundice in the newborn. It also can boost beef production; cattle that spend "longer days" under correct artificial light are 10% to 15% heavier, with no increase in food consumption.

The light that some scientists consider a "super nutrient" is full-spectrum light, which comes from the sun or from fluorescent bulbs of special design that simulate sunlight. (Actually, despite the designation of these artificial lights, they did not match the full spectrum of sunlight.)

Incandescent bulbs and most fluorescent bulbs do not produce full-spectrum light. This may be contributing to "mal-illumination," say photobiologists, the scientists who specialize in the study of light's effects on living creatures.

The science of photobiology is a recent one. Some photobiologists say doctors showed little interest in the subject until about five years ago. The American Society of Photobiology was founded only eight years ago.

One way of rating light is by a color rendering index, the CRI. Natural outdoor light has a CRI of 100. Full-spectrum fluorescent, 91; standard cool white fluorescent, 68; other fluorescent, 56.

Under natural light or an artificial source that duplicates natural light, there is less human fatigue and stress and better visual acuity and production, studies have shown.

Consider:

-- Plants grown under artificial lighting that comes close to duplicating full-spectrum sunlight can be made to flower on preset schedules by controlling day length.

-- In dairies, changing the length of light exposure from natural 9 to 12 hours of light to 16 hours of fluorescent light of the full-spectrum type increased the milk yield by 10% to 15%.

-- Full-spectrum light is used to treat psoriasis, neonatal jaundice and herpes simplex infections.

-- Rays from sunlight stimulate the pineal gland, a pea-sized organ in the head. This gland secretes melatonin, a hormone that seems to control many bodily functions. When injected into animals, melatonin induces sleep, inhibits ovulation and modifies the secretion of other hormones. Experts say that both plastic and regular eyeglasses and contact lenses block some of the ultraviolet rays that travel through the eye to the pineal gland.

-- At the Center for Improvement of Undergraduate Education, Cornell University, Ithaca N.Y., students working in a class with fluorescent light closely approximating sunlight experienced a significant increase in visual acuity and a reduction in overall fatigue, compared to performance under regular fluorescent lights.

John Ott, of Sarasota, Fla., a pioneer in light and health research, for the last 50 years has been warning against unhealthy effects of some kinds of light. Earlier, he was rebuffed, but now there is basic research that supports his ideas.

Ott said he first noticed strange happenings in living things under certain light sources when he was working on time-lapse photography for Walt Disney movies.

At the Bronx Zoo curators credit full-spectrum lighting with helping the tufted puffin, a shy sea bird, survive in captivity. Under the influence of "indoor sunshine," the puffins, for the first time, laid eggs that hatched.

Strange things happened in Burnett Park Zoo in Syracuse, N.Y., when sunlight-stimulating lights were installed in an effort to stop vandalism. "The zoo became a veritable maternity ward," said director Charles T. Clift.

"The cougars fell in love all over again and produced their fourth litter, we collected five goose eggs. At least 8 lambs were born, and the deer population increased by 20. Big Lizzie gave birth to a bear cub. The wallaby produced a new mini-kangaroo and the chimpanzee got pregnant."

Phillip Hughes Ph.D., a scientist at Duro-Test Corp., North Bergen, N.H., said the Syracuse zoo's experience is just one example of the effects of natural-like light. Hughes is a vice president at Duro-Test, the firm that makes the most widely used full spectrum fluorescent light, Vita-Lite.

A specialist in neurological sciences, physiology and psychology, Hughes said, "Light is definitely a nutrient. It is essential to life and the whole endocrine system. Light has a role in triggering hormones.

"Vitamin D is synthesized by ultra-violet in the skin. Vitamin D receptors help proper bone development and prevent development of rickets. Vitamin D facilitates the absorption of calcium.

"Under light not closely approximating the sun, one study found calcium absorption dropped off in the elderly in the indoors in winter. But those under full-spectrum lighting had an increase in calcium absorption."

In an upcoming book on holistic medicine, produced with funding from the National Institute of Mental Health, Hughes says:

"Along with food, air, and water, sunlight is a most important survival factor in human life. Solar radiation activates other important biochemical events in our bodies involved in endocrine control, timing of our biological clocks, entrainment of 24-hour circadian rhythms, immunologic responsiveness, sexual growth and development, regulation of stress and fatigue, control of viral and cold infections, and dampening of functional disorders of the nervous system."

He said the last two of three generations are the first to have spent three-fourths of their lives under artificial light. "We do not fully know the effect," he said.

The Russians know more than Americans, perhaps, about the health effects of various kinds of light. Under light that is full-spectrum, Russian scientific reports show, production goes up and absenteeism goes down. This kind of light is mandated in many Russian workplaces.

In schools, it has been demonstrated in Russia, full-spectrum lighting or ultraviolet treatment helps academic performance, improves student behavior and lessens fatigue.

The Russians practice light therapy on coal miners who spend their working day out of natural light. Once a day coal miners must disrobe and spend half an hour in natural light or under full-spectrum artificial lighting.

Hughes said the Russians have reported that this regiment is useful in both preventing and treating black lung disease. "The Russian researchers and health specialists have documented that the body's tolerance to environmental pollutants is increased by full-spectrum light, which also increases the effectiveness of immunization procedures," he said.

West Germany's government restricts the use of cool white limited spectrum fluorescent bulbs in public buildings because of their distorted spectral output.

Ott, the pioneer health and light expert, maintains that sodium vapor lights, now offered as the latest technological advancement, do not reproduce the full spectrum of natural light.

"The Fort Worth, Tex., school district was one of the first to install sodium vapor lighting in perhaps a dozen schools. It was one of the first to take them all out because complaints of both teachers and pupils of headaches, eyestrain and other health-related problems," he said.

Ott contends that another major problem with all gaseous-discharge types of lights, including the mercury vapor and limited-spectrum fluorescent light, is that they emit radiation that grossly weakens muscle strength, affecting both academic achievement and behavior.

A recent Consumers' Research magazine report on the risk to health from some fluorescent lamps suggested new probes by industry and the government.

"There are good reasons, in our opinion, for government agencies and industry engineers to initiate promptly laboratory research programs on the effects of the spectral characteristics of artificial lighting on animals used in research and on human beings," it said.

"Before we began civilizing ourselves into semi-invalidism, we received an abundance of full-spectrum light: the kind that nature provides for us in the form of sunlight," says Newbold, author of "Mega-nutrients for Your Nerves."

"What we now get is a mere fraction of the spectrum."

"Once we are all ensconced behind our office desks or in our living room armchairs, science efficiently furnishes us with electric light.

"If your company is really up to date you are probably working under fluorescent light, which may be an industrial engineer's dream of perfection -- but happens to be the most nutrient-deficient of all lighting devices.

"Even ordinary light bulbs are preferable to the total artificiality of the fluorescent environment."

Newbold uses full-spectrum lighting in his office and has a special plastic in place of glass in his office windows to allow the ultraviolet from natural daylight to enter.

To let the ultraviolet from full-spectrum lighting into the pathway to the brain, he suggests special lenses for spectacles and contacts for his patients.

In the treatment of yellow jaundice, newborns used to get complete blood transfers. That was until a nurse noticed that a jaundiced infant seemed to be getting better on his own.

The infant's crib was near an open window, and natural light was streaming in. The babies near the wall and out of reach of sunbeams were not doing as well.

So light treatment was tried on babies with jaundice, and it worked. Now, about 25,000 newborns a year get the treatment.

In fact, three famous babies received the treatment some years ago at Columbia-Presbyterian Hospital in New York.

Three of the Kienast quintts had jaundice, and they were cured by full-spectrum lighting. When they went home, it was to a nursery with full-spectrum light.

