

MARCOTONE

The Science of Tone-Color

By

EDWARD MARYON



1924

BOSTON

C. C. BIRCHARD & COMPANY



Edward Marston

TABLE OF CONTENTS

	PAGE
AUTHOR'S NOTE	vii
INTRODUCTION	1
NUMBER	5
TONE	6
COLOR	8

PART I

MARCOTONE THE SCIENCE

CHAPTER I.	PRINCIPLES OF MARCOTONE	13
CHAPTER II.	ABSOLUTE PITCH; CONSCIOUSNESS OF TONE	15
CHAPTER III.	TONE DEAFNESS AND ITS REMEDY	21
CHAPTER IV.	THE MARCOTONE TONE-COLOR SCALE	24
CHAPTER V.	TONE-COLOR; THE SCALES OF LIGHT AND SOUND	31
CHAPTER VI.	TONE-COLOR; RULES	33

PART II

LESSONS IN TONE-COLOR

MARCOTONE TONE-COLOR TABLE AND CHART	38	
CHAPTER VII.	LESSON I. RED	41
CHAPTER VIII.	LESSON II. YELLOW	45
CHAPTER IX.	LESSON III. BLUE	49
CHAPTER X.	LESSON IV. ORANGE	53
CHAPTER XI.	LESSON V. GREEN	55
CHAPTER XII.	LESSON VI. VIOLET	59
CHAPTER XIII.	LESSON VII. ORANGE-RED	61
CHAPTER XIV.	LESSON VIII. ORANGE-YELLOW	63
CHAPTER XV.	LESSON IX. YELLOW-GREEN	65
CHAPTER XVI.	LESSON X. GREEN-BLUE	67
CHAPTER XVII.	LESSON XI. VIOLET-BLUE	69
CHAPTER XVIII.	LESSON XII. VIOLET-RED	71

PART III

MARCOTONE IN RELATION TO LIFE AND ART

	PAGE
CHAPTER XIX. MUSICAL PROPORTIONS IN PHILOSOPHY; SCIENCE; ART	75
CHAPTER XX. VIBRATION OR MOTION	80
CHAPTER XXI. MELODY; VISUALIZATION; HARMONY	84
CHAPTER XXII. HOW TO HEAR MUSIC; MUSICAL DIC- TATION ; COMPOSITION	94

AUTHOR'S NOTE

The author of **MARCOTONE, SCIENCE OF TONE-COLOR**, has felt the necessity of offering some information underlying its principles, although this edition of **MARCOTONE** is for the sole purpose of giving an easy, simple method of *practical* service to the general public, young and old, for music-study. Nevertheless, experience has taught us that copies of a former publication did frequently get into the hands of ripe scholars and others, who requested its author to explain the source of his discoveries and those deductions which have led to the birth of a new science. Accordingly, the statements which appear in the first four chapters are made for those interested in **MARCOTONE** as a science; but they have nothing to do with the *practical* side of the present volume, and those who study its pages are in no way required to comprehend some unavoidable technical terms.

References to "Standard Edition" are to the complete treatise on this subject by the same author, under the title of **MARCOTONE**.

INTRODUCTION

The doctrine of *automatism* advocated as the essential necessity of MARCOTONE was clearly defined by Lamarck when he stated his law: "the function creates the organ," for science verifies its assertion that *life is the sum of habit*.

BIOLOGY brings us face to face with the Origin of Things only because of the *parallelism* between SOUND and LIGHT; for life is obtained, maintained, and understood as a "parallel series of different scales of magnitude." Therefore, the primary mode for studying life is through VIBRATION, which develops into spirals, or octaves, through oscillatory, periodic motion.

This genetic discovery of Biology was proved through the analytic acquaintance with that builder of cosmos, SOUND. Octaves of periodic movement differ from each other merely through their numerical coefficients. (See Table and Chart, page 38.)

What the ear fails to register, the *apperceptibility* of the eye reaches when sound-waves are transferred to cylindrical movements. We know that what the far-seeing mind of Fresnel did with Descartes' and Huyghens' considerations, Clerk Maxwell illuminatingly projected into a more exact and applicable science, so that mental conception progressed from a theory of the "oscillatory motion of ether" to the demonstrable periodic oscillation of its electro-

magnetic status. For Maxwell discovered that a scale distinct yet nevertheless *parallel to the scale of sonorous vibrations existed, a scale whose prime nucleus is the spectrum of white light*. Since Maxwell's day our knowledge has been increased by the radial discoveries of Kelvin, Crookes, Roentgen, Hertz, Becquerel and others. Today still further intimacy into the mystery of motion has been gained by Thomson, Curie, Rutherford, Bragg and their contemporaries in exact science.

Le Dantec, in his book **THE NATURE AND ORIGIN OF LIFE**, gives us the familiar example of a prismatic aura formed in a waterfall's spray, showing that this rainbow of light is not displaced by the motion of the water drops, which proves that either phenomenon is independent of the other, disclosing the fact that *the spectrum formed is of the same order of magnitude as the movement of sound*. This deduction is: "light acts on the chemical reactions of life, sound on its colloidal manifestations." The upshot of such finding is: "vibratory motion, which occupies so considerable a place in science today, was first verified in phenomena by sound . . . scholars finding a first continuous series of phenomena equally comparable with each other through simple numerical coefficients." This is now termed *scaling*, and this model of vibratory motion is hardly likely to be subject to any future change.

Humans should be interested to know that *protoplasms* are declared by science to be colloid, for this is the *keystone* of *biology*.

A remarkable biological phenomenon is, that although "chemistry deals with atomic or molecular dimensions, the colloid state on the contrary relates to activities of a dimension far superior to that of molecular reactions;" yet they take place, simultaneously, "along two different scales of magnitude." Therefore, "living substances which are sensitive to sound are also sensitive to light." Le Dantec, agreeably with the findings of Willard Gibbs, furthermore states : "a sound vibration may determine, secondarily, a chemical modification, having set the suspended particles in motion; reciprocally, a luminous vibration may determine, secondarily, a modification of the colloidal state, having produced certain chemical reactions." Therefore, "not only **LIFE** . . . bestrides other series of phenomena so widely separated as sound vibrations and luminous vibrations on the one hand, and molecular and chemical reactions and particle and colloidal variations on the other; but **LIFE** also sets up a connection between two series of phenomena which appear as complete strangers to one another."

THESE FACTS ARE ESSENTIAL TO ALL TRUE SCIENCE AND ART BECAUSE THEY ARE LIFE ITSELF.

Let us make it very clear that the tools for locating and analyzing **LIFE** are *biologically* proved to be **SOUND** and **LIGHT** (Tone-Color), expressing to their fullest possibilities the phenomena of *equilibrium* peculiar and particular to chemical and molecular action and reaction.

If, therefore, *sound-waves* influence protoplasmic

matter and *light-waves* do analogously the same with all chemical substances which are the constituents of protoplasm, it proves beyond contradiction that all life is in the colloid state, the seat of chemical reactions, and therefore is necessarily a *harmonious correlation* between chemical activity and colloidal equilibrium.

If this is scientifically established, how can man expect the fulness of his powers to become *conscious* until these biological laws are not only indexed and tabulated in laboratory and library, but do *automatically respond within the center of his own being?* To this end is MARCOTONE, **SCIENCE OF TONE-COLOR**; for the human scale of temperament must logically coincide with the universal scale of temperature, so that Space correlates with Time. Under such conditions universal *harmony* is an actual human attainment, for motion then becomes emotion, reciprocally, a transcendent example of natural equilibrium.

Thermo-dynamics, or, better, the incoming science of Chemico-Physics, will add immeasurably to our understanding; in fact, the *subconscious* is being located. Humanity's inner eye is being illumined in all physical sciences through the Law of Interference, which we might term the "chromatism" of Nature's Gamut of Vibration.

It was through the *resonator* that the Approximate Law at the dawn of the applied sciences was discovered and termed *timbre*, i.e., the specific difference of sounds having the same *pitch* but varying

in quality of *tone*. This law is as indispensable to both chemistry and physics as it is to music.

Is it not high time, if this new vision of man has been extended only through the *correlation* of SOUND and LIGHT, that our arts and sciences of *music* are verified and reorganized through this same naturally ordered manner? In the living animal, including Man, the phenomenon of equilibrium takes a particular form that is characteristic of life, *habit*. *Habit* with living beings, and *equilibrium* pure and simple with non-living beings, are the two factors of what is termed *universal harmony*.

In this elementary course of **MARCOTONE**, it is not consistent with its purposes to set forth in detail the mathematical and other precise formulae which were necessary for its establishment as the Science of Tone-Color. (The Chart which is given will be sufficient evidence for this present work to show the correlation between *sound-waves and light-waves as applied to music*.) The following may be termed the *premises* of our Science of Tone-Color.

NUMBER

Number is the universal ideographic language, being the *source* of cosmic, religious and scientific *symbolism*.

The *Symbolism of Number*, expressed, becomes the Law of Motion, generating *space* and producing *life* in all its forms.

Life governed by Number transforms motion into *emotion*, creating *time*, so that Life produces Love. These facts prove that *physical* law is created to evolve *moral* law.

-tone

Silence decomposed through *number* is *sound*, the source of spheric and human **MUSIC**.

Fundamentally, all forms of *vibration* are generated by and are transmutable into *sound*; therefore sound is the origin, even as it is the architect and builder of *form*. Sound is the creator, preserver and also the destroyer of all forms; because all things depend upon the multiple variety of *sound* for their infinite variety of form.

Basically, geometry is the root of the universe and therefore of all natural forms, including human architectonical forms. *Geometry is created by sound*.

Simple experiments, proving such to be a fact in Nature, are those geometrical forms obtained from Lycopodium spores under the influence of a series of isochronous harmonics. These spores placed on a drumhead and 'set in motion form geometrical designs *correlated* to the *harmonics* from which they are generated. The vibrations of steel forks of fixed pitches, when shown in shadows cast into mirrors, form patterns which can be thrown through a lens upon a screen and the *invisible tone* thus becomes *visible*, as perfectly ordered geometrical figures. Therefore, it is evident that universes and

all appertaining to them are embodied MUSIC, the effects of *sound as musical proportions*.

The human voice and musical instruments are capable of elaborating the forms of ferns, flowers and trees, because the vegetable kingdom is generated, geometrically, by *sound* which creates their forces and distributes their types through *numbered* motion.

The vibrations of any given tone are exclusively in a given direction, and therefore the *interferences* of swinging pendulums, which result in such complexities of form as shells in which both the angles and curves are geometrically perfect, simply modify each other, reproducing the *reality* of these vibrations which such interference has modified.

The *crystalloid* serves the vegetable world as the *crystal* serves the mineral world, showing through the power of sound the completeness and harmony of nature.

Motion, as *numbered* vibrations, governs all systems of Life, its variety in velocity causing differences in the physical aspect of its material composition. In either case, crystal or crystalloid, the axes make their appearance when duly formed by the Law of Numbers, geometrically, through sound. In the mineral world every crystal takes its form from certain *sound-built axes of direction* and the more complexly elaborate the crystals are, the more numerous must of necessity be the axes whose center is the heart of the crystal. As with crystalloids the results inevitably depend on *tonally* created

geometry, for the differences in both solely depend on the basic arrangement of their axes.

COLOR

Experimentation has proved that light is generated and involves as a dual manifestation under the causal protection of sound. From a statical conception sometimes termed "cold flame," *fire* is generated as radiant heat, or radiancy, because friction implies heat. Again, the action of such dualism is to create moisture, *water*. Thus, it follows, the elements are made.

Sound paternally fostering *light*, Nature proceeds to energize the universe as zones, octaves, or spirals of *motion*; for spheres of magnetism, electricity, radio-activity spirally build *cosmos* from *chaos*, so that *time* shall fill *space*.

The correlation of sound and light is demonstrated by throwing differing rays of light upon a multi-colored glass ball, and where correlation exists between the light-waves and the colors in the ball, *tone* is generated, *because the transmutation between light-waves and sound-waves is thereby effected*.

Furthermore, Bell's experiment with selenium disks shows how light-waves are transformed into sound-waves and then into galvanic waves, to *re-become sound-waves*.

Recent invention has produced an instrument of precision which transposes vocal and instrumental *music* into *color*. Camille Flammarion states: "The notes (seven octaves) of the scale are nothing else

but ratios of numbers between sonorous vibrations . . . but a matter of figures." A. A. Michaelson asserts: "All phenomena of the physical universe are only different manifestations of the various modes of motion. . . ."

