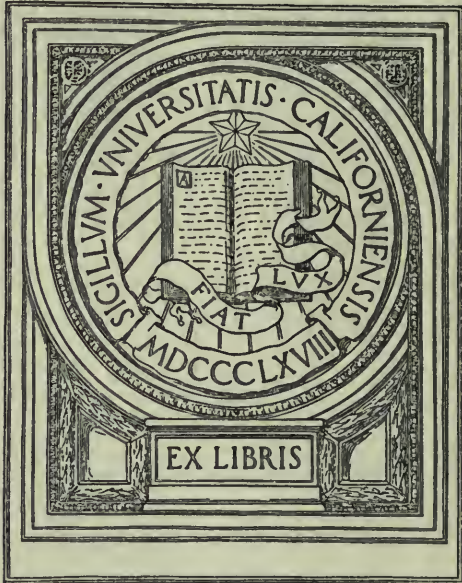


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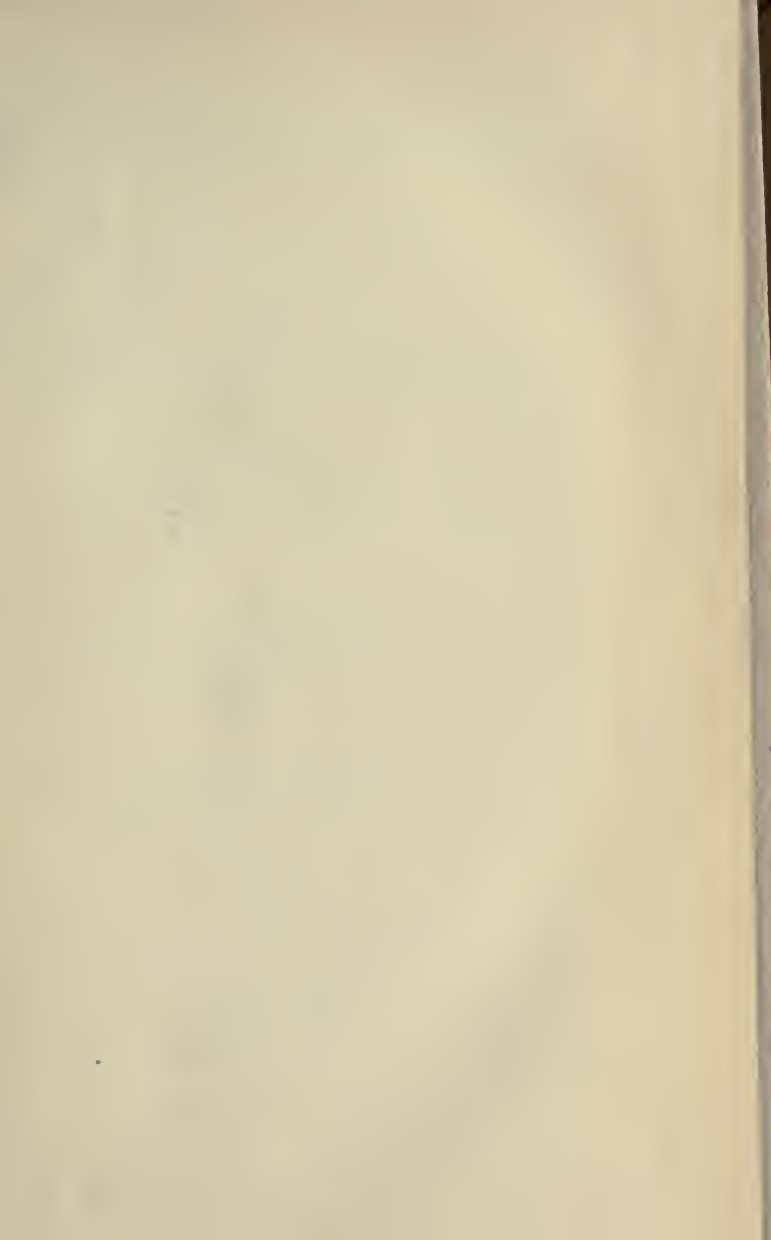


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God and Music

By
JOHN HARRINGTON EDWARDS

*Origina lyræ nata deūm, viris fessis auxilium et
lætitiā ferens.*

"God is its author, and not man; he laid
The key-note of all harmonies; he planned
All perfect combinations, and he made
Us so that we could hear and understand."



NEW YORK: THE BAKER & TAYLOR CO.
33-37 EAST SEVENTEENTH ST., UNION SQ., NORTH

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Published, February, 1903

*Get of
Auction*

TO
HENRY VAN DYKE, D. D., LL. D.
A MASTER WORKMAN
IN MANY FIELDS
AND IN ALL
FOR
The Master



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Preface

—ALL men are vitally and equally concerned in the true answer to the inevitable question as to the Cause of causes. The human mind cannot rest in mere phenomena, or in secondary agencies. The heart of man refuses to satisfy its undying hunger for a personal God and for personal immortality with anything short of reality. If in any art, science, philosophy, or supposed revelation there is valid help to be had toward meeting the imperative demand of human nature for absolute truth and imperishable love, it will find ardent welcome from every sane and candid person who thinks below the surface of life. —

The beautiful art and exact science of music promise such aid for the illumination and guidance heavenward of the soul of man, forever restless till it finds rest in God. This art has long claimed to be a fitting medium of communication between Deity and Humanity. Has modern science an-

nulled this claim? Do the ascertained facts and laws of universal nature make it absurd? It is hoped that the following pages will give reasonable proof that music, by its constitution, correlations, and effects, discloses a Supreme Being who is all that the mind and heart of man need and rightly crave.

The art of melodious and accordant sound does not bear solitary testimony to the verity of the great belief; it is one of many truthful witnesses to this surpassing fact. The other arts, all sciences, and the philosophic reason fairly interrogated, agree with it. The Christian Revelation, far from being outlawed in this day of searching light on all beliefs, receives fresh and ever stronger confirmation from every side, when research has been carried faithfully onward till it has attained probable certainty. But it is possible that some who have no ear for Moses and the Prophets, nor for Christian apologists, may yet listen to the message of music, as it tells in clear and winning tones of the God of melody and harmony, who loves beauty and goodness with impartial regard, and man most of all.

The argument here offered to the consideration of those who care for either the art or the faith so closely affiliated, is the fruit of many years of thought and reading; yet no one knows so well as the writer how far short it comes of what is possible in the same line of inquiry. These chapters are but trial shafts sunk into a mine of rich truth, from which tempting specimens have been brought to the surface, in the hope of attracting other students to deeper research and a more extensive working of the boundless wealth of closely related artistic and theistic fact hid in the wonderful art of music. It is, indeed, remarkable that the theological value of the whole territory of æsthetics has been so little appreciated. If the present attempt made in one section of it shall lead some who are more adequately equipped for the task to undertake an exhaustive study of the subject, it will not have failed of accomplishing an end definitely sought.

To relieve the somewhat technical and dialectic character of portions of the book, quotation and illustration have been freely introduced. This has been allowed, also, to show that the view taken is not that of a mere advocate, much less of a theo-

logical melomaniac. It will be seen that many of the wisest thinkers and greatest leaders of men, as well as those possessed of artistic genius, have been constrained to ascribe a similar evidential value to music. The number of such authorities might be indefinitely multiplied.