SPECTRUMS OF DARKNESS AND LIGHT

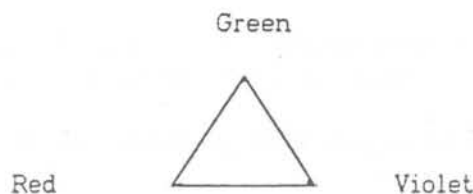
Part I

by Tom Brown

"I gaze into the Darkness. In it there arises Light - Living Light! Who is this Light in the Darkness? It is I myself in my reality. This reality of the "I" does not enter into my earthly life. I am but a picture of it. But I shall find it again when with good will for the Spirit I shall have passed through the Gate of Death." -- Rudolph Steiner

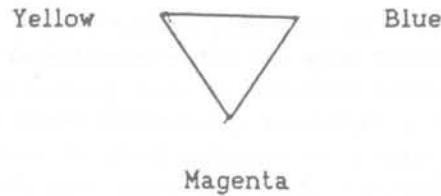
Color is a true Borderland phenomenon. Color allows us the beauty of the physical world--but it is more--it is the gateway to the spirit and soul. We see the wondrous rainbow in the sky and we can view the visible spectrum with the aid of a prism and a light source. We are taught the theory of Newton--that color is a resultant of splitting white light into its components. This is easy enough to believe because we can see it, we are taught it, it is obvious...or is it?

Johan Wolfgang von Goethe gave the world his theory of color in 1810 and has been ridiculed by orthodox science ever since. Goethe's theory is quite simple and can be seen and understood by anyone with a prism, an open eye and an open mind. He stated that color arises on the border region between white and black, rather than being a component of light. If the Newtonian theory were correct then when we take a prism and look through it at a source of light such as a light bulb we would see the seven colors spread smoothly across the bright surface. Get a prism and look and you will see this is clearly not the case. Take a white card and hold it up against a dark background. Do you see the spectrum spread across the card? No, you see one border with Blue and Violet and the opposing border with Yellow and Red, (called Yellow-Red or Orange by Goethe, but here referred to as Red). Red and Violet are the colors on the outer edge and Blue and Yellow are on the inside edge. If the white area were reduced to a point on a black card, like the bright sun in dark space, the spectral primaries would appear around the point--Red, Green and Violet. These two experiments give us a basic spectrum of Red, Yellow, Green, Blue and Violet. All we need do is mix Red and Yellow to get Orange, and we mix Blue and Violet to get Indigo and we have the seven colors of the spectrum. What more do we need to know?



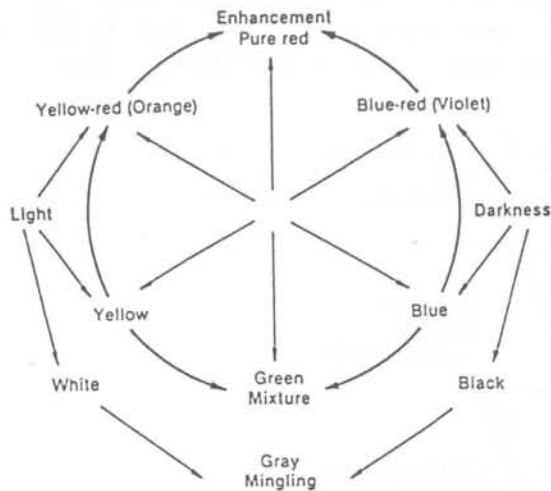
SPECTRUM OF LIGHT

Let us reverse the experiment. Take a black card and hold it against a white background. What is seen? We see one border with Violet and Blue and the opposing border with Red and Yellow. In this case the outer colors are Blue and Yellow and the inner colors are Red and Violet. If we reduce the black area to a spot on a white card then we see the colors Yellow, Magenta and Blue. Goethe called the Magenta color Purpur or Pure Red. We have here a second set of primaries.

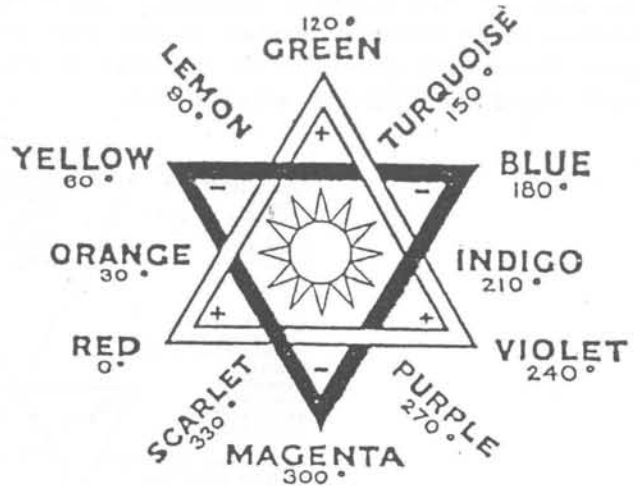


SPECTRUM OF DARKNESS

This is no trick of the eye, but an experiment that will produce absolute results upon every trial. The second spectrum of these two experiments is Yellow, Red, Magenta, Violet and Blue. As a result of Goethe's theory we get the color wheel as shown below. This wheel is fully explained in "THE REDISCOVERY OF COLOR" by Heinrich O. Proskauer (1). The reader is directed to this book for a complete understanding of Goethe's color researches. Goethe's color wheel is given here to show the pattern which will be related to further researches.



GOETHE



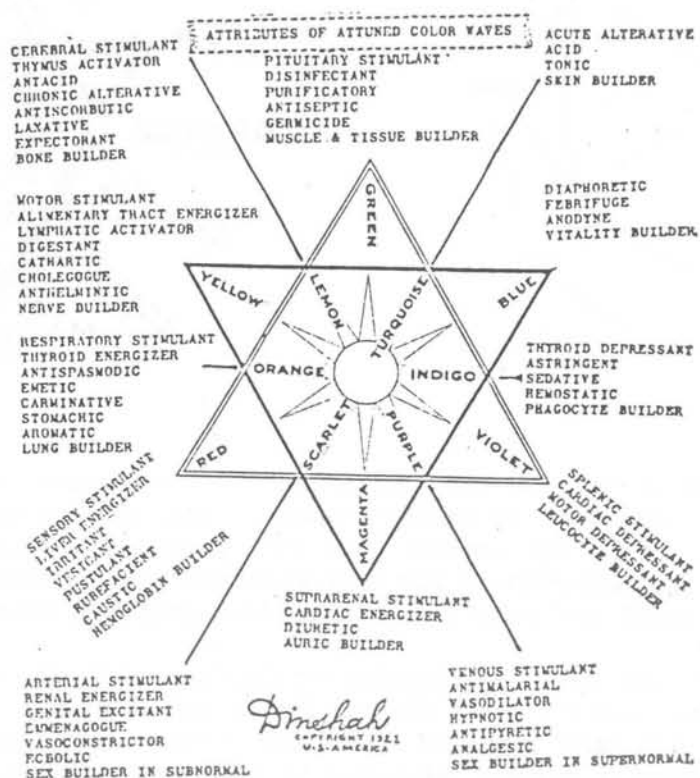
DINSHAH

The Newtonian theory of color has been taught for many years in the universities. What use then is the pursuance of Goethe's theory. Color is more than a scientifically observable phenomenon. It is fundamental to our physical, emotional and spiritual composition. It should be apparent to any real scientists that present day science is lacking in emotion and spirit and color is a gateway to a profound science of the Creator.