Professors Mills and Milliken lay down the principle that: "Sound and light are identical except in the length of their waves and the nature of the media which act as their carriers." The great acoustical authority, John Tyndall, in his exhaustive work, *SOUND* (see pages 319-320), gives a decisive and what he terms "a beautiful" experiment, which, he asserts, proves "the perfect analogy between light and sound."

This momentous addition to science was described and illustrated before the Royal Institution, England. Elaborating upon this, Tyndall concludes the first part of his *magnum opus*, *SOUND*, with the following words :

"Thus far, therefore, we have placed our subject in the firm grasp of experiment; nor shall we find this test failing us further on."

Science has never found this discovery to fail, and now applies its "perfect analogy" to *art*, with results not alone portentous to music, but equally to the sister arts of painting, decorating, etc. Those aspiring students who would learn of cosmic HARMONY which created the universe, so that they may religiously create their works to accord with the fundamentals of natural law, will do well to study *MARCOTONE, SCIENCE OF TONE-COLOR*.

Further substantiated proofs of Tone-Color correlation must be sought for in the standard edition of MARCOTONE; for this present book, as we have already stated, is to teach its elementary practices. Although the method set forth herein relates to the conscious mastery of reading, memorizing and writing chord-forms, the vital question today is *to get the whole world a-singing*, through mastery of *melody*, the automatic mental control of melodic lines.

Melody controls comparatively all vocal and instrumental music. For practical purposes, excepting the piano, organ, harmonium, harp and the study of musical theory and composition, *the melodic line governs the world's present-day music.* It is the purpose of this volume first of all to implant this simple yet vital fact in the mind of the general public and, further, to show how to control the power of *unconscious melodic mastery* as a humanly automatic function.

EDWARD MARYON.

PART I

MARCOTONE THE SCIENCE

The word MARCOTONE was originated by the author from the following sources :

Sanskrit : MA = to measure ; R (raga) = by scaling ; co = color ; and

MARCOTONE

CHAPTER I

PRINCIPLES OF MARCOTONE

I. Vibration is the Universal Law.

II. The mental faculty to apperceive *vibration* in the world of phenomena as *light-waves* in the element *ether* is a law of atavism forced upon the mind of Man as *color* and *form* through the development of the organ of seeing, which has established this phenomenon upon the consciousness.

III. The same mental faculty which is capable of dealing with the phenomenon of Light through the eye and the mind can be utilized in the world of phenomena in another element, the *air*, and through another sense organ, the *ear*, because in principle it is the same faculty which pertains to both phenomena.

IV. Natural causes during vast periods of time have, from the foregoing principles, evolved the subconsciousness to the point of *willing* color and form before the human mind; but these same causes have not obtained the same phenomenal results in the realm of sound which they have in the domain of light. Therefore, the normal mind does not perceive the precise movements of tonal-pitch, which, between *air*, *ear* and *mind*, are equivalent to the precise movements of light-waves between *ether*, *eye*

and mind. Yet, applying the laws of correspondence and analogy to this same principle, which conforms to the law of vibration, that which has developed one natural phenomenon subject to vibration will develop the other.

v. *One prime cause* can produce two kinds of phenomena if the natural law which governs the one governs the other. Therefore, since Color is a natural, spontaneous and involuntary act of the mind governed by one prime cause, so *Tone*, governed by the same prime cause, can become one and indivisible with *Color*.

This Tone-Color system is MARCOTONE.

CHAPTER II

ABSOLUTE PITCH; CONSCIOUSNESS OF
TONE

ABSOLUTE PITCH

A child learns to eat, walk and talk, and after months of continued effort is able to do so without apparent thought, *i.e.*, automatically.

In like manner all habits once formed become "second nature" to us and are, indeed, our life. If the Tone-Color system, **MARCOTONE**, be conscientiously followed until the first awkward struggles have given way to the natural simplicity of the workings of this science *within us*, then we shall have acquired through its practices *Absolute Pitch*.

For practical use in music there are about seven octaves, ranging from the contra-octave to the four-times-accented octave.

We nominate the fundamental tone 256, the prime or *root* of the *natural octave*, because an open pipe 26 inches in length and filled with air executes 256 vibrations (termed the middle or once-accented C' or *do*) in a second of time and which naturally forms a 52-inch sound-wave. To compute the velocity of sound, it is then necessary to multiply the number of vibrations (256) by the length of its sound-wave, obtaining as a result the speed of 1,120 feet per second. (See Table and Chart, page 38.)

If the middle or *natural* octave (the *once-accented* octave, the octave which ranges in pitch from 256 to 512 pulsations per second), the center of our isochronous-sounding keyboard, is a *fixed* crystallization, an inbuilt, lasting structure of that part of our mental equipment which we term *subconsciousness*, then by extending our mental vision in either direction from the middle octave, we find that we can easily, distinctly and immediately discern the *graver* bass or the *acuter* treble octaves below and above our subconsciously poised natural octave of twelve chromatic tones. *Bassward*, ever more slowly produced, but always *the same ratio*; *trebleward*, ever more rapidly produced, but always *the same ratio*. Therefore, having once mastered the middle or natural octave, our command over these raised or lowered octaves (which are only *graver* or *acuter* facsimilies of our natural octave) is equally spontaneous and involuntary as with the natural octave, which, instead of being a mere mechanical expression of our vocal or instrumental studies, is now a *permanent superstructure of our subconscious mind*, an organized and perfectly developed attribute of the intellect. This subconscious superstructure is a definite and ordered crystallization of *twelve tone-colors*, each tone-color an independent, fixed, yet correlated, part of the whole of our new and deliberately acquired mental faculty, viz: Absolute Pitch of the chromatic scale, which *is* the base and fundamental property of music. The scale of even temperament, *marcotonely*, signifies the decompo-

sition of the spiral or octave of sound into *twelve fundamental tones*, six primes and six complementaries. Each tone is separated by the distance of an interval (not to be confounded with *diatonic intervals*), which has the value of $\sqrt[12]{2}$ or 1.059. (See Chart, page 38.)

Such a conclusion, borne out by scientific facts, offers no reasonable grounds for argument. Having obtained *interiorly* the twelve degrees of the tone-color scale, the *mastery of all musical material is ours!*

As mankind has raised its conception of color to the subconscious plane where the intuitive apperception of color is independent of *sense* and free to automatically act at the urge of *will* alone, so, when **MARCOTONE** is *mastered*, the student has forever obtained a command of those tone-vibrations which comprise the full capacity allotted to all vocal and instrumental music. The reason for this is that these units of tone-vibration are coequal with *twelve specific color-vibrations* which are *natural to our subconsciousness* because of the same pitch-ratio pertaining to both the measured colors and tones used in **MARCO-TONE**. The colors are measured from the tone waves of each chromatic step of the once-accented octave.

Color is the one and only mentally stable aspect of motion possessed by man, atavistically, whereby to measure speeds of vibration, *i.e.*, we visualize color by an *automatic* measurement of speeds having for its source our subconsciousness. The result is *consciousness of color*.

MARCOTONE is a science based on the exact relationship between color and tone through number, and since no available medium except color-vibration is natural to us for the exact measurement of *pitch*, **MARCOTONE** should become an integral part of the routine wherever music is taught.

Consciousness of tone, i.e., absolute pitch of the chromatic scale, as units (tones), or in combination (chords), should no more be restricted to the musician's calling (and alas, generally the musician has it not), than the natural and involuntary knowledge of color is now restricted to the painter's art.

Color is a universal attribute of the subconscious mind; the eternal possession of our mental faculties. It is necessary to all the arts and sciences whose source is vibratory action, and practically indispensable to Music.

Through mastery of **MARCOTONE** the human race can obtain the same free-will control of *tone* which it has atavistically over *color*.

Once this new and vital factor in evolution is realized by those responsible for the nation's education, we shall become a race of *natural musicians*. Song will become a common, everyday gift, even as speech is today; a new joy will have come into the hearts and minds of the people and a new and more harmonious epoch of life will fill the earth.

Recapitulation

I. When he has subconsciously established the *chromatic cycle of tone-color*, viz: the twelve tone-colors of the natural or middle octave of *light* and *sound*, then the student automatically controls and utilizes these tone-colors as a *permanent mental possession*.

II. The habit once formed of thinking the notation's dual value in *tone* and *color* of each step of the scale, gives the student a mental conception of these twelve units of vibration in the perfect manifestation of their activity as distinct units of measurement.

III. The habit so formed becomes, in time, a spontaneous, natural and involuntary act of the mind.

When this has been accomplished:

(a) The attention will *not* be drawn to these exact speeds of motion as color (etheric waves).

(b) The attention will *not* be drawn to these exact movements of vibration as *tone* (aerial waves).

(c) The mental action is now *automatic*.

To induce this subconscious power the following rules should be carefully observed:

I. Contemplate each color separately until they can be evoked *singly* (as simple units); then practise them in *combination* as chords (compound units).

II. Always think and repeat the *name* of the *color* of a note-sign, because color is the only natural subconscious power we possess which *reveals* the

exact movements of vibration or motion and thus permits us to obtain absolute pitch of *tone* as well as of *color*.

III. Never try to think the *tone* of a note-sign, because it is *unnatural* to do so. We have no natural mental function which enables us to measure molecular action as *sound*.

IV. Use the Charts, Figures, Marcotonograph and other **MARCOTONE** appliances, as *first aids only* when forming the habit of *thinking* the color-pitch of the chromatic scale of light.

V. The mind must gradually be drawn from these first aids and come to rely more and more upon *itself, within itself, i.e.*, the inner sanctuary of the mind must acquire the power to hold the thought in its possession without external aid and to *create* the tone which, by natural law, is correlated to the color-thought.

VI. Owing to the great potentiality of *words*, a repetition of the *name* of the color is of great assistance in *thinking* color-pitch.

CHAPTER III

TONE DEAFNESS AND ITS REMEDY

It is possible to be a practical performer, a justly famous singer, a distinguished composer, and, at the same time, to be *tone-deaf*, *i.e.*, unable mentally to register tonal-pitch. Most of us are born deaf, and the majority of musicians, despite their erudition and artistry, are musical parrots to the end, victims of tone-deafness.

Neither virtuosity of voice or instrument, nor the mastery of harmony, counterpoint, canon and fugue or any other of the allied musical sciences can give us tone-consciousness.

MARCOTONE is an *exact science* and the only one through which *absolute tone-pitch* can be mentally acquired. It builds into the human unit the natural basic powers of musicianship. The absence of absolute pitch is the basic flaw in the very principles of our art, the cause not only of bad musicianship, but of much unnatural labor on the part of all artists, for more than three-fourths of their time is given to learning the compositions of the tone-poets *by rote!*

This entirely false attitude toward music enforces an altogether disproportionate amount of work upon the sense of touch (the feelings), and in consequence the nerve centers are strained, and therefore it is a common matter to find the artist a victim of "nerves."

To have absolute tone-pitch through **MARCOTONE** is to have the power to read and hear understandingly any musical composition precisely as literary works are read and heard.

Without it our ears may readily hear and we may enjoy a composition that we or others are interpreting; yet, except through the medium of mechanical appliances or the vocal expression of the tone, the tragic silence of the deaf mute is *mentally* ours.

How can this unnecessarily absurd condition be changed? *By placing in our subconscious mind the absolute pitch (as tone-color) of the chromatic scale.*

By so doing we become attuned to the cosmic or universal laws governing vibration or motion. This condition is *natural* musicianship.

When one has become a *natural* musician, then is the allotted time to acquire the aesthetic complement which makes the *artistic* musician.

Remember that in every branch of music the sense of touch and the nervous organism play a capital part.

It cannot be too often repeated:

(a) That certain classified colors and certain tones possess a *co-equal ratio*. (Those in the **MARCOTONE** plates were measured from their musical proportions.)

(b) That *color* is registered through the *eye*.

(c) That *tone* is registered through the *ear*.

(d) That *color* is received by the brain according to its just measurements as *light-waves*.

(e) That *tone* is *not* received by the brain according to its just measurements as *sound-waves*.

(f) Yet given ratios of color can be correlated to given ratios of tone, because the *color-thought* can recreate itself in co-equal tone through the medium of the voice, twenty-nine or thirty octaves below.

It was upon the foregoing principles that the tone-color system, **MARCOTONE**, was made the fundamental science of music, a science-art heretofore devoid of a natural foundation; a growth; as Helmholtz says, from local and traditional aesthetics.