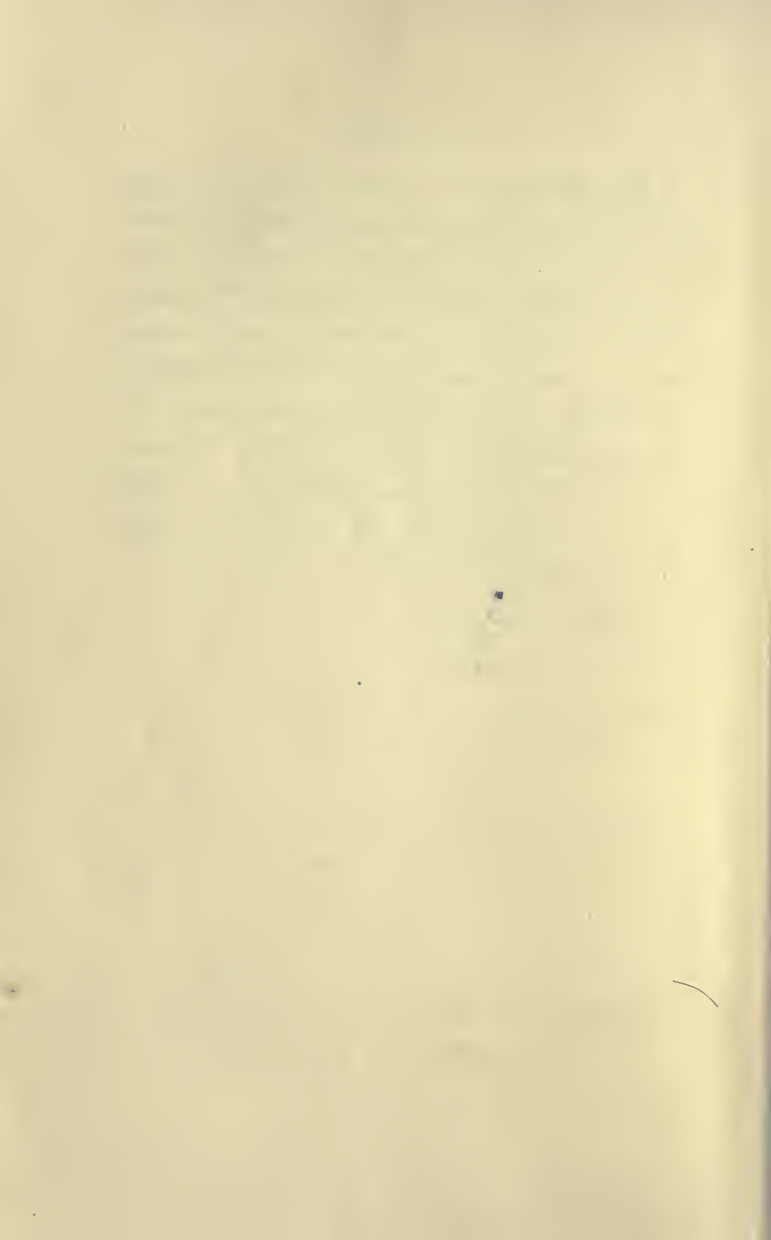
No special originality is claimed for the present work except, perhaps, in the marshalling of known facts, and the converging upon the main point of more or less familiar lines of argument in an unfamiliar but legitimate way. It is only just to say that what may to some seem commonplaces of musical science or of theological reasoning, are, nevertheless, quite apt to be entirely new to the majority of readers on either side, and are necessary to the general understanding of technical matters introduced.

The intention has been to make due acknowledgment of the more important references to, and quotations from, other writers. In the accumulated notes of years, the exact source of some facts, opinions, and valuable excerpts made use of has been lost. Credit is given in the Index to all, so far as known, to whom credit is specially owing.

Acknowledgment is gratefully made of suggestions as to particular chapters by M. Allen Starr, M. D., Ph. D., of the College of Physicians and Surgeons, and by Mr. R. Huntington Woodman, Director of Music in Packer Collegiate Institute, Brooklyn; also of useful hints and encouragement from the Rev. W. C. Stitt, D. D., who kindly read the entire manuscript. This recognition of indebtedness does not involve responsibility on the part of either of these friends for any views or statements contained in the book.

Brooklyn-New York





XI. THE ALTRUISTIC ART 215

ERRATA.

A final desired revision of GOD AND MUSIC having been prevented by ill health, it is wished that the following corrections should be made by readers:

Page 113, first line—for “four hundred” read “forty-nine thousand.”

Page 115, fourth line—for “and” read “or of.”

Page 147, sixth line—“other acts” should be “other arts.”

Page 233 second line from bottom—insert “less” before “favored.”

Page 275, second line from bottom—“millions” should be “trillions.”

Page 295—sentence beginning “Lord Kelvin’s theory” may be changed to read, “Either Lord Kelvin’s theory of atoms as uniform whorls in the ether, or the newer theory which regards them as clusters of force-points, is consonant with, and probably demands, rhythmical vibration as a necessary condition of atomic constitution.”

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THE THEME

“ He seems to hear a Heavenly Friend,
And through thick veils to apprehend
A labor working to an end.”

—TENNYSON.

“ God is the heart or well-spring of Nature; from him all
proceeds.”—JACOB BOEHME.

“ Take God from Nature, and nothing remains.”—NICHOLAS OF
CUSA.

“ Theology and music move on, hand in hand, through time,
and will continue eternally to illustrate, embellish, enforce, im-
press, and fix in the attentive mind the grand and important truths
of Christianity.”—ANDREW LAW.



GOD AND MUSIC

CHAPTER I

THE THEME

A WORLD thrilling in every atom with rhythmic vibrations; a race of sentient and intelligent beings, so constituted as to perceive, combine, and enjoy an endless variety of musical sounds, and able to reproduce them by artistic methods in elaborate or simpler forms, which gratify and exalt their higher nature; these in a universe ruled by all-embracing law that binds together its limitless realms in a unity demanding one sole cause equal, at least, to the production of its component elements and forces:—given these factors, what must we infer? GOD.

The Deity thus declared is a perfect Being, whose nature is harmony, who is keenly alive to dissonance, physical or psychical, but who delights in every form of beauty. He has set the laws and forces of the universe in an exquisite order, such as will bless his creatures, by their own responsive co-

operation, with innumerable melodic and harmonic sounds, that intimate the finer beauty of holiness, and may greatly aid in its attainment.

If there were no other proofs of the existence of a Creator, supposably infinite in wisdom, power, and goodness, and also of a spiritual constitution of the universe, we need be neither atheists nor agnostics. Music, with its implications and possibilities, would suffice to show to all minds capable of responding to its appeal, and of reasoning upon its causes and correlations, that there is a Supreme Power making for harmony, happiness, and spiritual perfecting.

The art and science of music by no means reveal all that God is. But the boundless realm of melodious and accordant sound does indicate a Creator, whose nature is full to ceaseless overflow of the love of audible beauty. The Being thus disclosed provides in the structure of the universe and of man for the making of melody and harmony in this and, probably, in all worlds. "Everything that the sun shines on, sings," and sings of the Great Musician. The Germans picture God as himself singing songs, and one of their ablest philosophers avers that without music life would be a grand mistake.