A practical use of color and an interesting verification of Goethe's theory comes from a Scientist of the 20th century named Dinshah P. Ghadiali. In 1923 Dinshah presented to the world his theory of how color interacts with the human body and that the form and function of the human body is directly relational to the structure of light. Dinshah gives Newton's theory credit but Dinshah propounded the spectrum as seen above, reproduced from A COMPENDIUM OF LIGHT AND COLOR, by Sarosh Dinshah Ghadiali (2). We see clearly the interlocking of the two spectrums which Goethe's theory allows us to see through a prism. Dinshah worked with the spectrum of radiant energy as seen in the rainbow. It is curious that he never mentions Goethe in any of the writings this author has seen. Dinshah was a precise scientist and was able to demonstrate any facet of his work on light and color. It would be most interesting to find out what Dinshah's reaction would be to his comparison to Goethe. Dinshah clearly believed that white light was split into the visible spectrum.

Goethe's work clearly shows the error in this, but Goethe's work is brushed aside with a footnote in most books on color. Dinshah may not have reproduced the experiments needed to break away from Newton's ideas. Dinshah founded a most precise healing system, regardless of his scientific belief, and laid out a fantastic groundwork within which to understand and extend Goethe's work. Dinshah built a monumental body of work which stands on its own, but the thorough investigation of Goethe's theory of color will show that white light does not split into seven colors. This point will be dealt with in subsequent articles in this series, and easy experiments will be given to prove that color is a phenomenon based on the interaction of light and shadow. Dinshah gives us some most interesting information to work with, and it is most important that we follow through on his understanding of how light and color work and how he developed his science.

Dinshah showed in his work that light consists of two opposing oscillations in the ether. The forward oscillatory colors begin at Red on the diagram and follow clockwise around past Green to Violet. The primary colors are given as Red, Green and Violet. We have already viewed this arrangement through a prism. The white dot on the black paper is a model of the Sun in space and Dinshah's Zoroastrian philosophy teaches that the sun is the ruler of the material universe. These three primaries of radiant energy were shown by Dinshah to be directly related to the structure of the human body as follows: Red to the Liver, Green (the governor) to the Head or Pituitary Gland, and Violet to the Spleen. This chart shows the complete arrangement.



The backside, the emotional or astral side, of the spectrum as taught by Dinshah is comprised of the colors Scarlet, Magenta and Purple. Magenta is the color of equilibrium and controls the sexual functioning of the body. Dinshah stated that Green and Magenta were the same oscillatory frequency, 584,371,687,680,000 cycles per second, but they rotated in opposing directions. Dinshah also stated that the "backside" colors could not be measured in angstrom units. There is much room for research here!

The colors in Dinshah's system are produced by "attuned color waves" using five glass slides--Red, Yellow, Green, Blue and Violet. By "attuned" Dinshah meant that they were tuned as strings on a musical instrument would be. They were spectroscopically in harmony. By mixing the five slides seven additional colors could be produced. This is a most interesting aspect of the Dinshah system. These slides are peak transmission colors and not monochrome. Red and Yellow = Orange; Yellow and Green = Lemon; Green and Blue = Turquoise; Blue and Violet = Indigo. That is all quite standard. Now if we mix Red and Blue we get Scarlet, which is on the same oscillatory frequency as Lemon--but rotating in the opposing direction; and if we mix Violet and Yellow we get Purple which is on the same frequency as Turquoise--though rotating in the opposing direction. The Violet and Red slides produce Magenta. Mixing any colors may not produce the opposing oscillation in the ether. Dinshah maintained a strict integrity in "tuning" his glass slides, and pointed out that the Red of one set of slides may not be the exact Red of another set of slides, but that the four other slides in the set would be in tune. This allowed full access to the Oscillatory Spiral of Light. It should be pointed out that no five plastic gels or filters have been found which will reproduce the Dinshah circle of color. Mixtures of plastic filters can be made to correspond to the colors, but it is not known if the reverse oscillation is accomplished. The "tuned" color waves of Dinshah have yet to be reproduced by any other system than that of Dinshah, the originator of the tuning process.

Dinshah did an extensive study of the Fraunhofer lines seen in the spectrum of sunlight. In 1815 Fraunhofer published a report which became the basis for solar and stellar chemistry. He discovered that there were dark lines which appeared in the solar spectrum and found them directly relational to the chemical composition of the solar body. These lines are still used today to analyze chemicals in a laboratory flame. Dinshah meticulously found the predominant color polarity of each element and gave us the chart below. Dinshah could explain the functioning of various rules of chemistry using this chart. It stands ready for further research. Dinshah also professed the belief that the elements aren't the primary substances we accept them as being because they have more than one spectral line.



This brief research abstract evokes more questions than it hopes to answer. One of the main questions in my mind is - How did Dinshah discover that Magenta and Green are of the same oscillatory frequency, and why is the backside of his spectrum not Yellow, Magenta and Blue as his chart shows? Is it possible that the colors Red, Orange, Yellow, Blue, Indigo and Violet have the potential for rotating in either direction? And if so, how is this scientifically verified? Can we test the Spectrums of Darkness and Light for polarity to further validate Goethe's theory.

The understanding of color being an interaction of darkness and light underlies the basic philosophical reasoning of our patriarchal civilization. Our religions are always based on what is "up there," and neglects, fears or hates what is "down there". Knowledge of color manifesting on the border may well lead us to the knowledge that our manifesting universe resides at the border of absolute light and absolute dark, or the primal Yang and Yin. Goethe's theory of color gives us an analogy to understand the constructive and destructive forces which must interact to give us life. Plants, those beautiful expressions of etheric forces, absorb energy from the sun during the day and grow during the night. A cosmic balance is imperative to colorful, healthy lives.

This is the first in a series of articles which will explore the relationship between the color researches of Goethe and Dinshah, two generally ignored scientists whose work will provide us with real results in research. Further articles in this series will cover the different views of Steiner and Dinshah for eye stimulation, true action of light through a prism, experiments to test these theories and references to other systems of healing. Newton's explanation of the refraction (fracturing) of light will be shown to be a grave error of science wherein a partial experiment, mathematically explained, becomes a false basis impeding progress for centuries.

Color is our link with the Creator and with our Inner Spirit. The Light Ether is one of the Four Ethers presented by the Rudolph Steiner and the Anthroposophic Schools and Borderland is now interested in any work which is validly referenced to the Ethers.

References:

- (1) THE REDISCOVERY OF COLOR -- Goethe versus Newton Today, by Heinrich O. Proskauer, With Attached Prism for experiments, 16 black & white multicolored plates. Anthroposophic Press, Spring Valley, New York.
- (2) COMPENDIUM OF LIGHT AND COLOR by Sarosh Dinshah Ghadiali. Dinshah Publishing Company, Ferndale, Michigan.
- (3) MAN OR MATTER -- Introduction to a Spiritual Understanding of Nature on the Basis of Goethe's Method of Training Observation and Thought, by Ernst Lehrs. Rudolph Steiner Press, London.
- (4) GOETHE'S APPROACH TO COLOR -- Extracts From Goethe's Scientific Work, translations by Eleanor C. Merry. Health Research, Mokelumne Hill, California

A REVIEW OF MODERN ELECTRICAL THEORIES, Part II

Discussion on Prof. Wm. A. Anthony's paper read before the 42nd meeting of the American Institute of Electrical Engineers, New York, January 21st, 1890, by George M. Phelps, Dr. Otto A. Moses, Prof. M.M. Garver, A.E. Kennelley, Townsend Wolcott, Dr. Michael Pupin, Nikola Tesla, Francis B. Crocker and Prof. Wm. A. Anthony. George M. Phelps in the chair.

THE CHAIRMAN, (George M. Phelps):--Professor Anthony has very pleasantly led us into a realm of speculation--not altogether speculation, because it is founded on many things known before, and I am quite sure that some of you will be glad to follow him immediately in treating of the topic that he has so happily opened.