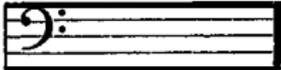
MARCOTONE has made it possible for all to surround themselves with the wonders of the world of *tone*, as hitherto they have enjoyed the world of color. This is especially significant now that a variety of mechanical means are bringing the best of music to our firesides. Who would not rather understand the message of the composer or artist through these excellent mechanical contrivances, and to read understandingly from the printed notation whatever is played or sung, or to read it alone as we do a novel, play or poem, than merely to listen sensuously and thus barely catch the mere outline of the composition?

The author has undeniable evidence from those who have mastered **MARCOTONE**, that this subconscious power will not alone affect the musical proclivities of humanity, but will add immeasurably to the clairvoyance of scientists, painters, writers and poets, and to the vision of all who are engaged in the liberal arts and crafts devised by Man in his efforts toward a higher and nobler civilization.

CHAPTER IV

THE MARCOTONE TONE-COLOR SCALE

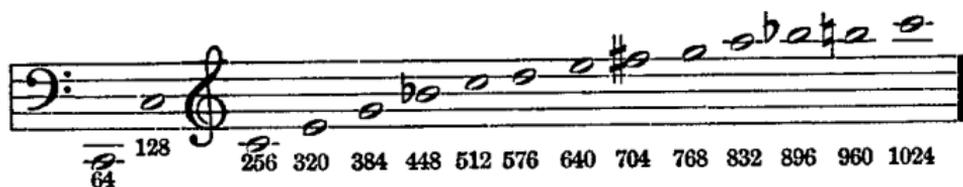
The *Marcotone Scale* is not to be understood as the chromatic form of the diatonic scale, but as a tone-color scale of twelve pitches within the distance of an octave. *Number* is the source of **MARCOTONE**, and these numbers are found in the scale of *harmonics*. Harmonics, or upper-partials, are those overtones caused by the natural function of a fundamental tone dividing itself automatically into its aliquot parts. Starting, for example, with C in the "great

octave,"  the harmonics are all gov-

Pitch 64 

erned by the number 64, because sixty-four added movements in air is Nature's formula for expressing her harmonical scale with the great octave C or *Do* for fundamental.

Sixty-four vibrations added as a scale give the following:



64 128 256 320 384 448 512 576 640 704 768 832 896 960 1024

HARMONICAL SCALE

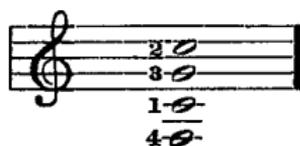
When Guido d'Arezzo, monk and musician, with his medieval colleagues accepted the ancient Greek Lydian system as the official occidental scale, employing seventeenth century notation, we obtained an arbitrary seven-toned intervallic scale which we have called diatonic :



LYDIAN SYSTEM: DIATONIC SCALE

This scale is composed of tetrachords, *i.e.*, of four notes placed within the interval of a "perfect fourth", each tetrachord containing two whole steps and one half step. The dotted lines above show how this arbitrary scale of the Greeks was built up as a *spiral of fifths placed within an octave*.

Greek music, as understood by us, was introduced into Hellas by Pythagoras from Egypt. It belongs to the Hermetic philosophers of Osiris, Horus and Isis. Therefore, it is easy to trace its origin to the Orphic Lyre, or the "scale of Orpheus", which tradition says he received from Apollo, his father, the god of light.



THE ORPHIC SCALE

Through the monochord, an instrument used since civilization began for measuring intervals, the "root-note," or fundamental tone (1) gave first its octave (2), then its fifth (3), by naturally dividing up the stretched string into halves and thirds. Mathematically the *twelfth* (fifth within the octave) could be inverted and thus become the lowest note (4) of the four-stringed "lute of Apollo" or lyre of his son Orpheus.

Remember that the music of the East is still homophonic (melodic), and this purely melodic music prevailed in ancient Egypt and therefore in Greece. As the "greater contains the lesser" the ancients, having gauged the *interval once removed from the prime tone's octave* (g" removed from c'), built their scale systems, the *seven-toned scale* within the distance of the extreme strings of the four-stringed lyre of Orpheus, viz: c; g; d; a; e; b; f, between f and c", and comprised in their systems of double-tetrachords is c; d; e; f; g; a; b; c, the Lydian system.

Yet this finely constructed scale is foreign to nature and the recent discovery of this fact has led "modern" music into strange places of adventure. The classical composers and, in a large measure, too, the romanticists of the middle nineteenth century, believed with the ancients that their diatonic scale was Nature's own scale. Today we have science proving this to be erroneous.

Let us carefully consider this matter which is causing a complete revolution, and will eventually lead to a reformation in the world of musical science and art.

The Lydian system, incorporated into modern music as the diatonic scale, we have seen to be a seven-toned scale of two tetrachords, each tetrachord consisting of two whole steps and one half step. Now, these steps, although placed side by side and incorporated in each of the seven musical octaves, nevertheless are not of the same basic or primary value. The sonometer or monochord, plucked to obtain the C' or *do'*, causes this instrument for the measurement of musical sounds to emit 256 pulsations per second, or some acuter or denser sound having the same numerical *ratio*. But this plucked string of the monochord divided itself into its *aliquot parts* with the natural consequence that simultaneously its harmonics were heard. The sound obtained by plucking the string was, therefore, obtained *objectively*; but the overtone G or *sol* used for building the diatonic scale was automatically caused to sound by this same impact and consequently was obtained *subjectively*. Therefore the objective sound, C or *do*, is complemented by the subjective sound, G or *sol*. Tyndall, Gage and a number of other physicists in their acoustical experiments have demonstrated how *sounds* may be reduced to *silence* when a primary and its complementary tone are sounded simultaneously. This law equally applies to primary and complementary *colors*. Therefore, when a tone-color is objectively obtained and mated with its complementary tone-color, to proceed with natural scaling, it becomes essential to carry out a precise formula, that is, to continue following our

numerical law regarding a fundamental tone and its harmonics, and to avoid the ancient error of considering them as of the *same acoustical value*.

Correcting this hoary fault in building musical scales, we obtain a perfectly ordered scale of *six just tones* and their *complementary overtones*.

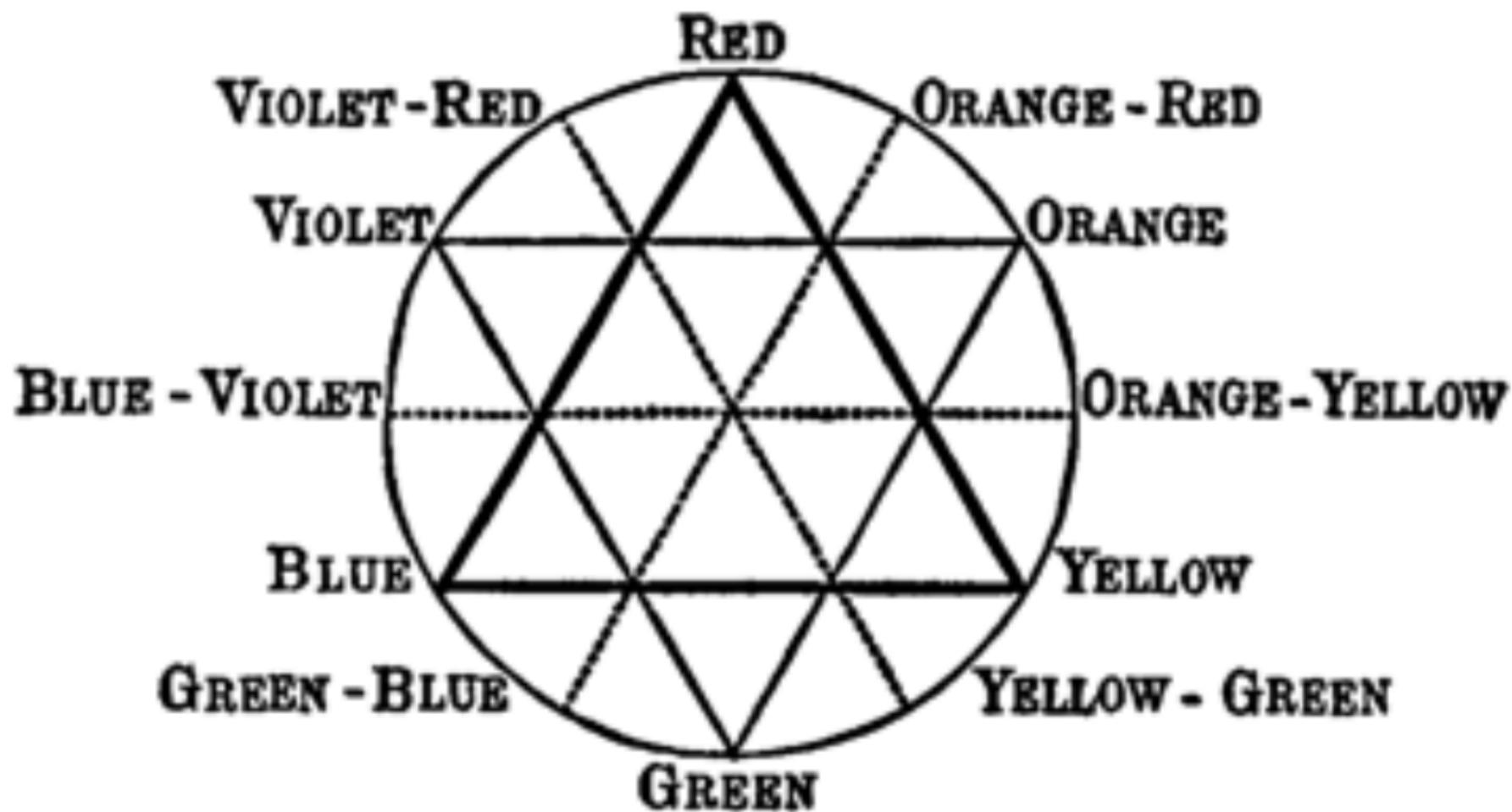
The following is the result:



THE MARCOTONE SCALE

Thus is created a perfect cycle or circle of isochronous tone.

The following chart, showing this scale related to the prime geometrical symbols, establishes its relationship to natural law and introduces the chromatic half-steps.



The double triangle illustrates the geometrical position of the primary (musical proportions), and the intersecting dotted lines represent the complementary tone-colors.

The "clavier," or keyboard of a piano and organ, has been built to conform with d'Arezzo's "Diatonic" *seven-toned scale*, made chromatic by evening up its steps of irregular tones and half-tones into twelve half-steps. Hence we have a keyboard *irregular* to handle, and which obviously creates technical difficulties apart from those which are "natural" to any mechanical instrument upon which *we manually* perform.

Further, *three* tones of the primary whole-scale are reproduced on the *black* keys, and *four* of the complementary whole-toned scale, on the *white* keys. Could anything be more confusing to a *true* harmonical realization of Music? Of course, as these and other errors were formed on false conceptions, and which in the course of several centuries have become traditional, they remained undiscovered by the general public; *but* this same public, nevertheless, suffered the consequences of ignorance; for error creates confusion. Because it has *not* seen the truth, the difficulties caused by false conceptions, as a necessary evil to artistry, enveloped music-study.

How long are we going to work hard through error when natural law shows us an easier way towards our ideal?

It takes man to discover and become fully alive to natural law, for Truth is hard to find; but

having found it, all things human are made easy; because *when* Truth alone informs man's works, both he and his labors become divine, and mortal becomes immortal.

CHAPTER V

TONE-COLOR; THE SCALES OF LIGHT
AND SOUND

The scale of Light and the scale of Sound are one in *principle*; but given in *light-waves*, this natural scale of universal vibration is the divine Law of the Universe, which produces the primary *colors*, and given in *sound-waves*, produces the primary *tones*.

A perfect conception of the correlation of both these scales can be gained through a sub-division of the circle (360 degrees). This gives us the Chromatic Circle of Tone-Color. (See Standard Edition.)

Not only do we thus obtain by natural law everything which, as sound, is used by the musical composer, the sum total of that which in combination gives us the whole fabric of the musical arts and sciences, but we are thereby enabled to *equalize* our imperfect diatonic scale. Examining this scale, we find it a mixed gamut of tones and half-tones. In sub-dividing it, *chromatically*, the diatonic scale becomes a chromatic scale of twelve equal half-steps tempered for technical purposes.

In proceeding upwards, the teacher must impress upon the student that the sharp-sign (#) is always used, and in proceeding downwards the flat-sign (b) takes its place in the chromatic octave.

If the teacher has helped the pupil to realize the

foregoing, the pupil is in a position to put MARCOTONE to practical uses.