Everywhere, always, and among all his sentient creatures above the lowest stage of sentiency, the God of music uses this means to effect some of the highest possible ends.

Of far wider and more personal import is it to know what God is than merely to be assured that an all-controlling Power exists. It is of unspeakable interest to every human being to be certain that the Ruler of his life and destiny is of a nature kindred to his own, so that there can be intercourse and sympathy between invisible Deity and sensitive, aspiring, struggling humanity. Unlimited might, concerned only for the establishing of ethical right, could easily develop into an uncomfortable, loveless coexistence. "All law" is "all love" only if wielded by righteous love. On the other hand, a divine Autocrat is conceivable who, in superabundance of good-will toward his dependent creatures, would supply them with every means of gratifying their various faculties and cravings, artistic and otherwise, but with no imperative regard for the right. Such a monarch would be a ruler of evil omen to the universe. The calamitous results of his supremacy would be exceeded only by the woe

which an omnipotent sovereign of infinite malice could cause. A god who fostered art solely for art's sake, regardless of moral conditions, would be an æsthetic Ahriman.

Music glorifies a regimen of exact law by the gracious dominance of an informing spirit that delights in the well-being and pure happiness of all who hear and feel. It is subject throughout to an intricate mathematical system, yet is the most altruistic of arts. Spiritual in essence, it utilizes the senses for the higher education of the soul. Born in the sphere of pure spirit, it touches the lower level of matter only to spring upward, and, if true to its origin, to rise on the pulsating wings of the ether to loftier regions. The home of music is in the bosom of the Eternal. It is the only known language indigenous to heaven and heard in all inhabited worlds. Music is the *lingua franca* of the universe. Modern science goes far to confirm this idea of oldest philosophy.

The "passionate love of unity," which marks our time above others, finds in this late-born science fresh and eloquent attestation of the oneness of the Creator and the homogeneity of creation. Were

there gods many, or demiurgic sub-gods working at will in the universe, the music of the spheres would be palpable discord, prohibitory of science, and a torment to ear and soul. Pantheocracy would be pandemonium.

Visible and audible beauty are one in origin, in ultimate constitution, and in purpose. The æsthetic argument for the being of God has not been developed in any degree corresponding to that attained in other kinds of theistic proof, yet it is one of the strongest. Its contents, moreover, disclose a God of such attributes as to commend him to all who love beauty in any of its forms. A music-loving and a music-making Deity is close akin to the Heavenly Father of the Gospels. From the morning of creation he ordained song and gladness for the recreant but redeemed prodigals of earth on their return to the Father's heart and home.

It is not the purpose of this essay to demonstrate anew that God is; but, postulating the common theistic belief as at least possibly true, to inquire if in the wonderful art of music there are any clear

intimations of his being and nature. Should the argument attempted prove to some who may follow it a credible suggestion of rich depths and heights of half-discovered truth leading from audible nature up to God, it will be well worth the labor spent upon it.

To show that music, even as yet imperfectly mastered and understood, is an effluence and evidence of Deity, is a proposition that deserves serious study and sympathetic judgment. It may prove that much essential theology is latent in the art of harmonious sound. Possibly better than by metaphysics, and far more truly than by polemics, the direct knowledge that God is the Rewarder of all who aspire to know and be like him, may be taught by the tones and forms of pure music. Only it must be true music, worthy its divine Original, and not of sensuous type appealing to the senses alone or chiefly. Moreover, to know any kind of reality, especially the highest, man "must feel and act, as well as sense and think."

WHAT IS MUSIC?

"Music is the manifestation of the inner essential nature of all that is."—BEETHOVEN.

"The 'atheists of expression' cannot deny the unspeakable power of music to express joy and pain. The spirit of music is incapable of malice and *méchanceté*."

"The same transformation through the awakened sense of the infinite is seen in the domain of art itself. As sculpture, with its exactness of line and severe proportions, is the representative art of the Greeks, so music which is, as it were, the attempt to express the unutterable in feeling and aspiration, is the representative art of modern thought."—D. W. FOREST.

CHAPTER II

WHAT IS MUSIC?

THE universe is rhythmical in every element and movement. Its history marches in ordered throb and step to some far-off, divine event, which will crown the long progression with perfect harmony. What men call music is a symbol foreshadowing the final consonance of all things, material and spiritual. It is a breaking into sound of the fundamental rhythm of universal being. The human art is but a trying of the strings, the often discordant attuning of this and that instrument, at best a first rehearsal on earth of the divine symphony of creation. But the motif is recognizable. The full, sublime harmony is coming. The law of spiritual rhythm will subdue all things to itself.

Music is not merely rhythmic sound; it is yet more the expression of spiritual experiences. In Spohr's words, it may be poetically described as "the consecration of sound." Schopenhauer more

definitely says that it is "the quintessence of life and events, without likeness to any of them." Plato and Aristotle insisted that music is the most adequate imitation, meaning, doubtless, the truest expression, of life and character, or of moral temperament. This may have suggested Zola's epigram, "Art is nature seen through a temperament"; but, as music is an intimate part of nature, it cannot rightly be called imitation of nature. Hanslick affirms that "music embodies the general figures and dynamic element of occurrences, carrying our feelings with it."

These and similar defining statements are a varied phrasing of the truth that music goes deeper than sense, and springs out of the spiritual process in the universal life.

It is nothing less than cosmic, the very soul of motion, and immanent in all right feeling, thought, and action. Order, proportion, form, constitute the palpable ideality in every art; but to say that "rhythm is the soul of music," is to put second first. Thought and feeling are before act. Power is the dynamic of motion. Efficient power is will at work. Thought is mental motivity, but what

is thought depends upon antecedent tendency. There is Art before art. Potential music governs the actual.

Since modes of motion can produce only modes of motion, Lotze argues that music could not generate spiritual states if there were no spiritual force and substance to utter it to a spirit in man. This is the thought which the author of "Charles Auchester" more subtly expresses: "I felt that it is not in voice that the thing called music hides; it is the uncreated intelligence of tone that genius breathes into the created elements of sound."

Schopenhauer is accurate as well as eloquent when he writes: "Of all the arts, music most universally and most many-sidedly portrays the very essence of the will, the very soul of passion, the very heart of this capricious, world-making, and incomprehensible inner nature of ours. Music shows us just what the will is, eternally moving, striving, charging, flying, struggling, wandering, returning to itself, and then beginning afresh with no deeper purpose than just life. It is great and strong, never by virtue of abstract ideas, but only by the might of the will that it embodies."

The will to create music operates through audible vibrations of certain velocities and ratios. Every atom and ion in the universe is a-tremble with rhythmic motion. Rhythm, Herbert Spencer says, is a fact of all motion and deducible from the persistence of force; but this is only a condition, not a cause of ordered and beautiful existence. The whole creation is attuned to a foreordered harmony, which is the product of exact ratios of the universal vibration. It can even be affirmed that the universe is not only set to music, but is the product of music. Creation is simply vibratile force subject to intelligent will.