DR. OTTO A. MOSES:--I have to thank Professor Anthony for a most interesting lecture. It has indeed set our thoughts moving. I presume that all of us here have been very deeply interested in those speculations, because though they may be speculations, they are the scaffolding upon which the whole science of electricity has been based. It was the pursuit of a hypothesis that led Kepler year after year through very patient investigations to the results which revolutionized astronomy. The same course led Faraday, step by step, to those determinations which finally culminated in what we are now first recognizing--the identity of electricity and light. So that I can say that we have all been gradually accustoming ourselves to these speculations, even though many of us may be engaged in the practical uses of electricity.

There are some remarks in Professor Anthony's very interesting observations to which I would like to call particular attention, more especially the last, as bearing upon our practical applications of these speculations. He spoke of the possibility of using the molecular action of gases as a means of transforming wavelengths. If my memory serves, that has been done ever since the Ruhmkorff coil has been in operation and the Geissler tube has become so perfect an analyzer of the electric current. In that respect we have already anticipated some of these results. Let us consider what we already have. In the Geissler tube you have the attenuated gases; you have two disconnected poles; you have a current passing, and the wave-lengths broken up and the light produced. So that we have right there before us the facts. Whether we can ever utilize the Geissler tube to effect these immense economies that the Professor so pleasantly prophesied is a question to be determined. It has been experimented upon, and I have found in my short experience in life that these things come when they are needed. There are certain groups of ideas that must be exhausted before people will adopt others and investigate them. We have seen it in the development of all the different branches of electric appliances. We have seen it in the telegraph. We have seen, for instance, Morse using Wheatstone's method of transmission; we have seen him abandon it. We saw him commence with underground conductors; we saw him abandon them simply because the art of that day was not perfect enough to allow him to supply them with profit; so that we can unearth many and many a theory now which already existed, but only awaited the development of the arts to be put into practice.

Now there is one thing I would like to add as a brief supplement to Professor Anthony's predictions. It is in no critical spirit that I mention it, because I will be running somewhat counter to the mechanical hypothesis upon which he developed many of his remarks. One, with great humility, must undertake to oppose himself to a theory emanating from such a mind as that of Clerk Maxwell, but one of the difficulties in the minds of all great mathematicians is that they must put their thoughts into mechanical methods in order to be able to weigh and measure directly. If we could only divest ourselves of the fact that they considered all nature to be composed of molecules, we would then come into another range of thought. I see myself no necessity for imagining all nature split up into

infinite particles--infinite in number and infinitely small and large in size. I can readily conceive of a continuity of matter. In fact, that thought is no novelty. It has been woven through all science, only we are so accustomed to limitations in our contact with nature, that we are apt to conceive that those limitations actually exist beyond our mere perception of them. As Professor Anthony said, very properly, there is an immense difference in our sense of observation between a wave length of electricity and one of light, but there is no reason that there is not a perfectly insensible graduation from the wave of electricity into that of light. In fact we see it when the current changes from heating effect into light.

A MEMBER:--There is one point I would like to have explained in the wheel hypothesis: To increase the current of a conductor without increasing the heat waste, it is necessary to increase the area of the conductor. I should think that would increase the number of wheels inclosed in a conductor, and therefore increase the friction and the amount of slip, and thus increase the heat developed instead of decreasing it.

PROFESSOR ANTHONY:--As I understand it, the more wheels there are in a conductor, the less is the amount of energy spent in causing the slip over them, because you have got more surface for slip. What we call a given current is accompanied by certain magnetic effects. That would mean that the wheels in space enclosed by the conductor are revolving at a certain rate. Now supposing those all to be revolving at the same rate and increasing the size of the conductor and increasing the number of wheels there are in it, the wheels that are in the conductor will be set revolving at a less rate instead of a greater one, because there will be greater surfaces where the slip can occur.

PROFESSOR M.M. GARVER:--It is rather curious to me that generally speaking all the heat developed in the conductor, as Mr. Heaviside looks at it is an action around the conductor. In that connection I cannot see, if it takes place around the conductor, why the law of temperature should hold as it does in the case of metals. Take for instance, the case of copper; I believe that variation is about two tenths of one percent for one degree Fahrenheit. If the same law holds, for 500 deg. below zero Fahrenheit there should be no resistance and no heat developed in the conductor. I believe some experiments have been made in regard to the conductivity of copper at very low temperatures. I would be glad to hear from anyone who has knowledge of this subject.

MR. A.E. KENNELLY:--I think it would be unnecessary for me to add my own personal views to what I am sure is the universal sentiment concerning the paper to which we have had the pleasure of listening. But while it is full of food for reflection from both a theoretical and practical point of view, I hope there is one point more that may be permitted to be brought forward, that is, the great difference between what might be called a working theory and an ultimate theory. Tracing back the history of any of the sciences, as they are so called today, we see how very widespread they were, how numerous the sciences were, how in the Greek days every activity such as the motion of a cloud and the motion of a body in the air, was supposed to proceed from some superior cause, and gradually as knowledge increased and as investigation pursued its quiet path, those forces were singled out and found to be fewer and fewer, and so today, we stand with a certain number which we still hope will be reduced and finally embodied in one. Dr. Moses has given us a very beautiful, I might almost say, a poetic view of what he calls the infinitude of nature, but I think it would be a finer expression perhaps, if he will allow me the correction, if that infinitude be considered as proceeding rather from the unity of nature. In fact if we go back to the days of Polytheism, the old Mahometan cry "There is one God" stands very aptly by comparison. In the theory of heat for example there were what we call now the crudest notions prevalent about four hundred years ago as to what its nature might be. Slowly those views have become clearer, and now perhaps heat is in its theory more complete than

any of our other sciences. But the trouble with heat has been the same as it is now with electricity--the difficulty of getting first a theory that was workable and then a theory which would account for the facts clearly and consistently. We have listened to the explanation of a beautiful theory, a theory worthy certainly of the master minds that originated it; but, somehow it does not appear as though that theory were going to be the ultimate one which would satisfy us when we come to consider nature as a whole, and that although it is a good working hypothesis--a peg upon which we can hang our thoughts--that after all we may hope for some simpler and more universal distribution of matter than spinning wheels in space. A vacuum was once supposed to be the absence of everything from space, and nature, as we read in the old books abhorred a vacuum but gradually people began to find out there must be something left, because phenomena take place which could not be accounted for if there were nothing there, for we cannot conceive of action through nothing, and gradually as light came to be considered no longer on a corpuscular theory, it became necessary to invent a new ether and finally the question arose, will not the same ether do for both? Then came the electro-magnetic theory of light and that required a special ether, but that also has been united. Now for the brilliant work of Hertz and Maxwell we see that those two ethers are one and the same; at least we cannot distinguish between their properties. The ether that we suppose will propagate light, is surely not one that we can readily unite with the idea of spinning wheels in space. The mere fact that the thing is difficult to conceive of, is no bar of course to its truth. But we are entitled to the expectation that nature in her infinity is infinitely simple. Surely, it is in this ether that we have to investigate something which unites more readily the functions of gravitation of light and of electricity. If we have, for example, a vessel full of incompressible fluid--water will answer--and we introduce two little jets, small by reference to the whole vessel, and we cause the vessel to be hermetically sealed, full of water, then if we force water out of one jet, back through the other, causing a circulation to take place, we shall find, if there be no vortex-motion in the liquid, and if all the particles advance in ranks, shoulder to shoulder--that the lines pursued by the individual particles are, strangely enough, the lines which are followed, we have every reason to believe, by magnetism, by heat and by gravitation. Surely there is some grand principle underlying that great class of phenomena which some day in the future will join them all into one coherent principle.