Because the *will* has power to imprint on the *mind* a given color or series of colors, in MARCOTONE it is necessary to practise any exercises given by a qualified teacher without any assistance from the tone-color charts or the figures in the book, *i.e.*, *mentally*.

These charts and figures are only first aids towards memorizing those *colors* which are in the same *exact ratio* of the vibrations as the *tones* and which are incorporated in the *same* musical sign. When power has been gained to recall these colors at will, then all assistance from the Marcotone Pitch-Pipe (the Marcotonograph*) and the colored diagrams *must* be discarded.

The lessons are to be given with the Marcotonograph or Pitch-Pipe, and Charts, or with those other inventions and games which have been expressly manufactured for students of all ages, to facilitate its study.

*A specially invented instrument which produces the Tone-Colors. A piano may be used.

CHAPTER VI

TONE-COLOR; RULES

The Note-Signs in use for musical composition, in **MARCOTONE**, serve a twofold purpose:

(a) As twelve distinct Signs, for twelve distinct Colors.

(b) As twelve distinct Signs, for twelve distinct Tones.

Each Note-Sign is made distinct from every other Note-Sign by the position it occupies on the staff.

RULES

1. The *color* of these twelve signs must be thought, *i.e.*, realized by the mind, and *not* the *tone*.

2. When a given color is firmly held in the mind, this color is to be *turned into its correlated tone* by the pupil, that is, the pupil will sing it to the name of its correlated color.

3. These rules, 1 and 2, must be strictly observed, for the whole tone-color system depends upon the absolute law of motion or vibration governing **MARCOTONE**. You can naturally think color *without* the assistance of the eye; but you cannot think tone *with* the assistance of the ear. Therefore, the *color* must be *thought* quite independently of its correlated tone, the pupil using the color-thought to establish the required tone. The higher octave

automatically establishes the lower octave. (See Table and Chart, page 38.)

4. The *tone-colors* are to be practised by means of the Marcotone Charts and the various other specially invented means for perfecting the tone-color system.

5. Until the whole Tone-Color Scale of *twelve chromatic steps* is mastered only *one new* tone-color should be studied at the same lesson. The new tone-color can then be added to those already mastered.

6. Never associate a color with any tone except that tone to which it is *correlated* by natural law. *To do so is to falsify the laws of Nature.* This correlation is the foundation of the science of tone-color. (See Table and Chart, page 38.)

7. Remember, that having mastered the *Natural* or *Middle* octave (once-accented), the pupil's ear will easily perceive these same color-tones when repeated in the lower or upper octaves, below or above the middle octave. The universal process of sound vibrations conforms to a fixed law which in actuality makes an octave circular. Each circle *spirally repeats* both the color and the tone. The only difference between these circles is that the vibrations intensify, that is, become acuter as they become higher, *but the ratio of tone and color never changes.*

8. Never attempt to *measure* the interval between two tone-colors. Although this has hitherto been a common practice, the uselessness of trying to do so is patent from the fact that the human brain has no

natural means whereby to measure distances between objects.

9. Before exercises are given the teacher must be absolutely sure that the pupil can readily *think* the colors of the notes contained in the exercises, and as readily *translate each Color into its co-equal Tone*.

In the course of practice the effort of translating color into tone will become automatic. Then the student may begin reading the compositions of the master musicians. Finally it will be unnecessary to use the voice to obtain the tone, for both the tone and its correlated color will have become a part of the subconscious mind, and just as we can naturally call to mind a color or colors without the aid of the *eye*, so we shall then be able to call to the mind and hear "in our heads" a tone or tones without the aid of the *ear*.

Then, just as we eat, walk, talk, read and write, we shall be able to read any music which we desire to study or to enjoy.

When reading instrumental music, in which many notes are written outside the range of the human voice, the reasonable mind will realize the tone of all such notes in the once-accented octave, and the eye will show and the brain will grasp instantaneously in which octave such notes lie. When the rules and explanations in this chapter are learned, then the pupil will have become a *natural* musician.

These note-signs are the symbols for *both* the tones and the colors.

MARCOTONE

These *twelve colors* are *measured* from the *twelve tones* of **MARCOTONE** Scale in the natural, or once-accented *octave*. (See Table and Chart, page 38.)

When there are *two-worded names* for the tone-color, use, for example, in ascending the scale, the order: yellow-green, and in descending: green-yellow. This order applies equally to all two-worded tone-colors.

MARCOTONE charts, plates, pitch-pipes, instruments of precision, toys and games are first aids only for teacher and pupil, to help, interest, and amuse. When **MARCOTONE** is so far mastered that the twelve tone-colors, through the habit-forming method employed, become "second-nature," and have built into the subconscious mind a faculty which automatically realizes *tone* in the same way that color is naturally apperceived by the mind, these means to that end will be entirely unnecessary. These scaffoldings, implements, and paraphernalia necessary to our mental superstructure, like those for any building, will be discarded when the building is finished.

PART II

LESSONS IN TONE-COLOR

Note. Color-print is not light, and the colors printed in this book are the closest representations obtainable of the measurements of the Tone-Color Scale. The perfect co-ordination is achieved through the Marcotonograph.

THE MARCOTONE TONE-COLOR TABLE AND CHART

Diatonic Lettering	Tonic Solfa	TONES		Tone-Color Names	COLORS	
		Tempered Pitches of Once-Accented Octave	Wave-lengths of Tones in Inches		Wave-lengths in Terms of the Tenth-Meter	Common Ratios
B	Ti	483.5	27½	Violet-Red	3976	53
A♯=B♭	Li=Tay	456.5	29¼	Violet	4104	56
A	La	430.5	31	Blue-Violet	4241	60
G♯=A♭	Si=Lay	406.5	33	Blue	4555	63
G	Sol	384	35	Green-Blue	4737	66
F♯=G♭	Fi=Say	362	37	Green	4919	70
F	Fa	342	39	Yellow-Green	5233	75
E	Mi	322.5	42	Yellow	5601	81
D♯=E♭	Ri=May	305	44¼	Orange-Yellow	5865	85
D	Re	287.5	46½	Orange	6164	89
C♯=D♭	Di=Ra	271.5	48¼	Red-Orange	6472	95
C	Do	256	52	Red	6870	100

SOUND

A tuning-fork, C' (256 vibrations per second), set in motion, travels at 20° C. a distance of 344 m., causing the first wave to be at that distance from the fork when it has completed its 256th vibration, and proving that in 344 meters there are 256 waves, each being the length of $\frac{344}{256}$ m., or 1.344 m.

Therefore, speaking generally, wave-length = velocity frequency, which gives the equation

$$l = \frac{v}{n}; v = nl; \text{ and } n = \frac{v}{l}$$

LIGHT

Agreeably with Fraunhofer lines, in air at 20° C. and 760 mm. pressure, the longest wave in the solar spectrum is obtained. Red (spectrum), the Angström unit for this spectral color, is .68 microns (6870 mm.), namely: $\frac{344}{256}$ m. raised to its 29th power, using the binary numeral (2).

Thus from the lowest independent audible tonic or fundamental C (32 vibrations) **RED** is visible as a light-wave in the 32d octave.

Plate I

TONE COLOR, RED

RED



CHAPTER VII

LESSON I. RED

The *color-vibrations* when measured to *tone-vibrations* in their dual value and symbolized by the note-sign shown in PLATE I constitute the *tone-color* RED.

Red-Color as a light-wave measured to *Red-Tone* as a sound-wave are two equal phenomena in the spheres of light and sound; but they are one and indivisible in principle, which is *vibration*, because of their common ratio.

1. Instructions given in this lesson apply to *all of the Twelve Chromatic Tone-Colors*, and will not be repeated. Only such further comments as are necessary will be given.

2. In the meantime, with such **MARCOTONE** aids as you have chosen, or, failing these, with a properly tuned piano,* or pitch-pipe, *relax* and quietly take PLATE I, and without any other thought distracting your mind, *contemplate* the note-sign RED.

3. But do *not* sound your instrument or pitch-pipe until you realize that the color RED occupies your mind to the complete exclusion of everything else. Then without any thought of the tone-value, sing RED.

Sing the *name* of the tone-color: RED. If the mental effort is adequate in *thinking* RED, governed entirely by color-thought, your vocal mechanism

* The A' or pitch between 430 and 440.

(the voice), a mere vassal of your brain, will, by the natural laws which govern all forms of the universal principle *vibration*, perforce give out the tone-value RED.

If, "in the mind's eye," interiorly and automatically, you *realize* the color RED, then the mind is dominated by the lightspeed of .68 microns, the length of the color RED, The vocal organs cannot make light-waves, but are naturally constructed to make sound-waves; hence, when the mind automatically wills the vocal organs to sound the color RED, the mentally realized *color* becomes a vocally made *tone*, and they automatically reproduce the pitch of the light-wave of .68 microns in women's and children's voices in the once-accented octave, and an octave lower in men's voices, twenty-nine or thirty octaves, as the case may be, below the color-thought.

This correlation of motion by ratio is a fixed law of Nature, discovered and applied through the law of Numbers, and mathematically applies to each step of the Tone-Color Scale. The vocal organs have brought the "etheric" movement of .68 microns into the comparative slow-moving octaves of air, so that *light* automatically becomes registered as *sound*, and the *color* RED becomes the *tone* C or *do*.

4. You must not be surprised, however, if you do not obtain the tonal-pitch of RED immediately. You must practise thinking color and realizing tone until the *habit* of correlating a given tone with its

own measured color makes it "second-nature" to do so.

5. (a) Never think the tone.

(b) *Always* think the color.

(c) The *co-equal* tone will, by natural law, inform your mind and in due course correlate itself with the color-thought.

6. *Never associate any color with any tone except the one to which, by the law of Motion, it belongs. To do so is to falsify the laws of Nature.*

Continually read over Chapter VI, *Tone-Color Rules*; for, unless they are explicitly followed throughout this system, mastery of MARCOTONE is impossible.

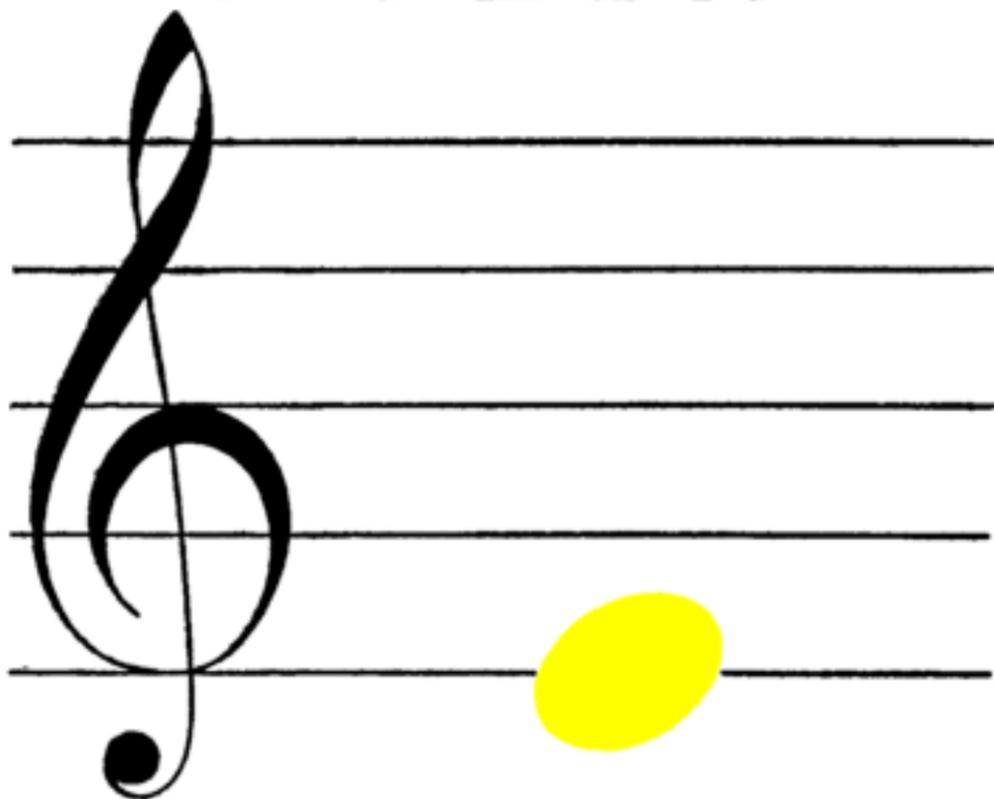
Do not proceed to Lesson II until the Tone-Color RED is so effectively a part of your mentality that *you can think* the color RED without looking at PLATE I, and can re-create its co-equal tone in your voice without any conscious effort.