A recent theory to account for gravitation may possibly explain the physical origin of matter with all its form and relations. Bjerknes supposes that bodies of visible size vibrating at the same musical pitch may attract each other. If, among the many modes of atomic thrill, there is one general pulsation common to all atoms, the vibrating units may be drawn together by unisonous impulse acting as the square of the distance. The mutual attraction of atoms vibrating at the same or harmonious ratios may yet prove to be the final mechanical explana-

tion of molecular structure, chemical affinity, crystallization, organic development, and stellar arrangement. Life in every form is rhythmic, though not necessarily due to atomic vibration. Will power first set the ether vibrating, and the divine will may conceivably use this means for propagating life.

Pythagoras had scientific ground for his basal principle that God organized all nature according to the laws of harmony. His axiom, "All is number and harmony," is verifiable by mathematical demonstration. Plato was a Pythagorean so far as to reiterate the dictum that the soul of the cosmos is musical harmony. Long before their day the Egyptian philosophers made music the symbol of the universe. They found it akin to astronomy, the divine, all-explaining science. The early Hindu belief traced this art to heaven as its birth-place. Its five modes, as practiced by the primitive Aryans in India, were held to have sprung from the five heads of Krishna. Hebrew Scripture does not commit itself to unscientific theories of the origin of music, but testifies to its early adoption as an expressional aid to worship. The brooding Spirit of the creation account in Genesis consists

with the scientific theory of atomic, vibratile motion as the parent of all physical forces.

The more thoroughly music is studied in its rhythmical constitution and its correlations with other forms of spiritual and physical being, the more certainly it is seen to be cosmical in itself, and in its interrelations with the rest of the universe. The choral harmonies of the spheres are as possible to science as delightful to imagination. If faith were limited to the actually visible and audible, progress in science would be impossible, and its most valuable revelations would be in vain. Inventions in the field of acoustics, where the wonders of the telephone and phonograph have been found but yesterday, may some time enable men to hear planetary anthems and sidereal symphonies. Why not, when the cold calculations of mathematical astronomy have revealed planets before unseen? Shall the grandest discoveries in our knowledge of the universe be always limited to the visual, while equal marvels doubtless await the ear? Neptune, Uranus, and other worlds, known and unknown, may yet take their audible part in the celestial or-

chestra, when far-hearing devices shall enable us to perceive aerial vibrations of low velocities originating at great distances, as telescope and spectroscope now assist the eye to see rays of light otherwise invisible. With a sound-magnifying instrument, which would make the ear capable of perceiving vibrations in the ether coming at the rate of four hundred million millions per second, we could *hear* red. But all that would be necessary in order to perceive the few hundred vibrations in each second which produce most musical tones, would be some mechanical means of magnifying the tone waves so as to bring them within present hearing power. This, indeed, seems impossible, but so have antecedently seemed most of the great physical discoveries. Electricity, or some other force hitherto unknown, may yet lend us ears to hear the seemingly inaudible. Herzian waves, millions of miles in length and moving with almost the velocity of light, are now intercepted and their transoceanic message read by eye and ear alike. Science anticipates prophecy. Its coming triumphs who can predict?

Whatever the future of science may have in store

for the world in this respect, the mathematical argument holds good for the ancient supposition that the created universe not only originated in a Mind ruled and ruling by the laws of harmony, but also thrills in every atom and star with audible consonant vibrations —

“Æolian music measuring out
The steps of Time—the shocks of Chance—
The blows of Death.”

The art of music springs from a rhythmical origin. Every organ of the human body has its own fundamental rhythm. The pulse-beat is a representative example. The heart holds life's baton and leads the vital chorus. The muscular sense, physiologists teach, is the measure of time. The time-sense is due, according to this theory, to muscular contraction and relaxation. Dr. J. S. Wilks, in the *Medical Magazine* says that “there must be up-and-down movement in all muscular action, and in this, therefore, music appears to have had its origin.” This suggestion is probably true as to the mechanical, sensuous element in the art, though this is not strictly music, but only the medium of its spiritual essence.

When regular and harmonious, the complex organic rhythm gives a sense of well-being, and often of positive pleasure. Its disturbance causes pain. The enjoyment of rhythmic motion was early found to be heightened by the regulated movements of dancing. Whether measured music began in the appeal to the ear and brain by the voice, or by rude instruments used to sustain the agreeable motion of the dance, or in some other way, it had independent birth in the pleasure which rhythmic sounds, in gratifying succession and combination, gave to the sense awakened by audible vibrations in the air. Discords, or musical sounds unfitting the environment, such as lively tunes at a funeral or dirges at a wedding, cause a feeling of uneasiness or actual pain. The vital functions are stimulated by that which gives pleasure, abated by whatever is painful. Hence music must very early have taken a high place among the pleasurable activities of men.

Before human beings talked intelligibly, they probably sang imitatively. The first articulate signs by which mind communicated with mind were probably musical, echoes or imitations of melodious sounds in nature. Language and the art of

music grew from the same common stem. Speech, however, was artificial, while music was natural. Rude yet sympathetic efforts at expression of feeling were the first forms of a wonderful and beautiful art. But it outgrew this elementary stage as soon as the human soul developed an intellectual apprehension of its own states, and learned other possibilities of expression given it by melodic sounds. | As an art, music was born of the perhaps unconscious attempt to express what was strongly and pleasantly felt. | The least material of arts, music expresses the spiritual in man more immediately than painting, sculpture, architecture, or even poetry. It voices his ideals and aspirations, his deepest feelings, and his unutterable longings.

For this capacity there is adequate reason in the constitution of mind and of things. Life is motion, a ceaseless ongoing. Feeling, the first effect of life, is, in psychical experience, emotion. Melody, by the definition of Helmholtz, is motion of pitch, capable of expressing emotion of all kinds. Representing pure movement, music, in Schelling's phrase, is above all others "the art which strips off

the bodily." It is a clear product of the human mind in time, and so can embody in ethereal form the passing, changing spiritual states of the human soul. There is in it far more than melodious sound symmetrically ordered. The soul of music is a spiritual content of mind, with a meaning and force which cannot possibly be the product of mere vibrations in the atmosphere. Modes of motion may explain things physical, but can no more originate psychical events than a locomotive can construct a logarithm.

In the first place, music is essentially intellectual. "Seeing and hearing are in reality complicated acts of judgment." The mind sees, not the eye. The mind hears, not the tympanum or the fibres of Corti. What eye, ear, or brain receives is simply a motion in space. The soul dwelling within sends, and alone receives, the spiritual message of the tones which certain specific vibrations produce.

Music begins after the rhythmic motion takes place. The interval of time between the sensible impression and the mental state or action awakened by it is not beyond computation. Science is a new word of God which pierces even to the dividing

asunder of soul and spirit, that is, the faculty which perceives and judges by sense and the higher spiritual faculty. Psychometrical demonstration will perhaps be equal to the problem.

Think what music means to the human soul, and what it can do. It cannot be a soulless form of physical energy, nor a remarkable result of mechanical evolution, the sole function of which is to titillate the nerves. It is a vibrant door opening into the infinite. It is a Marconi system of communication between spiritual beings. God himself is immanent in it, modulates it by his law-ordered forces, speaks through it to his children.

Carlyle's rugged nature was sensitive as an *Æolian* harp to the significance and power of this inter-spiritual language. He says of it, "The meaning of music goes deep. A kind of inarticulate, unfathomable speech which leads us to the edge of the infinite and lets us for a moment gaze into that." Bacon touched the common understanding more nearly when, after saying that sound is "one of the subtlest pieces of nature," he wrote: "Tunes and airs have in themselves some affinity with the affections, as merry tunes, solemn tunes,

tunes inclining men's minds to pity, warlike tunes ; so as it is no marvel if they alter the spirit, considering that tunes bear a predisposition to the motion of the spirit."