The point that Prof. Garver mentioned about the conductivity of copper at a very low temperature certainly has great practical interest although we are not likely to live in a climate where for the sake of our conductors we submit to two or three hundred degrees below zero. But I think that experiments have been made at minus 40 degrees centigrade which showed a very large increase in the conductivity of copper, and the co-efficient of temperature was very much larger at that point than it was higher up the scale. The late Sir William Siemens had a very interesting theory that the resistance at a very low temperature was very small indeed, but rose rapidly at first and slower and slower afterward. That is contrary to our orthodox views about conductivity of copper at high temperatures, but it is a view which is interesting in itself.

MR. TOWNSEND WOLCOTT:--Regarding the existence of a medium, Professor Anthony has given voice to the most general opinion in saying that action at a distance is unthinkable. I believe this is the view which Sir Isaac Newton took; but it must not be forgotten on the other hand that Roger Cotes said that there is no a priori reason for disbelieving in action at a distance any more than any other experimental facts that we have, and it is this same Roger Cotes of whom Sir Isaac Newton said in speaking of his untimely death: "Had he lived we should have known something." I think that a part of the difference between these two classes of thinkers arises from their having a different conception of the meaning of the word medium. In the present state of the science, if we do not make the word medium mean too much, it is in my opinion practically demonstrated that there is a

medium. If we say that action at a distance through space--vacant space--is unthinkable, what do we mean by space? If we mean simply extension, the concept of extension being simply three dimension, it is unthinkable. But in conceiving of a medium we are too apt to make the word mean too much. Now, Professor Stokes has shown that the luminiferous ether acts like an elastic solid; that is to say the mathematics of solid elasticity apply to the ether; but in order that it should be an elastic solid which had the same degree of elasticity as the ether does have, on that hypothesis it would have to be an exceedingly solid kind of a solid. I forget how much pressure there would have to be, but it was something enormous. Now, we know that the ether is not such a solid as that. Again taking the modern theory that the action of the dielectric is a stress, we may apply the same comment to this also. The mathematics of stress are equations similar to the equations that apply to electric phenomena in a dielectric. However, there can be no real stress in the sense in which we understand the word, because the very bodies which can not sustain a stress are the ones which are the best dielectrics. In fact a vacuum, which we do not consider a body at all, is a dielectric, and, according to some electricians, it is the very best of insulators; and metals which generally are capable of sustaining a great deal of stress, are all conductors and, according to theory, are bodies in which the state of dielectric stress cannot exist, but gives way immediately, producing what we know as current.

DR. MICHAEL PUPIN:--I would like to express my feeling of obligation to Prof. Anthony for his able lecture on the modern theories, and with his kind permission to add a few comments as a supplement to his review. We know what ideas Faraday had of dielectrics and the function which they perform in the transmission of the electric action from one part of space to another. We know that Faraday supposed the dielectric to be filled with small conducting particles which have the property of polarity. In what that polarity may consist we do not know. We may suppose it is of the same kind as the magnetic polarity in the case of soft iron. That theory has been worked out by Professor Helmholtz, and he deduced the equations for the distribution of the stress in the medium of the dielectric exactly the same as Maxwell did. In fact the equations which Helmholtz obtained are a little bit fuller. Now, given that a dielectric consists of very small particles, each one having the properties of polarity and all the electro-static and all the electro-magnetic phenomena can be explained. I do not see that it is necessary to go into the consideration of wheels working within other wheels. To be sure Maxwell did work out the theory in 1892, I think, to which reference was made this evening, but he gave it up, and in his second volume on electricity he refers to this theory in a sort of off-hand way, saying that some years ago he worked out a theory of electricity based on the hypothesis of Sir William Thomson of vortex motion. Helmholtz, supposing the medium to have only this property of polarization--these papers are not published yet, but I expect they will be published very soon, though they are not very new, because these things have been worked out before by Sir William Thomson, and I think by Maxwell--shows that if there is any electric disturbance, whether it be an electrostatic or electro-magnetic, in the conductor must be propagated in the whole dielectric, because disturbance in the electric state of the conductor will cause a disturbance of the stress in the dielectric, and that disturbance of the metal gives the electromagnetic action.

Every one of the speakers this evening has spoken of forces. The term force is very elastic and may mean almost anything. In fact, I think every man has his own idea about force. But if we are to discuss and use the term we must have the same definition. I think if we are to treat sciences from the mechanical standpoint, then we must define force mechanically. That is, we must fall back necessarily on the Newtonian definition of force, i.e. as producing nothing but motion--this is the elementary definition of force. When we speak of electric and magnetic forces we certainly deal with something which will produce more than motion alone. Take, for example, Ampere's integral law, by which we know that a

current flowing through a conductor will act upon a magnetic pole just the same as if the wire was an empty shell having a magnetic moment equal to the strength of the current. But, in every department of science it is always desirable, and in fact it is the highest aim of every physicist to deduce, not the integral law but the differential law. Newton achieved his great success when he found the differential law--the law of universal gravitation. Ampere thought his integral law would be of little use to him if he did not know the differential law, namely, the law which determines the action of each element of one conductor upon each element of any other conductor or upon itself. He said, let us now resolve this integral action into elementary actions. He did it and he found that each element of the conductor acts upon a pole or upon an element of another conductor with a force which is not exerted in the line connecting the two, but perpendicularly to that line. Other differential laws have been deduced in the last twenty years by Maxwell, Wever and Helmholtz. Some of these laws suppose that there is not only a force perpendicular to the line between the two elements, but also that there is something that tends to turn the element, so that we have to deal here not only with forces, which are determined by laws of mechanics, but with forces that lie entirely outside of that. Therefore we are always to carefully distinguish what we mean by force. Is it purely mechanical force, or is it a force which produces, besides motion, something else? We cannot speak of chemical forces in the same way as we speak of mechanical forces, because mechanical forces are limited by the definition of Newton and they produce nothing but the motion of the mass. Chemical force produces heat; it produces chemical composition and decomposition; it produces light and it may produce motion also. We do not deal here with pure forces such as gravitating force which is always exerted in the line connecting the two points acting upon one another.

The other point which I would like to mention refers to conductivity. A gentleman said that the rule--I will not call it a law--is that every metal increases its resistance with temperature, and therefore at a certain low temperature it ought not to offer any resistance at all. The fallacy is self-evident. When we speak of a law we do not mean something absolutely true. Clifford has defined its meaning; a law is true only for those conditions under which the particular phenomena which led to the construction of the law were observed. The law of heat, the law of light, the law of electric current were observed; not in a temperature of several million degrees, but in temperatures which we can get ranging from minus 80 degrees centigrade to perhaps 3000 degrees centigrade, the highest temperature which we could obtain. Therefore the law above those limits may be true or may not be true. Every law may be represented by a certain curve. Where the curve does not run from minus infinity to plus infinity we know a very small space of that curve; the rest we do not know.

PROF. GARVER:--I see I was misunderstood in reference to the conductor. I was speaking of the fact that at first sight it seems that the variation in conductivity due to the temperature in the conductor was at variance with the view that the action took place outside instead of inside the conductor. Since thinking it over I have arrived at what seems to be a plausible answer to my own question, that the conductor, being actuated by heat, the particles are in motion. Now, as the temperature of the conductor goes down, the heat action becomes less and less, and it then approximates to what I believe it is supposed to be--a hole through the medium.

MR. NIKOLA TESLA:--I want to suggest a practical idea on which I have not taken a patent, but which is cheerfully offered in case any gentleman wants to patent it. There seems to be no doubt today that light and electricity are one and the same, and that between the two there is only a difference in degree. Now, the question resolves itself into how to produce a sufficient number of undulations to equal those of light. We know that if you put two coils in inductive relation and pass through the primary an undulating current you

can produce in the secondary two distinct currents. Then from that secondary we can again act in the same manner upon another coil and so on. I have figured that at that rate it would require about 23 conversions. If you assume an efficiency of 80 percent in the first you can assume one of 2 percent in the last coil which is the twenty-third.