However, when it is quite as natural for you to realize the *tone* RED as it is to realize the *color* RED, you may advance to Lesson II.

Plate II

TONE COLOR, YELLOW

YELLOW



CHAPTER VIII

LESSON II. YELLOW

The *color-vibrations*, which measured to the *tone-vibrations*, fixed to the musical note-sign in the once-accented octave, are co-equal and form the third primary tone-color YELLOW, shown in PLATE II.

Yellow-Color as a light-wave and *Yellow-Tone* as a sound-wave are of the same ratio of pitch. This movement in "ether" causes our eyes to see *Yellow-Color*, and in air causes our ears to hear *Yellow-Tone*. Objectively, in all spheres of matter, as we have already explained, phenomena or sense-perception must be reduced to a question of motion. Therefore, to all sentient beings, *vibration is the universal law, its different aspects being due to variety of scaling.*

Understand that this present work is for the unique practical purpose of obtaining *Mastery in Music.*

Follow the rules given in Lesson I, and visualize Yellow-Color; and in precisely the same manner that the *habit* was formed to obtain a mental possession of RED-tone, study to realize mentally YELLOW-tone.

When the Tone-Color YELLOW has become a permanent part of the mind, the teacher will write out several simple, rhythmical exercises.

If later, in testing whether the Tone-Color YELLOW is permanently placed in the subconscious mind, the pupil finds the pitch is not exact when PLATE II is

quietly visualized, then the exercises must *not* be continued. In such cases:

1. *Look* at the color.
2. *Listen*, while looking at the color.
3. *Sound* the tone.
4. *Think* the tone and color as *one unit*, Tone-Color.
5. *Relaxed*, wait a little while in silence.
6. *From* the color again try to realize its correlated tone.
7. After another short rest, if the tone is successfully obtained *from* the color, *think* (*i.e.*, visualize in the mind) the color without the help of the colored plate, and sing YELLOW.

If this effort meets with success, continue with Lesson III.

The exercises given will be sung as follows:

1. To the *names* of the Tone-Colors.
2. Hummed with closed lips.

This suggestion is a sufficient guide to a trained teacher of MARCOTONE. The MARCOTONE "black-board" is the best medium for the composition of elementary exercises.

NOTE

We have the power to register vibration through any one of the five senses; yet subconsciously we can only register *exact* movements of Light, as *Color*. We cannot register the measurements of our taste, touch, smell, or hearing subconsciously;

yet we do so to manifestations of Light. We have explained that this is due to our evolution having been directed by natural causes of this universal principle governing our planetary system.

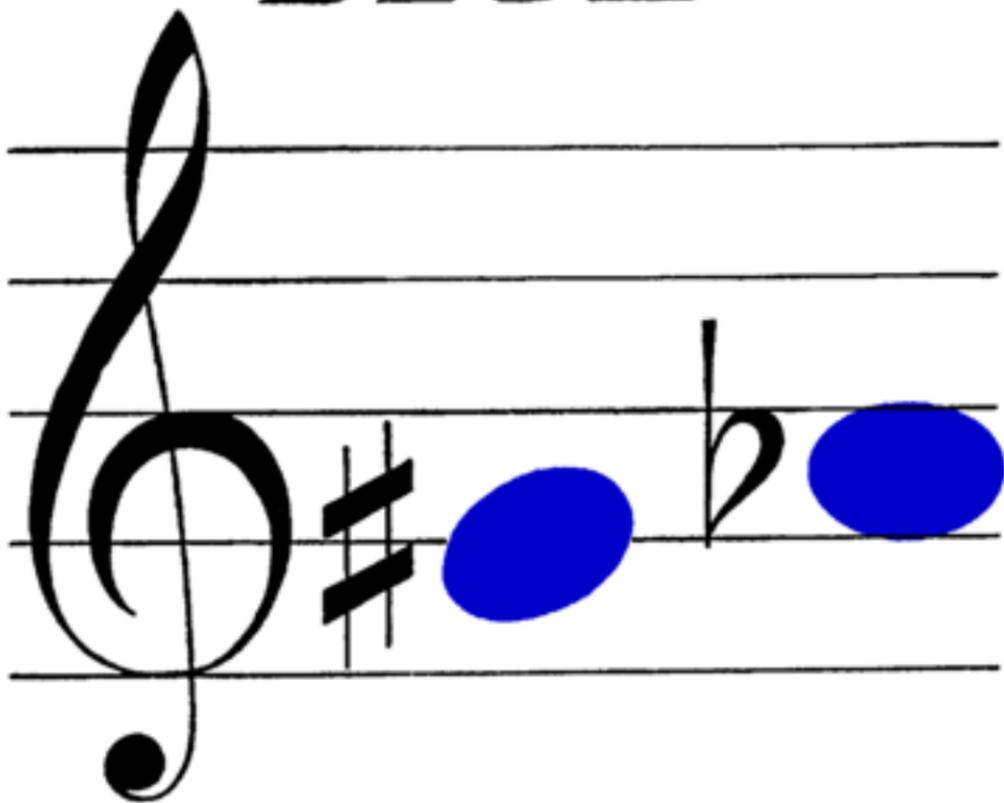
It is only by coupling our scientifically developed system, MARCOTONE, to our hereditary faculty, and correlating the measured movements of Light to Sound as Color and Tone, *realizing* them as *Tone-Color*, that we shall ever command an ability to apperceive tone, as we intuitively apperceive color. That these powers are *not* equal, no one will deny.

Until these powers *are* equal, it is impossible for the world of music to pretend to a *natural* basis upon which to found true musicianship for mankind.

Plate III

TONE COLOR, BLUE

BLUE



CHAPTER IX

LESSON III. BLUE

The *double note-sign*, shown in **PLATE III**, which symbolizes the fifth primary *Tone-Color* in both the scales of Light and Sound, differs from the note-signs of the two former lessons because there are two notes, both of which symbolize the same prime Color and Tone.

The first of these notes is the sign used in music, ascending the scale, and in keys with so-called *sharp-sign* (#) signatures.

The second note is the sign used in music, descending the scale, and in keys with so-called *flat-sign* (b) signatures.

Although in musical notation these note-signs differ, the *Tone-Color never* alters. This change in the note-sign, but *not* in the Tone or Color-value, is called an *enharmonic change*.

Therefore in visualizing these double note-signs, the enharmonic change *must* be remembered, so that whenever either of these notes has to be tonally realized, no misunderstanding will arise to confuse the student. Do not forget the following order of study:

1. *Look* at **PLATE III**, Tone-Color **BLUE**.
2. *Listen* while you produce its *co-equal* tone.
3. *Think* both the tone and color together.

4. When it is felt that you have *realized* the Tone-Color BLUE, mentally, then leave it, and for a few minutes, to test how well the habit of associating Tone and Color together is gradually becoming a natural function of the brain, go over the exercises for Lessons I and II.

5. Looking at PLATE III, or, if you can do so, visualizing BLUE in the mind's eye without help from the color, *sing* BLUE-tone.

6. Do not continue giving exercises with this lesson until the Tone-Color BLUE is *permanently* placed in your mind.

The *habit* must first of all be cultivated until it has become second nature, so that the tone you obtain marcotonely is just as natural for you to think or sing, as it is for you by nature to realize mentally its *correlated* color. A few days, even weeks, may be necessary to accomplish this aim with each of the Twelve Tone-Colors.

The inventor of MARCOTONE and his pupils who have *mastered* it consider, generally speaking, that this system of acquiring tonal apperception requires nine months before music can be read, written, listened to, and memorized with the same automatic facility that the average person gains over his or her own language. In common schools this will of course be a longer period.

Undue haste is fatal to the study of MARCOTONE. It is far more important to work steadily day by day, for a comparatively short time at each sitting, than to neglect study one day with the idea of

“making up for lost time” the next by double the amount of practice, a procedure which inevitably results in fatigue instead of definite progress toward the ultimate goal of *music-mastery*, the unique mission of MARCOTONE.

If you have already gained absolute control of the Tone-Color BLUE, you can now use it rhythmically by itself to conform to musical law, and also coupled melodically with RED and YELLOW.

It will be noticed that the Tone-Colors are not placed as they progress normally in the scale. Teaching has led to the knowledge that they are more easily acquired when studied after the manner used by artists in mixing their body-colors; not in the *additive* form of the physicist, but in common with *the subtractive* or *differential* form alluded to.

Plate IV

TONE COLOR, ORANGE

ORANGE



CHAPTER X

LESSON IV. ORANGE

The movement in light which produces the color ORANGE, the second primary Tone-Color, becomes the tone whose note-sign is shown in PLATE IV.

With the help of this plate and your pitch-pipe or other instrument, you can now work, strictly according to the Rules given in the previous chapters, on the *note-sign* for ORANGE-Tone, *symbol* for ORANGE-Color.

When you are absolutely sure that you can realize the *tone* of this note-sign without any external agency whatever, spontaneously and simply by your own act of volition, your teacher will outline exercises for this Lesson.

Plate V

TONE COLOR, GREEN

GREEN



CHAPTER XI

LESSON V. GREEN

The *Tone-Color* GREEN, symbolized by the double note-sign shown in PLATE V, is the fourth primary Tone-Color.

The explanation in Lesson III regarding the enharmonic change, indicated by the sharp-flat note-signs, in which the lowest note is raised one half-step and the highest note is lowered one half-step so that as a *unit* of Tone-Color they become one and the same, applies to *every step* in the chromatic scale where an enharmonic change appears in the note-sign.

It is scarcely necessary to tell you that GREEN is *not* to be studied until you have perfectly identified the four Tone-Colors ORANGE, BLUE, YELLOW, RED in your subconscious mind. To undertake the mastery of the absolute tonal-pitch of a *new* Tone-Color before the previous ones can be used automatically, without the effort of *reasoning* about their fixed position in scale, is to injure your studies and cause unnecessary labor and fatigue.

Can you realize the Tone-Color GREEN by reason of its pitch being an integral part of your mind? If so, then continue exercising. At this stage of MARCOTONE study, the teacher will give both blackboard and *dictated* exercises.

Of course such realization of the Tone-Color

GREEN means that it is achieved without assistance from any objective means, pitch-pipe, piano, colored plate, etc.

NOTE

When you are alone, walking, riding, or undisturbed at home with nothing to do, *visualize* in your mind sometimes two, sometimes three, Tone-Colors, and *hum* their tone-values. Take them in varying order, as:

	1	2	3	4	(UP)
 (down)	Red	Green	Blue	Blue	 etc.,
	Blue	Blue	Red	Green	
	Green	Red	Green	Red	

and the same with any of the other Tone-Colors which have become absolutely yours *subconsciously*.

If you have one with you, test your effort on a pitch-pipe, or failing that and you are exercising extemporaneously in the open, verify your results on arriving home, with piano or pitch-pipe, to show what progress towards absolute pitch you have already made.

By all means *reason* out the ways and means of your studies to an intelligible conclusion; but when you have done so, understand that reason must

lead you from the *objective activities* of the conscious to the *subjective absolutism* of the subconscious mind. Your work must be *potential* before it is *actual*, and this differentiates MARCOTONE from other methods.

1. *Reason* is the faculty by which we obtain wisdom through knowledge.

2. *Intuition* is the faculty in which the knowledge once obtained is forever placed. As the ancient Greek philosophers so wisely stated: "To know is to be;" and the Hindus: "Know thyself by thyself"

Plate VI

TONE COLOR, VIOLET

VIOLET



CHAPTER XII

LESSON VI. VIOLET

The mastery of MARCOTONE depends primarily upon the tone-values of the notes finding spontaneous and accurate expression by the voice at the will of the pupil. This action is not the *cause* but the *effect* of the color-value being subconsciously translated into its co-equal tone-value, a mere change of octave.

As we have already pointed out, by inducing the habit of building specific tone-colors into the subconscious mind until they function automatically, we bring singing into the category of speaking, writing and reading, where we are conscious of the sum and substance of our accomplishment without considering the principles which have led, often slowly and painfully, to proficiency in those functions.

Through MARCOTONE, by the operation of a new faculty within your mind, the *universal language of Music* will be no more difficult to control and express than your own mother-tongue.

VIOLET is the sixth primary Tone-Color. (See PLATE VI.)