It is this capacity to express and reproduce the spiritual moods of men that gives music right to be called a fine art. One of the clearest seeing teachers of our time has stated its claim to this rank in these words: "We have not only a mortal body, with wants, in the supplying of which coarse and temporary contrivances, as arbitrary words, are well enough ; but we also have an enduring spirit with lasting emotions, and these emotions, which belong to the nature of spirit, have specific sounds which are their natural expression. And here arises music, the eldest if not the divinest of fine arts."

The body, even in its finest functions, is not the man. Nor is man all reason, nor life all drudgery. The lower animals never play. In human life the play instinct is the root of art. The overflowing joy of beauty is a divine benison. Music is a seeming reminiscence of heaven, sent to draw men thither again.

“ It is the last appeal to man —
Voice crying since the world began ;
The cry of the Ideal, cry
To aspirations that would die :
The last appeal, in it is heard
The pathos of the final word.”

The songs of a people keep alive their spiritual sensibility. They cheer, inspire, comfort, refine, elevate. They furnish atmosphere and wings by which mortals can, for a little, get almost free of matter, and rise into the region of pure beauty. By the aid of music they are thus lifted, if they will, nearer God ; or, alas, it may only raise them from earth just enough to have freedom and excitation for the evil that clings to the baser nature. Song, we may believe, was one of the pure joys of Eden, but the race of Cain, the Bible story runs, soon got hold of music in its mechanical form, for the earliest bit of recorded art-history is the item that Tubal Cain was father to those that handle the organ, or, more exactly, the Pan's pipe.

In simplest definition, music is rhythmical sound used as a means of expression. What it expresses is first in the soul from which it flows. It takes the

color of the soul's atmosphere. As an art it is not found in nature, but belongs to the ear, the brain, and the spirit of man. Nature gives only sound of which to make music. It is, therefore, a human art for the expression of the spiritual in man. In its primitive form, as in drum worship and the early religious use of bells, music was really a naive attempt to interview the invisible spirits supposed to reside within them, which responded by rhythmical and more or less melodious sounds. The ascent from a crude, animistic essay at communion with the spiritual world to the *Veni Spiritus*, Bernard's celestial song, Bach's *Passion Music*, or the best hymns of Wesley and Faber in fitting musical expression, marks the course of man's religious growth. In sacred music he utters the highest that is in him, and aspires after that which is far higher.

The provision in nature for music is doubtless universal. The musical capacity of sentient beings is well-nigh the same, and increases the higher in the scale they are found. This fact indicates a Creator who possesses the love of music to a degree

as yet but little recognized, and who reveals himself in both the actual and the potential music of the universe as a God of harmony. The visible heavens gave Napoleon his readiest argument with which to answer the atheistic queries of infidel comrades. Could we hear the music of the spheres in their rhythmic round, we should have potent proof not only of the Creator's existence but also of his characteristic qualities. Were our ears finely enough attuned to perceive the melodic sounds which continually fill the air about us, but fail to break through the barrier of our half-developed sense of hearing, we should have evidence of Deity in heaven and on earth as cogent as any the visible universe can furnish, and perhaps more appealing to the spiritual sensibility.

It is impossible but that such a Being delights in this multiform and most spiritual mode of self-expression. In nature we catch a whispered hint of this bias. In the soul of man and the history of the human art of music we discern in greater measure and clearness similar indications of progressive self-revelation on God's part. But art has visions and ideals beyond the power or present

need to express by any known means. The composer often feels, as one greatly gifted says in a private letter, "like a blind man writing in a frame. I look forward to the life where free, at last, I can develop my rainbow dreams of ideal music in minute gradations of sound, and not have to throw on my colors with a house-painter's brush."

The motive force of art is the radiant beauty of the ideal, whether of things seen or things heard. The spirit of the artist sees or hears what is to him absolute beauty in definite form. The real revelation is to the spirit. The essential fact is "neither sound nor star," but something which eye or ear conveys to the brain and its invisible tenant. To God the ideal is real. The divine Mind sees every possible form of truth and beauty in direct, all-comprehending vision. The absolute music is a manifold fact to the absolute Mind. Moments of inspiration give to artists a brief flash of this supernal experience. In their highest creative moods, refractions of the essential beauty fall upon them. The great composers need no instrument in working out the strains which break upon their inner ear at such times. Shall not God hear his

own intuitions of divine melody and perfect harmony, of which he drops hints into prepared and listening souls on earth, though we catch but the thrice-repeated echoes of them in the best music ever heard by man? In this most spiritual of all arts, men should surely seek to hear more truly, and both learn and repeat more exactly what God would say to them in musical tones and forms.

MUSIC IN NATURE

“ From harmony, from heavenly harmony
This universal frame began ;
When Nature underneath a heap
Of jarring atoms lay.

* * * * *

“ The diapason closing full in man.”

—DRYDEN.

“ Music is in all growing things;
And underneath the silky wings
Of smallest insects there is stirred
A pulse of air that must be heard ;
Earth's silence lives, and throbs, and sings.”

—LATHROP.

“ I say that music is an art woven from the very bowels of
Nature.”—BALZAC.

CHAPTER III

MUSIC IN NATURE

IF there be a God, personal Creator of all else that is, and so the Master Musician, it would seem inevitable that some clear indication of his tonal thought and feeling would be found in nature. The term nature is to be taken as meaning the whole constitution of things and minds in ordinary relations of cause and effect. Whether the human will is an agent above nature, and whether the divine will ever visibly works in a supernatural way, need not concern the present discussion. If in every-day nature, including the body and mind of man, there is universal provision for the art of music, with leading hints toward its development, it is fair to infer the purpose and agency of a music-loving Creator. The world of light and color reveals a Being who rejoices in visible beauty. The heavens declare his glory to the eye. Their audible evidence of his love of melody and har-

mony is not yet within reach of human hearing, but the oneness of creation would give to terrestrial music universal value as proof that the same Creator is God also of auricular beauty.

Even the inorganic world affords tonal evidence of the universal sway of the Spirit of music. The rolling sand on the slope of a Sinaitic mountain, so a traveller reports, sends out a deep, swelling, vibratory sound, sometimes approaching the roar of thunder, sometimes like the deeper notes of a violincello, or the musical whir of a humming-top. Memnon daily intoned a morning hymn when the rising sun touched and heated the cold marble. "Everything that the sun shines upon," says Bushnell, "sings or can be made to sing, and can be heard to sing. Gases, impalpable powders, and woolen stuffs, in common with other non-conductors of sound, give forth notes of different pitches when played upon by an intermittent beam of white light. Colored stuffs will sing in lights of different colors, but refuse to sing in others. The polarization of light being now accomplished, light and sound are known to be alike." Flames have a modulated voice, and in the pyrophone can be

made to sing a definite melody. Wood, stone, metal, skins, fibres, membranes, every rapidly vibrating substance, all have in them the potentiality of musical sound. Matter thus declares a spiritual origin and intent.