Now there is another thing I wish to mention. That is, that while we are convinced that light and electricity and electro-magnetic action are the same, yet there seems to be a difference between light and electricity in that we cannot maintain light in a static state; but we can maintain electricity so. And again light and magnetism are similar in this respect: That when we attempt to store, for instance, magnetism and light--a problem which is very interesting and would be very valuable if solved--we know well that we can magnetize steel and it will hold magnetism indefinitely. We can also magnetize a soft iron bar but it will lose the magnetism soon. Now there seems to be, from what Prof. Anthony has so admirably set forth, a possibility of producing a magnet of such qualities that it would for an indefinite time, say for a year or more, continuously discharge its magnetism after a cessation of the current which energized. Then we could store electricity. I attempted in my early days to do that, but it does not work. Another thing in regard to light--if we expose certain bodies to an arc light or a very intense source of light we will find that they will take up light for the first moments, but when the light is intercepted it will instantly fall and the little that remains will gradually disappear, and sometimes it will take considerable time, similar to that little remnant of magnetism in the big bar of iron. If we plot the curves in the two cases we would find them similar, which shows that magnetism and light correspond in this way. Whereas we know that electricity can be stored--I understand now the difference which Prof. Anthony has brought out between potential and electro-motive force--I mean we can take the condenser or a Leyden jar and store up electricity in any quantity, so to speak, and keep it there for a considerable time, and then discharge it at will. We cannot do so with light nor with magnetism, and yet we know that all these are really one and the same thing with only a difference of degree.

DR. PUPIN:--I would like to ask Prof. Anthony to define the term electromotive force.

PROF. ANTHONY:--It is one of the most difficult things in the world to give the definition, and I never pretended to any ability at giving definitions. We all know that in a battery there is something that develops an activity. We know that the conductor gets warm. We know that around the conductor there are what we call magnetic forces, and I believe that there is an activity set up in the whole space around it. Now, whatever there is inside of the battery that gets up this agitation I call electromotive force. Furthermore, we know that if we take a wire and move it across the magnetic lines of force there exists something which, if that wire formed a closed circuit, will produce what we call a flow of electricity. We know it is full of electricity, because, under proper conditions the wire will get warm, because also, there are magnetic effects developed by it. There is something takes place--an agitation is set up in that wire, and I consider that something, I do not pretend to define it or to know what it is, but there is something there in consequence of the movement of that wire across these magnetic lines of force that constitutes what we call electromotive force. It is something, to use the language of electrical theory, that puts electricity in motion, and that is the action I referred to in the paper in which we may have electricity in motion in a conductor without any difference of potential. Suppose, for instance, I have a perfect circle formed of wire, and then I take a magnet, and suppose I thrust the north pole of the magnet perpendicularly into the very centre of that circle. We know that lines of force cut that circle all around in every part, and when that magnet is thrust through there we know that whatever there is that constitutes a magnetic field acts in some way to set up this current and acts in some

way to set up this current and acts in every part of the wire so that there is a current set up without there being any difference of potential in any place.

DR. PUPIN:--How would you measure the heat produced in wire? Is that subject to Joule's law?

PROF. ANTHONY:--I should say so, certainly.

DR. PUPIN:--It is equal to the electromotive force multiplied by the current. What is the electromotive force? It is that which we define mechanically in absolute measures.

PROF. ANTHONY:--It is whatever sets that current in motion around there.

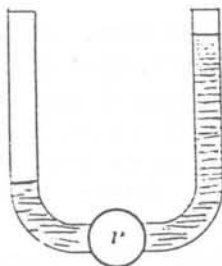
DR. PUPIN:--Yes, but we know it, we can define it in terms of time, mass and length. It is perfectly definable.

PROF. ANTHONY:--It is measured in the same terms as difference of potential, of course.

DR. PUPIN:--It must be the same.

PROF. ANTHONY:--I do not think so any more than in difference of level. We measure difference of pressure, for instance, by difference of level in the case of water. To illustrate it--here I have a U tube with a pump in it. The water is at the same level in both branches. I now set the pump turning and the water falls in this side and goes up in the other. That difference of level will measure the difference of pressure, but that pressure was produced by turning the handle on this pump. Now the turning of the handle I call the water-moving force. This constitutes a difference of potential, a difference of gravity potential which opposes my turning of the handle. (See Fig. 3.)

Fig. 3



DR. PUPIN:--Therefore the work done measures the difference of level.

PROF. ANTHONY:--It may be measured by the difference of level.

DR. PUPIN:--But the work done measures the difference. The electromotive force is not a force at all in the usual sense of the word. It is the work done to make the difference of potential and that is what the difference of potential is--the work done.

PROF. ANTHONY:--Suppose that we do not produce any difference of potential, as in the case of the circle of wire with the magnet thrust into it.

DR. PUPIN:--But we do. That is a well-known problem.

PROF. ANTHONY:--The difference of potential is equal to the work done. I may just as well say substitute for each element in that wire an infinitely small Daniell element all around. Of course that is practically impossible, but let us suppose so. We can place infinitely small Daniell elements, connecting them together around the circle so that they

will form a closed circuit, where is the difference of potential there? If you have them infinitely small so that each Daniell element acts on each element of the wire then I should say there was no difference of potential from one end to the other, and we have the electromotive force of the Daniell element producing the result entirely and nothing else.

DR. PUPIN:--There is a difference of potential between each two poles in every one of those infinitely small cells. So I may say between the ends of each one of the infinitely small elements of the wire there is a difference of potential and these being connected in series the current runs around them.

PROF. ANTHONY:--Let us take it in another way. Suppose there is a circular tube containing a gas or liquid, whichever you please. Now, can we not conceive of such a thing as something acting simultaneously upon every single element, no matter how many you consider there may be of them, so that every one of those elements will move forward at the same instant, and that there is no difference of pressure anywhere in that case. Now, difference of pressure is what I consider as equivalent to difference of potential. In other words what we call difference of potential electrically is due to a disturbed electrical distribution and until you have a disturbed electrical distribution there is no difference of potential. Now, in this wire where we have a perfect circle and thrust into it the magnetic pole, we act on every element of that wire simultaneously, there is no disturbed condition of potential, and after you have stopped the magnetic pole you can conceive that your electricity has been shifted around through the whole of it without there being a disturbance there--without any difference of potential. You stop the movement of the magnet--the current stops. Your electricity does not fly back again. But let us cut that wire in two and leave an opening in it. Now force the magnetic pole through the middle and you tend to make a motion around it in the same way. Electricity is heaped up at one end, making pressure there, and the moment your magnet stops the electricity flies back and produces a current the other way.

MR. FRANCIS B. CROCKER:--It seems to me that Prof. Anthony's last illustration will give us a solution of the problem and reconcile both sides of this controversy. He assumes that the wire circle is opened at a certain point, and if you thrust in a magnet you get at that point the total difference of potential which we could calculate and predict from known electric and magnetic effects. Now it seems to me that when the circle is closed, you get that difference of potential spread over the entire conductor which produces the current through that resistance. It is heaped up at the point of opening because it cannot pass that point, there being no conductor there. But it appears to me that, if we close the circle at that point and make it uniform as regards resistance, the potential is distributed uniformly around the entire circle. But even when distributed in that way it produces the same effect as it would if it were concentrated, and it would seem that although there is no difference of potential which can be detected yet the same total difference of potential really exists throughout the circle. In other words the integral of the difference of potential is the same in both cases, because the current in the circuit and the Joule effect and all those other electrical phenomena will be precisely those due to the difference of potential which we get when we open the circuit. Theoretically the way to treat such a case is to differentiate--take a certain element and treat it by itself. Taking a certain element there, we have a certain difference of potential, a certain resistance and a certain resulting current. Take for instance that circle and assume it for the purpose of the hypothesis to be divided into a thousand equal portions. Then we have one 1000th of the total difference of potential and one 1000th of the resistance in each element, and therefore we have the same current as with a thousand times the electromotive force and a thousand times the resistance. This seems to me to be merely a particular case--an electrical paradox.