After you have gained complete mental possession of this Tone-Color VIOLET, continue by practising the exercises which your teacher will compose for this Lesson, and which you will find are arranged in an orderly manner of *progressive* difficulty.

Also study again the Rules on page 33.

Plate VII

TONE COLOR, ORANGE-RED

ORANGE-RED



CHAPTER XIII

LESSON VII. ORANGE-RED

Bear in mind that MARCOTONE *Rules* are vital to success in mentally forming absolute tonal pitch.

If you have already mastered the *Primary* Tone-Color Scale, you will continue to enlarge the inner faculty you are building in the mind, by automatically acquiring the *Complementary* Tone-Color Scale, precisely conforming to those methods which are now becoming familiar to you, until the whole body of material used in music has become absorbed by your subconscious mind, whose forces, instead of remaining merely potential, have thus become actual and effective powers.

The first step of the *Complementary* Scale to be studied is ORANGE-RED, symbolized by the double note-sign shown in PLATE VII. ORANGE-RED is the fourth Tone-Color of the harmonical half of our chromatic gamut.

When you can realize this Tone-Color without recourse to reason, *i.e., automatically*, you may then proceed to practise the exercises given you for this Lesson, — first, *singing* the Tone-Color *names*; second, *humming* the *tones* of the note-signs.

Plate VIII

TONE COLOR, ORANGE-YELLOW

ORANGE-YELLOW



CHAPTER XIV

LESSON VIII. ORANGE-YELLOW

The exercises given for each lesson could not be read at sight *automatically* by existing methods of *solfeggi*, or sight-reading. Absolute Pitch can never become a faculty of the mind in opposition to natural law. We do oppose natural law when we try to measure an *interval* between two notes. Nature has given us no mental yardstick. Absolute Pitch is the power to call before the mind any tone, alone or in combination with others, without the aid of any sense organ or mechanically adjusted musical instrument. The sense of touch has naught to do with it, unlike the control of relative pitch.

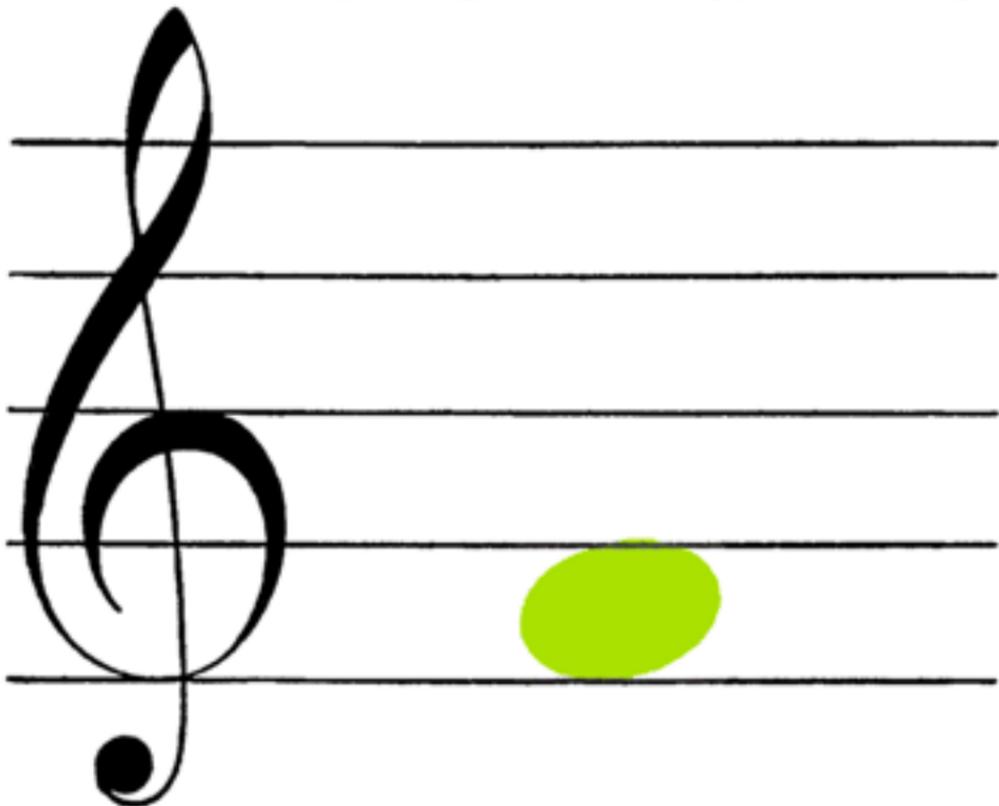
Therefore *Absolute Tone-Pitch* is a possession of the subconscious mind, and can be obtained only through the hereditary power, possession of *Absolute Color-Pitch*. We can visualize Color subconsciously. We *must* hear Tone subconsciously by strictly following the *MARCOTONE Rules*.

The fifth complementary Tone-Color ORANGE-YELLOW (see PLATE VIII), when its pitch is obtained by simply calling it forth, will be practised alone as a single unit of measured Tone from its co-equal Color, and then in a melodic line associated with those Tone-Colors already mastered, as given in the teacher's exercises.

Plate IX

TONE COLOR, YELLOW-GREEN

YELLOW-GREEN



CHAPTER XV

LESSON IX. YELLOW-GREEN

The Tone-Color YELLOW-GREEN (see PLATE IX), as measurement of motion, is the sixth and last complementary Tone-Color.

Do not forget that all these note-signs are symbols of *two* effects of motion. Therefore, they determine the *exact ratio* of a specific Tone-Color, *i.e.*, of a given *color* which is to be re-created into its correlated *tone*.

Establish this phase of the law of vibration subconsciously; then *keys, intervals, accidentals* and other diatonic characteristics which have hitherto caused difficulty for the musical student will vanish.

When MARCOTONE is mastered, the *Twelve Proportions of the true musical scale* will be crystallized into the mental faculties, to be called forth at will.

These *note-signs* will then synthetically touch the Tone-Color reality, because through MARCOTONE they have become a natural function.

When you have mastered YELLOW-GREEN as a *single Tone-Color*, continue exercising.

Plate X

TONE COLOR, GREEN-BLUE

GREEN-BLUE



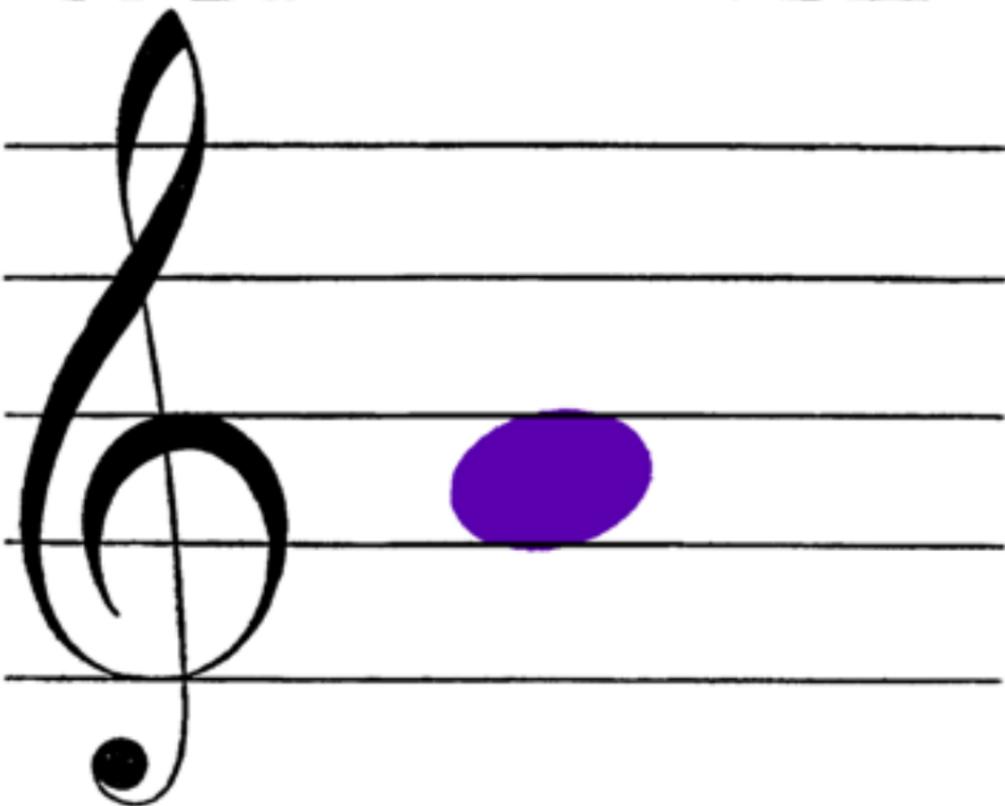
CHAPTER XVI**LESSON X. GREEN-BLUE**

In our present method this note-sign is the symbol of the Tone-Color GREEN-BLUE (see PLATE X), first of the complementary Tone-Color Scale. Add this step of the harmonical scale to your others by strictly following the former rules, then continue the exercises arranged for this Lesson.

Plate XI

TONE COLOR, VIOLET-BLUE

VIOLET-BLUE



CHAPTER XVII

LESSON XI. VIOLET-BLUE

VIOLET-BLUE, symbolized by the *note-sign* shown in PLATE XI, is the second complementary Tone-Color.

When VIOLET-BLUE is spontaneously realized by the mind, continue the teacher's exercises given you specially for this Lesson.

Plate XII

TONE COLOR, VIOLET-RED

VIOLET-RED



CHAPTER XVIII

LESSON XII. VIOLET-RED

This lesson completes the statement of the translucent cycle of Tone-Colors. The natural chromatic octave of Light and Sound becomes fully effective when this Tone-Color VIOLET-RED (see PLATE XII), the third complementary Tone-Color, is placed in your subconscious mind, to function *naturally* with its companions.

Instead of forever only being apperceived as *color*, thus compelling you to obtain the correlated *tones* from some instrument on which they have been mechanically placed, these tones are now a living reality, a glowing part of your own Ego, the subconsciousness, a revelation for your self-expression, derived directly from the universal world of Principles.

Thus, as an illumined writer has penned, "the rainbow of promise" has been "translated out of seeing into hearing," if the student of MARCOTONE has built a true crystallization of each of the twelve units of Tone-Color into the subconscious mind.

If this has been done, then a new faculty has been obtained, in which the poetry of music can be sown in this new-tilled field of the brain; so that the harvest may be gathered and garnered, when these bright seeds of Tone-Color will blossom into flowers

of Truth and ripen into fruits of Beauty — *within your own minds.*

It is understood that the student, through strict adherence to the MARCOTONE *Rules*, has acquired *automatic tonal control of the natural twelve-toned chromatic scale*, and, therefore, when the teacher's exercises have been realized, this new faculty of the mind can at once be placed at the disposition of the pupil's particular branch of music-study, whether vocal or instrumental.

PART III

MARCOTONE IN RELATION TO LIFE AND ART

CHAPTER XIX

MUSICAL PROPORTIONS IN PHILOSOPHY; SCIENCE; ART

Attention is drawn to two persistent facts:

I. That in the philosophy of the ancient Indians, Egyptians, Greeks and Latins, the *highest conception* of Symmetry and Beauty (mathematics and the arts) *was based on musical proportions*. That is, the Greek system of Pythagoras, including the ordering of the melodic line through his tetrachord (which was the foundation of geometry and higher mathematics) was used by the Ancients, and, in part, by the masters of the Renaissance.

II. That modern science, by the universal principles governing vibration or motion *exactly measured*, is *attuning* her marvels of today. Edison's lamp, Crookes' tubes, Roentgen's rays, the wireless telephone and telegraph, high explosives, engineering, all are but the precursors of what *vibration*, limited to certain practical uses, will do for our century.

In the world of art the painter's colors are today *tuned* to the pitch of the musician's chromatic scale, and our chemists have the same scale as the musician and painter. These scales, as melodic lines and chord formations, will restore to our architects and builders the creative wisdom which their productions of today show only too clearly that they

have, for the most part, lost. They do not originate new forms, but resort to those of other epochs.

The mastery and use of the laws of vibration applied to the art of Music will not only produce a sense of proportion, truth and beauty not generally available in our centers of learning, but will have prodigious curative effects. Mental healing, auto-suggestion, osteopathy, clinical research, etc., are germinating these principles in the treatment of mental and physical sickness. The science of applied rhythmic (equilibrium) in Tone-Color vibration will finally banish the all too ready knife from our hospitals. *Tone therapy* will be applied universally in future human physical needs.