All the musical possibilities of wood, brass, velum, and the resounding air were hidden in their substance from the beginning. Man cannot make a musical instrument of anything not foreordained to such use. Nor can he create harmony by any device except according to laws of sound which he did not establish. ("Or," to quote Bushnell again, "if it still seems incredible that the soul of music is in the heart of all created being, then the laws of harmony themselves shall answer, one string vibrating to another when it is not struck itself, and uttering its voice of concord simply because the concord is in it, and it feels the pulses on the air to which it cannot be silent." The very echoes tossed to and fro among the mountains in melodious tones testify that the framework of the earth, with the resilient atmosphere, is a mighty instrument of music. The exquisite echo under the dome of the baptistery at Pisa carries a full chord

in ravishing sweetness, and holds it long in a slowly "dying fall," as though it were a refrain from an angelic choir loath to withdraw the heavenly sound from weary-hearted mortals. The shells by every sea murmur continuously with a musical secret of their own, telling of the universal harmony.

Everything in nature seems keyed to take its part in the cosmic symphony. The composite key-note of external nature is middle F, which the Chinese claim to have discovered five thousand years ago as the root-tone called Kung, from which all others sprang. This tone is heard, according to Silliman, in the roar of a distant city, and in the waving foliage of a large forest, as it is also in the thunder of a railroad train rushing over a bridge or through a tunnel. The Coliseum has its key-note, as does every solid structure; a fact which has intimated a possible cause for the downfall of the walls of Jericho, when the procession of priestly trumpeters during the seven days' circuit may have struck the key-note of at least some portion of them. It is well known that a bell-tower will sway responsively to a peal of bells harmoniously tuned and struck, when a discordant clangor,

like the broken step of soldiers upon a bridge, has no such disturbing effect. This vibrant sympathy between architectural masses and correlative air-waves has suggested a poetic parallel illustrating the power and beauty of ethical harmony.

" He who, with bold and skillful hand sweeps o'er
The organ keys of some cathedral pile,
Flooding with music vault and nave and aisle,
While on his ear falls but a thunderous roar —
In the composer's lofty motive free,
Knows well that all that temple vast and dim,
Thrills to its base with anthem, psalm, or hymn,
True to the changeless laws of harmony.
So he, who on the changing chords of life,
With firm, sweet touch plays the great Master's score,
Of Truth and Love and Duty, evermore,
Knows, too, that far beyond this roar and strife,
Though he may never hear, in the true time
These notes must all accord in symphonies sublime."

Animate creation, as a whole, is endowed with power to produce musical sounds at will, attaining in the race of man the ability to create a distinct art. A book of considerable note a generation or two ago was entitled, "The Music of Nature." There is no "music" of nature. But all music is potential in nature, waiting to be evolved by human intelligence. God has given man the material

of sound to be made into melody and harmony ; but he has furnished him with much more than ready-made sounds. In the constitution of the universe the whole art of music is latent, ready to be developed. " See deep enough," as Carlyle saw and wrote, " and you will see musically, the heart of nature being everywhere music, if you can only reach it."

Rhythm is the first law of the physical creation. It long ruled the inchoate music of primeval man as with a rod of iron. Melody came next, subject to the inevitable law of rhythmic pulsation, but rising upon new-found pinions into a region of free spirit. Harmony was latest gained, born of Christianity, and come to full stature under the tutelage of modern science, also foster-child of Christian culture.

Among the animals and in the rudimentary stages of æsthetic development harmony is unknown, and melody exceedingly limited. But euphonious sounds, the warp and woof of music, abound throughout nature in manifold excellence. Inarticulate sounds and cries may have given the first hint of vocalized expression to the untutored

mind of man. Bird songs are rightly enough so called by analogy, though they have little of the rational and none of the spiritual character of human song. They early filled the air with delicious foretokenings of true melody, suggesting, provoking, and refining the attempts of primitive man at vocal expression of mood and feeling. The cries of beasts, the songs of birds, insect chantings, the diapason of wind and wave, and more mechanical sounds, all did their part in evoking and training the musical faculty. More perfect notes, perhaps, are uttered by feathered throats than by human voice or instrument, but the euphonious tones of bird and beast are not "music." They show a certain range of sympathetic emotion, yet are resultant rather than purposed and free, reactive not creative. Similar conditions educe similar tones among the same species from age to age. Barnyard fowls have twenty or more notes substantially identical with those of chancleers who crowed countless generations ago. Birds of the air have a much wider range of both routine and sympathetic notes instinctively repeated by the same species through summers without end. Darwin's gibbon

could sound the notes of the diatonic scale, and Haeckel found that family doing the same during his recent scientific tour in Java.

We have something to learn from our musical kindred and forerunners, both artistically and theologically, as well as scientifically. Lucretius gives them precedence in time and skill :

“With voice to imitate the song of birds
Was earlier practiced than to soothe the ear
With measured chant of modulated verse.”

Longfellow, the Christian poet, hears in their pure lays a voice calling upward :

“Whose household words are songs in many keys,
Sweeter than instrument of man e'er caught ;
Whose habitations in the tree-top even
Are half-way houses on the way to heaven.”

“Birds,” wrote a musician of a century ago, “were assuredly the most ancient music-masters. And even to this day, with all our boasted refinement, all our natural and artificial exertions, who will be bold enough to assert that either Mrs. Billington, the delight of the present age, or Farinelli, the admiration of the last, ever ap-

proached the excellence of these instinctive musicians, either in fertility of imagination, in the brilliancy of their shake, or in neatness of execution?" Darwin depreciated music as an art, but was impressed with its salient place in the system of nature. In his characteristic style as a thoughtful observer, he remarks, "I have often reflected with surprise on the diversity of the means for producing music with insects, and still more with birds. We thus get a high idea of the importance of song in the animal kingdom." One evidence of this prominence of music in the scheme of animated nature is adverted to by Dr. Jenner, who notes "the beautiful propriety in which singing birds fill up the day with their pleasing harmony. The accordance with the aspect of nature at the successive periods of the day at which they sing, is so remarkable that we cannot but suppose it to be the result of benevolent design."

The race of singing birds approaches man most nearly in melodic capability. Of the entire animal kingdom "man and bird are the only creatures that use separate notes of determinate pitch in their music." And birds alone in that kingdom below

man can be taught to reproduce human melodies. In fact, they anticipated mankind in the acquirement of exquisite musical tones, and in the development of certain elementary forms of melodic structure. It has commonly been denied that they use the intervals of the diatonic scale. But a little trained attention will show that they do employ them. Mr. Henry W. Oldys, of the United States Biological Survey, claims that, besides the recognized thirds of the cuckoo, many other birds use that and other diatonic intervals as correctly as the average human voice. He instances among others the Carolina wren, the song-sparrow, field-sparrow, chickadee, wood-thrush, chewink, wood-pewee, tufted titmouse, blue-gray gnatcatcher, and robin. Not only in the use of approximately accurate intervals, but also in the employment of exact metronome rhythms, simple melodic phrase-forms, and the antiphonal method, birds exhibit what he regards as true avian music. Applying the principle of universal evolutionary development, this expert observer affirms that "there is striking evidence that the evolution of bird music has paralleled the evolution of human music, and that both are

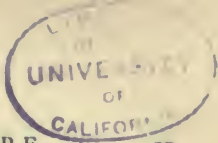
tending to the same ideal." It can only be remarked as to this suggestive theory, that birds seem to have attained the average of their musical acquirements in unknown prehistoric times, and have neither evolved a scientific system of musical tones and forms, nor arrived at a definite expression of psychical states, much less of spiritual concepts, such as that of the purposed praise of a recognized Creator and Benefactor. Of course, whenever the lark and the vireo are able to tell their psychic story in language intelligible to man, we shall make needed additions to our philosophy, and to our theology as well. But till then we must suppose that, like the animal wisdom of Brer Rabbit and Mowgli, the æsthetics and rationale of bird lore are refractions of human thought.