MR. WOLCOTT:--Mr. Crocker's idea of the circulation of current there is a good deal like the relation of east and west on the globe. We can have a point west of New York and by going in the other direction it will be east of New York. If we take Mr. Crocker's view and integrate the difference of potential all around the ring, when we get back to the starting point, that point has two potentials, and so it must be. It is like any other cyclic region. One of the most familiar cases of that is the magnetic potential. In an infinitely straight conductor the potential at any point has an infinite number of values, but it is only on some such conception as that, that you can consider there is any difference of potential. Each point has a potential different from itself. That is by going around until you come back to the same point you have increased the potential, by the cyclic constants of the curve.

MR. KENNELLY:--I think we are very much indebted to Prof. Anthony for having called attention to one of the leading misconceptions of the day. There is a constant conflict between difference of potential and electromotive force, and I think nothing can be better in a society of this kind that to settle such conclusions. I think Prof. Anthony has given us a very clear solution in this way, that whatever produces a current is electromotive force; that electromotive force may or may not be accompanied by a difference of potential. We do not recognize potential as we recognize current. We are led to it by a series of abstractions. Potential was introduced on a purely theoretical and mathematical basis. The potential function first existed in gravitation. It was introduced into electricity by similarities which exist between gravitation laws and electrical laws in their mathematical form, and the potential is something which causes work to be done, in virtue of which work can be done. The potential is measured by the work done in bringing a unit of electricity to the point whose potential is to be determined.

DR. PUPIN:--I do not agree with the last speaker, that potential is a mathematical conception any more than I would agree with him that work is a mathematical conception. Who would say that to raise a barrel of flour to the gallery above us here is a mathematical conception? To charge a conductor with a certain amount of electricity, we must do a certain amount of work. If we do not stick to this term work, we cannot make a step of progress, because we cannot use the principle of the conservation of energy. Potential is not a mathematical conception. Potential is as concrete as the fact that I am standing here. It is the amount of work done. He said that difference of potential is something which causes work to be done, and a little while before that, he said that electromotive force is the cause of the electric current. Now these two things seem to me to be one and the same, because work must be done to cause the current to flow: but I will not discuss the subject any more, seeing that my colleague has expounded my idea of this circular conductor in a very nice and masterly way.

THE CHAIRMAN:--We certainly have had one of the most interesting evenings in the history of the Institute. I think the discussion has been very suggestive in many ways.

Adjourned.

Clips, Quotes & Comments

By Tom Brown

ONE THOUSAND YEARS AHEAD

"Science is the search for truth, although amid bigotry and dogmatism this ideal is lost."

Robert J. Moore, N.D., F.B.R.A.

Dinshah P. Ghadiali discovered a unique methodology of the relationship of Light and Color to Human Health. He presented a system based on precise scientific experimentation and clinical validation. However, that was not enough for his day. Despite Dinshah's persistence he was impeded by the "emotional plague" (as Reich called it). Dinshah stated that his system was One Thousand Years ahead of its time and the "experts" of the day ruthlessly denounced his system and claimed it a fake as light had no effect on the body. The article "THE ROLE OF LIGHT IN HUMAN HEALTH GIVEN NEW IMPORTANCE" is forty years too late to help Dinshah, but it is never too late for each of us to understand what is happening. The real basis for Dinshah's system is the Spiritual Philosophy of Yogic Sciences such as Pranayama whose practice knows no racial or political boundaries. It is the Creator's gift to humankind.

Dinshah's Platform adopted by him in 1891 is as follows:

"The Boundless Oscillatory Ocean Of Thought Is Essentially Universal And All-pervading; It Is The Common Heritage Of Humanity's Evolution; Thus, What A Development Of Unrevealed Ages Has Given Unto Me In The Form Of Knowledge In My Present Incarnation Is No Distinctive Acquisition Of Mine For My Sole Use, Benefit Or Elevation, But Is All For Thee And Is Thine Without Condition, Without Obligation, Without Expectation. I Fear No One; Only God Above And Conscience Below And From Them I Have Nothing To Fear."

Borderland thanks Sarosh Dinshah Ghadiali for the help, guidance and volumes of material on his father's life and work. Sarosh is presenting the work in its basic form--the path of Yoga--wherein the Etheric energies of light are divided into separate colors and inhaled through the nostrils for internally balancing the Psychic Nervous System. To properly bring the color into the system, for untrained people, a color "imager" or projector is used. On a limited basis, Sarosh builds Yogic Meditators for members of his group.

I have obtained a Meditator from Sarosh and am using it in conjunction with prism experiments as in my preliminary notes on Color in SPECTRUMS OF DARKNESS AND LIGHT. I am most interested in answering the questions brought up in that article and consider it my main focus of personal research to delve into the Light Ether. Many color systems are available, I am pursuing what I feel is the most precise, and what will produce scientific validation. There are other systems which will be looked into. Borderland's good friend Maria Hardy has done tremendous work in healing with color. She uses her mind and channels the colors into the aura of the person. We will have more information on her simple and effective system in future issues. We are working with her to reprint several of her color works in one volume. She has told me of her work wherein she focuses lavender light on a dying person and it makes for a beautiful and smooth transition. We hope to get more information on that. We welcome all Borderlanders to send in color information and experiences and of course comments and criticisms on the color information in this Journal.

SACRED STARS

The end of a major cycle in the Aztec Calendar Stone is the focus of issue #1 of Sacred Stars Newsletter edited by Borderland Associate Bodo Capeller. Basic ideas to be covered in this newsletter include:

- Exploration of the numeric and geometric relationship of star systems in relation to this planet earth.
- The detection of actual energies operating between star systems, this planet and the human being as final recipient of these energies.
- Tracing the distribution of those energies throughout the human body and observe the resulting influence.
- Thoroughly explore and investigate through the use of mind, radionic and conventional instrument the actual flow of those bio-energetic forces in space, on the surface of this planet and finally within a biological system such as a human being.
- Study and map ancient alignments such as in ley lines, sacred sites, earth works, and their geometric relationships to each other.
- Look at the misapplication of those energies as in radar, powergrids and deliberate placement of nonfunctional structures on important grid intersections or outright destruction.
- Finally establish a holistic overview, try for a unified field concept and actually restore the earth mother to her intended function within the network of Sacred Stars.

The end of the Aztec Calendar should be a most interesting time according to the astrological research of Mr. Capeller. While the date is usually given as August 17, 1987, Bodo covers the celestial events spanning August 13-23 and sums it up saying, "...it can be said that the events in August point to a major realignment of our perception of reality. The cosmos itself is carrying us through a major step in evolution. A tremendous outpouring of divine love will take place of a magnitude unknown in recent memory. We are all participating if we like it or not. It is the humble opinion of this writer to make humanity aware of this event so that it can be perceived in its reality and not just another pacifier in a long string of negative events that have become too common to us all over the years. The very events we all have been looking forward to are upon us now. In the words of Joseph Jochman 'The etheric web of the new earth crystal has been completed by August 17, 1987.'" This issue goes in depth investigating the astrological events of 1519 and the arrival of Cortez in the New World and their relationship to present events on earth and in the sky.