What did Carlyle mean when he said that Thebes was built by the Music of Orpheus, quoting as he did from ancient literature?

Simply that this city of unique and glorious palaces, tombs and temples was erected, like that most perfect specimen of all architecture, the Parthenon at Athens, upon an *absolute system of Geometry evolved from musical proportions*. (See Plato's "Timaeus.")

The great Italian sculptor and architect of the fifteenth century, Leone Battista Alberti (1472), quoting from his Latin texts, wrote the following edifying words:

"A common thing with the ignorant is to despise what they do not understand. . . . Yet variety is, without dispute, a very great beauty in everything *when it joins and brings together in a regular manner*

things different but proportionable to each other; but it is shocking if they are unsuitable and incoherent. For as in music, when the bass answers the treble and the tenor agree with both, there arises from that variety of sounds an harmonious and wonderful union of proportions which delights and enchants the senses. . . . The Ancients . . . did in their works confine themselves chiefly to the imitation of Nature, as the greatest artist at all manner of compositions . . . a certain mutual correspondence of those several lines by which the proportions are measured, whereof one is the length, the other the breadth and the other the height. The rule of these proportions is best gathered from those things in which we find Nature herself most complete and admirable, and indeed I am every day more and more convinced of the truth of Pythagoras's saying that Nature is sure to act consistently and with a constant analogy in all her operations: from whence I conclude that the Numbers, by means of which the agreement of Sounds affects our ears with delight, are the very same which please our eyes and our mind [Tone-Color-Numbers]. We shall therefore borrow all our Rules for the finishing our proportions from the Musicians, who are the greatest masters of this sort of Numbers, and from those particular things wherein Nature shows herself most excellent and complete. . . . This harmony of the Ancients gathered from interchangeable concords of the Tones, by means of certain determinate Numbers. . . ."

Of which numbers "the architects made very con-

venient use, taking them sometimes two by two, as in planning out their squares and open areas wherein only two proportions were to be considered, namely, length and breadth; and sometimes taking them three by three, as in public halls, council chambers and the like, wherein as the length was to bear a proportion to the breadth, so they made the height in a certain harmonious proportion to them both. . . .”

If all that has come down to us from the past, and which is so perfect that it is still the wonder if not the despair of modern intellectuals, is proved to have been evolved from what is known as *musical proportions*, viz: certain units of *absolute pitch* in fixed ratio, singly and in combination, the sooner these *units of Tone-Color-Number* are a permanent part of our subconsciousness, the sooner we shall be able to use our marvels of modern science and art. Not as an individual sees them, but according to the universal principle of Life, which is motion or vibration adjusted to the symmetrical, rhythmic proportions of Nature herself. This is Music, *music in all things*.

The Science of MARCOTONE, which is the agreement of Number correlated to Tone and Color, is a system within reach of every student, young or mature.

The author of MARCOTONE has followed the law of life governing his system, through Italy, Greece, and Egypt, to its source, deeply implanted in the cradle of the Aryan race, India. Wherever its universal expression has been practised he has found, its

eternal principles always the same, and in MARCOTONE a systematized and modern exposition is given which many students have already mastered and now practise; a statement of the means by which the wisest in all ages and races have *attuned the little universe of their own minds in harmony with the Universal Mind of God, as He translates it in Nature.*

When MARCOTONE has become a natural possession, acquired through the common educational system of the people, a new epoch will have come. The characteristic feature of this epoch will be that the *Divine Cosmical Idea* will then be expressed as the practical work of human endeavor.

Voltaire has said: "There must be something which produces our thoughts . . . it is Harmony."

But the worth-while thought which is produced by harmony is unattainable until the processes generating Infinity proceed from the subconscious mind. We know that Color and Number *are* ours subconsciously through atavism.

We know that Tone and Number *are not* ours subconsciously; yet the universal principles upon which MARCOTONE is founded will forever afford us this *natural key* to another and higher realm of the Infinite. By its practice and complete mastery, the trinity Tone-Color-Number will become a permanent possession of the real man — that inner, secret, sacred sanctuary of the mind, the *Subconsciousness*.

CHAPTER XX

VIBRATION OR MOTION

1. Vibration or Motion is the source of cosmic manifestation and the principle of such universal powers as extension, space, figure and time.

Therefore, when that cosmic principle is *limited*, its universality, which otherwise makes it incomprehensible to mortals, can be understood, reasonably studied and utilized.

2. *Light* is comprehended when the minute vibrations of ether come in contact with the organ of seeing, the *eye*.

Sound is comprehended through the impact of atmospheric molecules upon the organ of hearing, the *ear*.

It is the *eye* and *ear*, respectively, which receive the speeds of motion or vibration which we call light and sound; yet it is the *brain* which comprehensively registers them. The organs of sense are but the mechanical aids to *deliver* these speed messages to the intellect, and except for the vibratory powers of the brain they would remain unregistered.

3. Chemistry and mathematics prove that in principle the *natural scales of light and sound are one*; therefore, the *colors* of the solar spectrum and the *tones* of the musical scale have the same ratios of vibration. Hence both tone and color can be *scaled*

so that a given number of light-waves (colors) will equal a given number of sound-waves (tones).

Because it is possible thus to correlate Color and Tone, mankind, through the exercise of this power, can become a race of *natural* musicians.

5. Music has become a part of our national system of education; therefore a scientific method is necessary to equip the student with the same automatic control of *tone* that all except those who are defective in color-sense (color-blind) now possess over *color*.

6. For ages, indeed from Man's infancy, Nature has *forced* the color-scale on the human perceptions. The savage is as susceptible to its influence as the civilized man; the only difference is in the aesthetic ability to apply color as a cultural factor in life.

So long a period, reaching back to the dawn of Humanity, has passed in which color has been a dominant factor in evolution that, except in cases of color-blindness, everyone, savage and civilized, has an hereditary subconscious power to summon before the mind at will a given color without the aid of the organ of sight. This power to *memorize* color in its variously defined pitches or degrees of motion is natural, involuntary and spontaneous.

7. *The whole human race is tone-deaf* except in the rare cases where relative pitch appears as an abnormal gift. The mind which automatically identifies *color* is incapable of recognizing subconsciously set speeds of vibration as *tone*.

8. Why is this phenomenon so universally apparent? Because sound, except as mathematically treated by science or when mechanically obtained from musical instruments, has not been *naturally* forced upon mankind. Phenomenally Nature has produced only *noise* (absence of continuous melody or harmony according to musical proportions), and it has remained for science and art to produce isochronous or musical tone. These conditions have prevented the pitch of the tones of the natural scale of sound from producing the same phenomenon in the subconsciousness that color has succeeded in doing.

9. Before the advent of MARCOTONE no means had been discovered by which Tone could be made a natural, spontaneous and involuntary act of the *will*, freed from *sensual* assistance: Even the senses generally fail to register the relative pitch of a combination of tones within the brain. Most of us, even professional musicians, depend entirely upon the aid of some sonorous instrument for an *exact* impression of the sound of *a* musical composition until it has been learned by *rote*, as the parrot learns to say "Pretty Poll!"

Today more than three-fourths of the labor and fatigue of music study is due to the wasted effort of "learning" new music — and by *rote!* Do we "learn" to see a new painting? No; our automatic color sense enables us to *see* what is before us. It remains for the student of music so to correlate Color with Tone that he has the same automatic

control over the natural scale of *sound* that he has over the scale of *color*. This will endow him with *Absolute Pitch*, the power to *will* a given tone before the mind without external aid. The function of MARCOTONE is to give the student that power.

CHAPTER XXI

MELODY; VISUALIZATION; HARMONY

MELODY

The student has learned that in order to read or memorize a melodic line understandingly *at sight*, he must previously have gained automatic control of the simple units of tonal-pitch. Such mastery of Melody can be obtained only in the *complete absence* of *conscious effort*. The process of reading music must be so natural that neither the color nor the tone engages the mind any more than conscious thought of tenses, cases and other elements of syntax enters into the process of reading words. It is equally obvious that there must be no resort to intervallically or harmonically induced formulae.

From reading words we derive the sense of what has been written by a process which is involuntary and automatic. Not so with the old method of reading music. Why? Because in languages we work from *within*; whereas in music, almost invariably we call into play the cerebra-spinal apparatus involving the sense of touch, and *shock* our conclusions into the brain from *without* by the objective activities of the nerve centers. Any physician or psychiatrist will acknowledge such procedure to be unnatural, false and injurious.

However, when we have gained automatic control over the natural scale of Tone-Color by means of **MARCOTONE**, the power so derived can then be applied directly to our general music studies, thereby raising the whole structure of musical art from the existing plane of erroneous routine to the zenith of subconscious attainment.

We may now turn our attention to the practical method of developing these desired powers.

RULES FOR READING AND MEMORIZING MELODY

- (1) Never employ any musical instrument except to test results in the early stages of study, and then only to sound that single tone of which you are uncertain. In **MARCOTONE** all outside help is forbidden.
- (2) When, through study of tone-color, the *apperception of pitch* has been realized sufficiently to warrant our exploration in the rich fields of melody, the first effort will be to *visualize* a simple song, which should be a melodic line within the compass of the student's voice. Note that we do not use the words *read*, *memorize*, but, instead, the term *visualize*.

VISUALIZATION

In **MARCOTONE** the word "visualize" is a significant word requiring careful explanation in connection with this rule.

In the development of photography, the eye and the brain, with their nerve centers, have been used as models; and dark-chamber, exposure-trap, lens, etc., were contrived to catch the external object and permanently record its likeness within. These inventions in turn become useful in affording the

student a clear conception of the operations of the human eye and the definite results that can be expected from that organ. Therefore, we use the term *visualization* in the sense of *photography*. In reading at sight and memorizing, the first step to be taken is to *photograph* the musical phrase so that it becomes a *picture* for the mental vision.

To readily accomplish this, the following directions must be observed:

- (a) Avoid any suggestion of *intervallic measuring*. Expose to the camera of the eye at least one complete measure in which all the notes are comprehended *simultaneously*. As soon as this can be done without effort, treat a *complete phrase* in the same manner. Never regard a measure or phrase as a series of single notes; that would lead to *rote* reading, a mere parrot-like repetition of intervallic progressions.
- (b) The same *relaxation* which gave you the tone-color must invariably attend all **MARCOTONE** studies. Do not allow yourself to make or feel any *effort* whatever. That is, *emotions* have no place in the process of visualizing. It is only in the *interpretation* of what you have dispassionately *marcotoned* that the dynamic qualities of the art are brought into play. Then, having no artificial and arbitrary barriers to overcome, the *fullest freedom of expression*, the goal of all artistry, is within your grasp.
- (c) The measure or phrase must be calmly *looked at*, that is to say, exposed to the camera, for a time sufficient to *mechanically* photograph it on the brain. Note the word "mechanically." No reasoning, suggestion, in fact, no thought whatever may be employed by the student. The *mechanism* only is used; the eye for lens; the nerve for conductor; the brain for dark-chamber; the eyelids for shutter. Thus a picture is obtained of our measure or phrase. Precisely that — nothing more, nothing less.

-
-
- (d) Give no thought to values of the notes, etc., which constitute your measure or phrase. When you believe you have *photographed* the unit under observation, close your eyes and see if the picture has been recorded in your "mind's eye." You will find it without effort if sufficient progress has been made; otherwise, return to the same measure or phrase and repeat the process until it *has* become visualized.
- (e) When you have so visualized the measure or phrase, put the music aside. If you are not absolutely sure you have a faithful copy of the music in your mind, write it down and verify it. If it is inaccurate, do not correct it *from the music*, but by a repetition of the photographic process. When you are sure you have the passage perfectly registered, you should proceed to *sing* it by the **MARCOTONE** method you have been studying, as follows:
- (1) *Think* the *color-value* of each separate note; sing its correlated *tone-value*.
 - (2) Sing the passage again without the aid of the color; *i.e.*, sing each note, using its *tone-color* name only.
 - (3) Sing the passage directly from the *note-signs*, without thought of color or tone values. In other words, sing the passage freely, without conscious effort to associate *tone*, *color*, or *tone-name*. If the passage has been *visualized* successfully, *i.e.*, photographed on the mind, the melody will come automatically and that passage will have been *marcotoned*. Then proceed with the melody as before, in precisely the same methodical manner, measure by measure, or, better still, phrase by phrase (if the latter can be achieved *without effort*), until a complete musical period has become a possession of the mind, freed from the printed symbols.
- (f) It is important that, as each succeeding unit (measure or phrase, as the case may be) is perfectly visualized, the student should return to the first unit and repeat the entire passage; but each unit must be studied as independent of the rest until it is mastered. This procedure should be continued

throughout the song until the whole can be sung freely and automatically from memory.