The argument for the foundation of the diatonic scale in nature has no little support from the records of bird song made by many competent musicians. S. P. Cheney's "Wood-notes Wild" is full of data of this kind, derived from the author's observations, and from many other sources. A single example may be cited from the appendix to that work. It consists of a quotation from Xenas Clark's "Animal

Music; Its Nature and Origin."—*American Naturalist*, April, 1879.

"The perfect fifths, fourths, thirds, and octaves have a marked predominance (in bird songs), their proportion of the whole number being respectively twenty-seven per cent., twenty-five per cent., twenty-six per cent., and nine per cent.; or, taken all four together, eighty-seven per cent., as against thirteen per cent. of the remaining five intervals. All the intervals of the diatonic and harmonic scales are used by the birds; but, as Sully has observed, the natural sequences illustrated in their songs are those suggested by the upper tones, or partials, associated with the fundamental notes. This fact argues for the natural origin of our chief accepted scale relations."

Man has a distinctly musical nature, but does not, like the humbler vocalists, inherit a quasi-musical repertoire. Greatly inferior to many of the lower animals as to some points of structure and the power to do certain things, he must call upon his reason to devise tools and methods to more than supplement natural deficiencies. In like manner, he is obliged



to develop and use his rational faculties to create the art and science of music. Alike in mechanical and in artistic achievement the possession of reason and a spiritual nature gives him immense superiority to the whole irrational creation. His natural inability is the privative condition of his artistic royalty.

Nevertheless, the human organism is specially fitted for a musical career. Brain, nerves, ear, throat, and hand are marvellously fashioned and correlated to produce true music, as it is conceived only by the infinitely more wonderful mind that also directs the orchestral organs and members of the individual musician. To neither of these, as adapted to this purpose, can the whole brute world furnish an equal. A later chapter will describe more particularly the provision thus made for the actualizing of musical conceptions belonging to man alone in either origination or execution.

Endowed with organs of incomparable capacity and delicacy for perceiving and producing musical sounds, and possessing unique æsthetic sensibilities and rational intelligence, man finds in nature the means for creating true, expressional music. He

discovers that the process is governed by laws that are a part of nature, to which his own faculties correspond, and which are an integral part of the interwoven laws of the universe. Knowing nothing for ages of vibrational ratios, he finds that the tones which combine to make his music form a symmetrical series, easily recognized by all who have the musical sense. His first attempts to fix the terms of this series in regular succession, like first steps in every art or science, are limited and incomplete. For thousands of years the world, for the most part, hobbled in scales of four or five tones. Egypt, indeed, in times practically prehistoric, discovered the diatonic scale. Egyptian flutes of 3000 B. C. have been unearthed which give it entire. Other primitive instruments sound the diatonic intervals. The Peruvian Harvest Song is known from the archives at Lima to have been sung in accordance with them for nearly a thousand years. The scale of Pythagoras differed from the diatonic comparatively little. Therefore, the common belief that our scale is a modern invention does not hold good. It required centuries, if not millenniums, to rediscover and utilize it in modern music, but

it is now an enduring basis of both melody and harmony.

Asiatics use scales with finer tone divisions than the Occidental, so that to the Oriental ear our music sounds coarse and barbarous. Theoretically, the Persian scale is the most perfect ever devised, but, like Chinese and Hindu music, that of Persia and Arabia lacks dignity and intellectuality.

The diatonic scale is not a sole standard fixed by nature. Its ratios have varied in the course of its development. Yet the present tonal system of equal temperament, as settled by Bach, so well corresponds with the mathematical and æsthetic demands of the art that it may be said in a general way to be according to natural order. At the very least, it is more serviceable than any other system in the present stage of musical development. It is not to be placed in the same category with language as this is differentiated among races, tribes, and nations. It has qualities of universality, if not the character of finality.

The instincts of man, Parry remarks, have for thousands of years sifted and tested tone intervals till a scale has been decided on most subtly adapted

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to æsthetic expression. Results approve its excellence. Bach, Beethoven, Schumann, Chopin, Wagner, and Brahms have not wrought out almost celestial music, with the simple acoustical means at their command, to be convicted of having yoked their genius to a false or wholly artificial system. Nature gave them the diatonic and chromatic scales through the usual method of evolution by human endeavor. The excellence of the means is proved by the perfection of the product. An ideally tuned scale is probably to be ranked with a squared circle or the philosopher's stone.

Nature is flexible and comprehensive. Its laws and resources are intended to be at the command of reason. Its best forms and most valuable results are to be secured by investigation and invention. The realm of acoustics is still very imperfectly known. A vast field of audible beauty remains to be conquered. Oriental refinement combined with Western science and initiative will probably give the world new and marvellous revelations of the possibilities of this inexhaustible art. With some six hundred perceptible sounds in the octave, musical invention is not within sight of the limits

of tonal expression. John Stuart Mill's fear was groundless that the permutations and combinations of the twelve diatonic semitones have been approximately exhausted, so that music is even now an outworn art. When ordinary trained hearing shall attain the delicate perception of Asiatic ears and be capable of identifying quarter and even sixteenth tones, when the wonderful range of inflection exhibited in Chinese speech shall be reproduced in melodic expression, and the bounds of harmony correspondingly extended, what may not be the outcome in musical achievement? Modern music, as compared with the best known to Hebrew and Greek culture, exhibits a measure of progress not unlike that involved in this supposition.

But there is in nature a still more positive indication that music, as men make and enjoy it, is an art founded on universal acoustics, and bearing marks of æsthetic intention. Musical sounds go in families. Every definite tone is accompanied by a train of lesser tones extending through octave after octave in exact relations. These are called "har-

monics," "partials," or "overtones." An almost deaf acoustician, who gave the name acoustics to the science of sound, also first proposed a satisfactory explanation of them two hundred years ago. This true scientist, Joseph Sauveur, wrote, "It seems that whenever nature makes for herself, so to speak, a musical system, she employs only such sounds," namely, as these which attend any fundamental note at definite intervals. Because the first six notes in each series, including the prime, are consonant, the overtones were formerly called natural harmonics; but since inharmonic tones appear higher up, they are now known as "upper partials." They embody the psychical element in music. Given by nearly all sonorous bodies, they abound most in the human voice, and are numerous in the tones of the violin, siren, and bells, while flutes and stopped pipes lack them almost entirely. Quality of tone depends upon the number and intensity of the partials. Theoretically infinite in number, only a few are usually perceived by even trained ears. Those produced by the lower vibration rates give to music solemn, majestic, or mournful effects. The middle overtones are less emo-

tional in character. Partials of high vibration numbers are gay and joyous in the quality imparted. Without these spirit-like attendants of musical notes all voices and instruments would have the same quality, becoming monotonous and insipid. Even the vowels in common speech would sound alike. But for these character-giving tones, the world of sound would be tame indeed. The infinite complexity of human thought and feeling could not possibly be expressed without their aid. Music would be a meagre, superficial art of narrowest limits if confined to bare notes of simple vibration rates. In a universe of tonal monotony, such as would result from the absence of the diversity and enrichment supplied by the partials, the question, "How shall it be known what is piped or harped?" would express the acoustic fact. It is precisely because of these self-effacing, echo notes, that there are "so many kinds of voices in the world, and none of them is without significance." Ministering spirits of viewless sound, they furnish the endlessly varied coloring of music. Its limitless possibilities of spiritual expression reside chiefly in them. The modest, seldom recognized partials are

a positive indication of the thought and providence of a musical Mind presiding in creation.¹