The first issue of Sacred Stars is excellent and we are looking forward to future issues. For more information or for a sample issue, send a donation of a few dollars to Bodo Capeller, 10036 Keswick, Sun Valley, CA 80306; phone (818) 841-1158. Bodo is also a consultant for astrological computer software. He has checked out many programs and is an outlet for Matrix Astrological Software. Here is a voice of experience for those who are interested in doing charts on a computer.

ancient ritual, adapted to the psyche of the day. Dinshah indicates that light is the most potent of the energies on the (so-called) electromagnetic spectrum. What is the relationship between color therapy and radionic equipment? I have heard of radionic operators broadcasting color. Are they broadcasting the color itself or the frequency structure? How can this be explained from the standpoint of the ethers? If you have any thoughts on this feel free to write.

Radionics has shown to be an effective healing modality. However, like all healing methods, radionics is not a "sure-fire" method. Healing is a part of the initiatory process of earth-bound sentience and its time must come for it to take place. Borderland promotes the advancement of research into methods of healing involving the subtle, spiritual forces permeating our life sphere. This covers hands-on spiritual healing and Homeopathic treatments, orgone enhancement and radionic access to the ether, breathing light and eating living foods, and even electronic medicine including better circuits for the Multi-Wave Oscillator. This is the Borderlands of Science today--the living energies around us, perceptible to the aware but useful to those living and working in harmony with the life-expression we term Nature.

INTEGRATRON UPDATE

Over the last two years Eric Dollard has done quite a bit of work at the Integratron in the California high desert. Trial and error have shown us that we cannot pursue the work we desire there and hereby give public notice that Borderland Sciences is no longer working at the Integratron until such a time when Eric is in charge of the project. We feel no serious work will happen otherwise. We thank Don Lockwood for the access he has given us to the property. In future issues we will publish our ideas on what is supposed to be done there.

CONTACTS

CONTACTS is a nexus where researchers and research resources are listed. Listing is free, but we reserve the right to reject or edit submitted information. Listing is not an endorsement by BSRF.

* AHIMSA is the newspaper of the American Vegan Society. AHIMSA -The Compassionate Way: Abstinence from Animal Products; Harmlessness with Reverence for Life; Integrity of Thought, Word, & Deed; Mastery over Oneself; Service to Mankind, Nature, & Creation, Advancement of Understanding & Truth. This Newspaper is sent to members of the AVS four times a year. Membership is \$12/year. American Vegan Society; 501 Old Harding Highway; Malaga, New Jersey 08328.

* EEMAN INFORMATION WANTED--We are working on a book about L.E. Eeman and his relaxation circuit. We desperately need copies of any of his lectures (except the May 16, 1950 speech to the Radionic Congress); pictures of him & his assistant Mary Cameron, and his work-place at 24 Baker St.; plus personal descriptions of Eeman. Of his 4 books the only one we need is "THE SUBCONSCIOUS MADE CONSCIOUS" (photocopy is great!). If you can help us or know of people who can, please contact ASAP Leslie Patten, 4286 Redwood Highway #259, San Rafael, CA 94903 (415) 456-0725.

* FACTSHEET FIVE C/- Mike Gunderloy, 6 Arizona Ave., Rensselaer, NY 12144-4502. This is THE reference guide to small, obscure publications which are truly the heartbeat of our culture. Each issue lists hundreds of small press publications and periodicals covering Politics, Spiritual Paths, Poetry, Music, Anarchy and everything else you can't think of right now. FF lists itself as the "zine of crosscurrents and cross-pollination" and is published four issues a year. \$2/issue/bulk, \$2.75/issue/first class. Overseas -\$5/issue/airmail.

BSRF PUBLICATIONS

We have been working away to get new material in print. A major part of our work is the research and reprinting of lost and suppressed information. We urge you to read and learn. These books are for information and research only. They are not to be construed as medical advice--which we are not qualified to give.

Add \$2 for the first book and \$.50 for each additional/parcel post (small, single books go first class generally) double for first class (on quantities or books over \$5). Overseas: \$3 for the first book and \$1 each additional/surface; double for Airmail. BSRF members can take 15% off the list price of the books. California residents must add 6% state sales tax. Please read this carefully, about 25% of our incoming orders are figured wrong--with no postage or no sales tax. We cannot subsidize the distribution--THANKS!

WILL CANCER AND POLIO YIELD TO RADIONICS? by Dr. Norman K. Edgars. This is a timely reissue of a 1953 BSRF paper covering many aspects of the radionic sciences. Covers theories, moralities, and references the art to medicine. A bold statement!.....\$1.50

CERTAIN BODY REFLEXES in Their Relation to CERTAIN RADIANT ENERGIES and a THIRD REPORT of the International Hahnemannian Committee on the ABRAMS METHOD OF DIAGNOSIS AND TREATMENT, July 1926. Here is a view of the Radionic system of Dr. Albert Abrams by a committee of Homeopathic Doctors and Electrical and Mechanical Engineers.....\$3.00

In Search of NEW HORIZONS of COLOUR, ART MUSIC & SONG by Mira Louise. Mira Louise was a gifted healer and a crusader against Medical Monopolies. Subjects include: the Origin of Big Drug Business; Cancer and the FEAR of Cancer; The High Cost of Pills, Potions and Plasters; Acid-Alkaline Balance; Harmony; How the Pendulum Works; Harmful Rays; Colour Hunger; The Danger of Treating Symptoms.....\$6.00

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DR. SCHUESSLER'S BIOCHEMISTRY - Here is a reprint of an old pamphlet (year unknown) which gives a comprehensive outline of the 12 Cell Salts and their Logic, Theory and Usage with Professional Opinions and Therapeutic Applications.....\$2.00

A SYSTEM OF CAUCASIAN YOGA by Count Stefan Colonna Walewski. The Secret Teachings of the Masters of the Caucasus Mountains (Gurdjieff's Teachers?) The path to Mastery through contact and control of one's environment.....\$15.00

THE BOOK OF FORMULAS by John Hazelrigg, (1908). A Collection of Choice Spagyric Preparations, Predestinated to the Cure of Disease.....\$6.00

H-BOMBS HAVE US QUAKING by Thurman C. Dibble, (1959). Public record of H-Bomb tests and incredible storms and earthquakes that followed. And what about those mysterious UFOs which began appearing? Important reading!.....\$3.00



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THE FIRST INTERNATIONAL KEELY SYMPOSIUM, Dallas, Texas -August 1st 1987. A thrilling day to meet and hear the people you've been reading and hearing about, ten hours of lectures, demonstrations and questions and answers regarding the research of John Ernst Worrell Keely and its potential and practical application. Guest speakers: EVERETT IRION -Author of VIBRATIONS and INTERPRETING THE REVELATION WITH EDGAR CAYCE; DALE POND - Author, editor and publisher of THE JOURNAL OF SYMPATHETIC VIBRATORY PHYSICS. Mr. Pond has researched and made available many of the lost texts which relate the Keely discoveries and experiments; JERRY DECKER -Researcher in the fields of levitation, matter aggregation/dissociation and the study of field energies with practical applications; WIM LEYS - Authority on Rudolph Steiner's metaphysics; BEN IVERSON - Engineer and author of PYTHAGORAS AND THE QUANTUM WORLD. This event is sponsored by Delta Spectrum Research, Inc, 2100 Mediterranean Ave #16, Virginia Beach VA 23451, (804) 545-5151; and Vanguard Sciences, PO Box 1031, Mesquite TX 75150, (214) 285-7620.

US PSYCHOTRONICS ASSOCIATION Annual Conference will be held July 29 through August 2, 1987 at the Colorado School of Mines, Golden Colorado. The theme this year is "The Missing Link in Physics: Consciousness." Contact Bob Beutlich, 2141 Agatite, Chicago IL 60625, (312) 275-7055.

GLOBAL SCIENCES CONGRESS will be held at the Continental Inn, Denver, August 12-17. The theme is "To Advance Spiritually And Technically." Contact Dean Stonier, 3273 E. 119th Place, Thornton CO 80233, (303) 452-9300.