- (g) Then follows the committing of the words and finally your own interpretation of the meaning of author and composer, where the emotions are enlisted; and the student will find that the melody has passed so completely into the possession of his mind, that *no thought* of it will appear to divert him from the fullest artistic expression.

Visualization, systematically realized, eventually becomes habit and the student finds himself able to read and memorize music at will, whatever his surroundings, as he would read a book.

In studying the foregoing rules, bear constantly in mind that they are the outgrowth of the author's long teaching experience and are now in successful use by beginners, as well as professional teachers and distinguished artists, and approved by eminent psychologists.

SIGHT-READING

Both memorizing and sight-reading depend on the possession of *automatic absolute pitch*. As this is a mental faculty, sight-reading becomes a simple matter of systematic mental adjustment, i.e., making a habit of doing automatically something which formerly we had the habit of doing by conscious cerebration. We have placed the subject of memorizing before that of sight-reading for the reason that once the functional control of *tone* in relation to *memorizing* is adjusted, the mind by the *same adjustment* is enabled to achieve *sight-reading*. In

visualization we form the habit of automatically associating note-signs with corresponding tones. The power to *see* a phrase of music photographed on the brain and at the same time subconsciously to *hear* the tones that we have the habit of associating with the symbols seen, naturally and logically, releases the power to comprehend at sight the tonal significance of the musical phrase, as you would read a line of poetry.

But this power is not attained without study, and the following suggestions will be found helpful :

- (1) Always read a whole musical phrase, unless the student finds it requires effort to do so, in which case he may begin with a measure and follow the procedure prescribed for memorizing.
- (2) Read each phrase:
 - (a) Thinking the colors correlated by the tone-symbols.
 - (b) Singing tone-color names for the notes.
 - (c) Singing the tones of the note-signs.
- (3) After the phrase has been sung without hesitation, verify its correctness on a musical instrument. If correction is needed, repeat the process described in Rule 2 for memorizing.
- (4) Continue as in memorizing until you have read the entire melody. Test it as a whole and if any part is found to be incorrectly read, return to that part and master it by the same process and independently of the rest of the song.

HARMONY

When the art of memorizing and sight-reading is mastered, the melodic line is followed by compound units of tonal-pitch, i.e., chord formation.

Chord forming is a vertical building of two or more tones instead of the horizontal movement of tones representing melody.

H
A
R
M
O
N
Y MELODY

Therefore, the eye, seeking to command an interior audition of the composer's musical message, must adjust itself to a new form of written note-signs; but the *tones* will not be new, for their pitch, through number, is absolute. However, the rules and study prescribed for melody apply equally to the process of visualizing chords for both reading and memorizing, with the additions now to be stated.

RULES FOR READING AND MEMORIZING HARMONY

- (1) (a) The notes forming a chord are always to be taken as one compound unit of pitch and are never to be considered separately.
- (b) To verify the correctness of tonal-pitch, it is advisable to hum the tones of single chords (beginning with the lowest note and singing upwards in arpeggio form) *not* from the printed page, but from the visualized picture of the chord as a unit, vertical in form and not as a horizontal melodic line.
- (c) Each chord must be *heard* as *one unit* of *tone*. When tested by humming (b), the full chord should be realized

as a complete harmonic formation and this realization must automatically emerge from the visualization of the chord as a unit.

The eye has now taken into its possession photographically a compound instead of a single figure, and the mind is required to comprehend and use units made up of a number of tone-colors instead of one. Proceed as in Melody by easy steps, testing progress with voice or piano by sounding the chord or succession of chords, from the visualized picture — never from the printed page. If difficulty is encountered in realizing the compound tonal value of a chord, use the actual visualization of the Tone-colors and if necessary revert to the early practice of tone-color names. Thus mental visualization and hearing will become an automatic function. Remember, whenever a particular measure, phrase or chord gives trouble to take it up independently of the rest of the composition and master it separately. In other words, take it away from the rest and do not return it until it is *right*.

(2) For the study of three-toned formations after the mastery of two-toned chords, it will be wise to observe the following suggestions:

- (a) Realize each three-toned chord formation by humming as prescribed in Rule 1 (b), but not each tone singly as before, since you will have become able to visualize and hear the two lower tones automatically. Therefore, you hum only the highest note of the chord with the result that you realize the chord-formation as a whole.

(b) Apply the same rule to four-toned formations; and, as you increase in proficiency, practice *inversions* of simple chords, as:

Two tones	Three tones	Four tones
Chord inversion	Chord	1st & 2nd inversions
	Chord	1st, 2nd & 3rd inversions

Experience has proved that when four-toned chords have been mastered, all greater compound units of pitch can readily be realized. Surer results are obtained in all these studies if the student begins with simple compositions, progressing by grades of difficulty and mastering each with certainty. Many ambitious students, especially among pianists, have begun by visualizing the most difficult examples of piano literature, misled into too great effort by their highly developed technical powers. This is not to be recommended. More rapid and thorough attainments are to be won by systematic and natural advance through progressive grades of difficulty.

The student will have recognized already that it is not *ear-training* that is being attempted, but a systematic ordering of natural laws by which both eye and mind are brought into harmonious control of our musical percepts and concepts, working toward a perfect musical expression which will become easy of accomplishment because it is *natural*. We hear the expression *ear-training* freely used. There is no such thing. The *ear* cannot be "trained" to do work destined by nature for *eye* and *mind*. The ear is a mechanism, a mere servant to the mind.

Without the perfect functioning of the controlling mind the ear would be and forever remain *tone-deaf*, merely a conveyer of sensations from without to be intelligibly interpreted by the mind. Therefore, we *train the mind to use the ear*.

As a last word on visualization we urge the student to remember that whatever the eye can convey to the brain through its photographic lens, the brain can realize automatically. When MARCOTONE is mastered no more friction will exist between the composer's message and the student than between the sending and receiving apparatus of wireless telegraphy. Indeed, there should be less, since in the Science of Tone-Color only natural laws are invoked and the human and therefore uncertain element, inseparable from all man-made mechanism, disappears as soon as the exercise of MARCOTONE principles becomes automatic.

Music is simply the artistic or happy expression of those mathematical laws which are God's Creative Word, so that the naked truth of science becomes clothed in the immortal raiment of the beautiful in Art. Science can never directly advance the emotional and spiritual splendor of the mind; that is the divine function of philosophy and art. Yet these, without the foundation and environment of science, are insecure and incomplete. Combine them in the broad sense, and we have an influence that contributes immeasurably to the glory and ecstasy of Life.

CHAPTER XXII

HOW TO HEAR MUSIC; MUSICAL DICATION; COMPOSITION

The majority of people believe that to *listen* to music is to *hear* it. Nothing could be farther from the truth. Anyone who is not deaf can listen; few can hear! Why? Because man has not been gifted with a direct and special means to apperceive *tone* intuitively as he apperceives *color*. Therefore we become conscious of music through the *mechanism* of the ear only, a mere sense-perception in which the *mind* is not involved. The intellect may be concerned in individuals who have cultivated the purely intellectual significance of given compositions; but the actual picture in tone-color is not produced until the listener automatically *realizes* the inevitable association of musical notation with the twelve units of Pitch forming the Chromatic Scale of Sound. We have said that man has not been gifted naturally with this power. By this we do not mean that the power is not a natural one. It is essentially natural, but has heretofore remained undeveloped because the primitive sense-perception has been blindly held to constitute all there is to music.

The first steps in Hearing and Writing music have been taken already by mastery of the Rules for Tone-Color Study. The inter-correlation of Tone and Color having been thus achieved and with it the

ability to visualize a tone from without, the student may proceed to utilize that interior audition by writing down dictated music or music listened to, thereby perfecting his full consciousness of tone-values in association with notation.

RULES FOR DICTATION

(1) The teacher will play a short phrase, not more than two measures, three times, as follows: slowly; somewhat faster; in the tempo indicated by the composer. Let the pupil *listen* — but without any mental activity whatever, thoroughly relaxed. If the tone-colors function automatically, according to previous successful practice, the phrase so repeated will readily be carried in the pupil's memory. Whereupon three effects should be obtained simultaneously:

- (a) The pupil will *see* the *colors*;
- (b) He will *hear* the *tones*;
- (c) He will *visualize* the *notes*.

The pupil is then required to —

- (a) *Say* the color-names;
- (b) *Sing* the tone-pitches;
- (c) *Write* the note-signs.

(2) These results having been achieved the teacher repeats the same phrase several times in correct tempo, and the pupil writes —

- (a) The key signature;
- (b) The tempo;
- (c) The whole melodic phrase with the length values of each note and rest.

(3) Repeat the process with several independent phrases until the pupil can do the work *without effort*.

(4) When single melodic phrases can be written down exactly as composed, always phrase by phrase, the complete melody can then be dictated. Ultimately the pupil must be able correctly to reduce the melody to writing automatically and *without effort*.

(5) When the dictated *melody* has been mastered, proceed in the same manner with passages in two, three and four parts and so on through all forms of composition, instrumental and vocal. But it must be understood that to command such competence in musical art, a patient *progressive* course must be followed. Undue haste retards, while a calm, thorough mastery of examples in the various stages of musical complexity insures an ultimate position on the splendid heights of artistry.

Finally, care must be taken not to *think* we hear or *imagine* we feel the tones. We must already have built the faculty which recognizes without thought or feeling the absolute pitch of the *twelve tones* in which all music finds expression.

COMPOSITION

The only real difficulty which confronts us in the adjustment of our artistic requirements is the adaptation of this automatic tonal functioning to musical composition.

When you can both hear and set down music

marcotonely, habit will gradually advance your apperception to a natural consciousness of musical interpretation. When MARCOTONE is mastered you have a scientifically and systematically in-built mental power, a newly added function of the mental faculties, which permits free play of your Will, the same liberty of consciousness that you possess inherently in the world of Color. This is won by perfect coordination

Physically: Of eye; ear; brain,

which gives us apperception;

Mentally: Color; Tone; Number,

which enables us to realize all tone-combinations as naturally as we realize word- and color-combinations.

It is not our purpose here to go deeply into the art of composition. That subject is exhaustively treated in the Standard Edition of MARCOTONE; but we will suggest a few simple means by which excellent *habits* may be acquired that will greatly assist the *creative* art.

- (1) *Listen to Nature* in all her various forms. Try always to coordinate the humming of insects, the singing of the birds, the sighing of the wind, the movement of water, the green of spring, the yellow and red of autumn and all of Nature's color schemes, with the *twelve tone-colors*. See and hear these sights and sounds of Nature with your newly acquired MARCOTONE powers which enable you to realize the actual *tone-colors* of these manifestations.

-
-
- (2) *Listen to Artifice*, to man's endeavor to concentrate *Force* effectively. Find and hear those tones single and compound emanating from engine, forge, hammer, loom, harvester, boiler.
 - (3) *Listen to Human Voices* and to all sounds on earth and in the heavens that cause aerial movement. Correlate that movement to what you *see* and thus advance in realization of "etheric" motion in infinite forms.
 - (4) At times write down in your music note-book what you see and hear, and try to correlate this *within your own being*. Such "listening-in" on Life's activities will give you wisdom and make you a worthy interpreter of abstractions and emotions through music more surely than can be realized in any other domain of endeavor.
 - (5) Finally, listen to the inner promptings, the "still small voice" of your own heart and soul.

A few minutes daily, calmly consecrated to this practice, will be an unfailing source of education to the higher observance of the Eternal Law. When Harmony is established, Wisdom will enter.

Some day, entirely your own day to choose, when Life's, eternal music flows into a free stream of melodic-harmony, *listen* – and write down the message of Truth in Beauty which you then find residing in the depths of your being; then *inscribe to your fellows a song of the Infinite*. If the well-spring be pure, unchoked by the subtle error of Ignorance, the stream will be endless, for it flows from *Unity*, through *Number*, into that perfect *Harmony*, which is not a *part of* you, but is your *wholeness of being*; in rhythm; harmonized, and therefore one with the Unity by devout men called God.

O we live, O we live —
And this life that we conceive
Is a clear thing and a fair,
Which we set in crystal air,
That its beauty may be plain:

With a breathing and a flooding
Of the heaven-life on the whole,
While we hear the forests budding
To the music of the soul —
Yet is it tuned in vain?

ELIZABETH BARRETT BROWNING.