The same laws of vibrant sound govern the notes of the human voice and the thunders of Niagara. The ascending series of overtones is said to be found at the same intervals in the cataract's awful music as in the softest accents of a child or of a prima donna. The predominant note of Niagara, Eugene Thayer decided, is exactly that which would be produced by an organ pipe one hundred and sixty feet high and of proportionate diameter. Its beat is in triplets with an accent on the third, ninth, and

¹The newer theory of the action of the vocal cords, which is asserted to do away with the system of overtone resonance as developed by Helmholtz, would not interfere with the essential force of the argument thus far advanced. Overtones do exist in the acoustic world, as is demonstrated by the resonator, and verified by acute hearing. Whether the specific quality of vocalized breath is directly produced by the action of the vocal cords modified by the air cavities through or near which the breath passes, or is more immediately caused by infinitesimal puffs of air rushing through the passage between the vocal cords, it does not make the sense of wonder or of purpose any less, when we contemplate the voice as the organ of expression for an infinite range of psychical events and experiences. Air waves mediate the whole work. The physiologists must decide how they do it, and any advance in scientific knowledge which they can contribute will be undoubted gain for musical art, for philosophy, and for theology.

twenty-seventh throb. The seventh partial, giving the interval of the tenth, he found more clear and powerful than it is usually heard in the organ, and he said, "Were the tone of Niagara a mere noise, this seventh note would be either weak, or confused, or absent altogether." He was quite certain that "the musical tone of the Falls is clear, definite, and unapproachable in its majestic perfection, a complete series of notes all uniting in grand and noble unison." To verify this opinion would require a quite exceptional sense of "absolute pitch," and of analytic hearing. Yet the impressions of this skillful organist were in the line of nature's constitution and habit.

The same allied notes may be heard in the human voice, some of them, by keen attention, without the aid of a resonator. Seiler perceived in the voice of a night watchman at Leipsic, first the third partial, and then the prime. Garcia could hear in a still night both the octave and the twelfth of the note he sang. In relating this, Zahm adds, "I have heard the same two partials in the voice of a muezzin at Cairo calling the faithful to prayer. He had a remarkably powerful, rich voice, the night

was unusually still, and the minaret on which stood the servant of the Prophet was only a short distance away from me." Must it not be that the same Creator who fixed the laws of sound in the very heart of nature, also tuned the mighty organ of the cataract, gave to every creature a distinctive voice, and formed the mind of man to comprehend and enjoy his perfect work? "Our beautiful art of music," Schumann once wrote, "never deceives us. It is the same throughout the universe."

The first five partials contain the major triad, the foundation of harmony. Most of the higher partials repeat the same intervals. The remainder are feebler and more or less dissonant, but add brilliancy, richness, and variety to the primary tones. Not only do they vary and enrich the quality of their fundamentals, but, like all the less easily organized elements in nature, they challenge the exercise of reason and furnish a background of contrast. Euphony and harmony are fully appreciated only when their opposites are heard or suggested. Discord sharpens the perception and enjoyment of concord. Harsh tones and crude noises in which discordant partials abound, stimulate the discrimi-

nating and inventive faculties to reject them, or to remedy their causes. There are uses in things at first unpleasant, which human intelligence slowly discovers to its profit. Among the so-called dissonant tones are musical weeds, the tonal value of which has not yet been learned. The third, sixth, and other intervals were long rejected, but add greatly to recognized harmony. The sub-minor seventh is another possible addition to the accumulating wealth of this affluent art.

The diatonic scale is certainly suggested by the ancillary partials that play so important a rôle in the universe of sound. The eminent French theorist and composer, Rameau, in 1722, made them the basis of his system of harmony. Had they been earlier known, the interval of the major third, supplied by the fifth partial, and called the greatest step in modern musical advance, would have been utilized and enjoyed long before the twelfth century, and the science of harmony would have had an earlier birth.

The dissonant partials also teach the trained ear to refuse intervals, such as 11 : 13, which have no possible place in true harmony. The subordinate

or discordant must never usurp a dominant place in any art. Harmony is not an arbitrary thing. It is rational, to be discovered and employed by reason, skill, and taste. Helmholtz even combined theoretic partials successfully to produce a tone of determinate quality. This was a bit of creation, proving the likeness of the human mind to the divine. Thus science is born, and culture grows.

Music, as involved in nature, is objective, elementary, mechanical. Innate in man, and evolved by human intelligence and effort, it is subjective, intellectual, purposed. That its scientific marvels and æsthetic beauty are the chance products of purposeless evolution, let him believe who can. The play of action and reaction between the outer world of rhythmic vibration and the inner world of thought and feeling, conditioned by states of brain and nerve, may in part explain the development of the musical sense. But that so complex and beneficent a fact of universal intelligence acting through matter is owing to mindless, undirected force, is opposed to common reason. The unity of nature and its musical correlations must, on full

consideration, convince the candid thinker that the God of nature is also the God of Music, and the Maker and Friend of Man.

WHEREFORE?

“ If God speaks anywhere, in any voice,
To us his creatures, surely here and now
We hear him, while the great chords seem to bow
Our heads, and all the symphony's breathless noise
Breaks over us, with challenge to our souls !
Beethoven's music ! From the mountain peaks
The strong, divine, compelling thunder rolls ;
And ‘ Come up higher ! ’ the words it speaks,
‘ Out of your darkened valleys of despair ;
Behold, I lift you up on mighty wings
Into Hope's living, reconciling air !
Breathe, and forget your life's perpetual stings,—
Dream, folded on the breast of Patience sweet ;
Some pulse of pitying love for you may beat. ’ ”

—CELIA THAXTER.

CHAPTER IV

WHEREFORE?

IN a cathedral stands a majestic organ, in a home is that orchestra in epitome, a pianoforte, and on a public stage are found a variety of skillfully shaped instruments for producing sounds of differing quality and pitch,—why? Surely, not for no definite purpose, but evidently to give pleasure, refreshment, mental stimulus, and higher inspiration.

The universe is fitted up with every conceivable means for producing musical sounds and the complex of them called music. The human ear and brain are marvellously adapted to respond to its almost unlimited range of expressive tones, and the soul of man craves the spiritual influence with which music is instinct. Such an elaborate preparation in both the external and the human world for the creation of music must have some specific reason, if reason is anywhere to be found in the universe. The purpose of music may be learned from its uses and effects.

It has to do immediately with that semi-spiritual part of the body, the nervous system. This it either stimulates or soothes. Musical sounds affect the nerve-centres as directly as the most active chemical agents. They do this under the law of contrasts, which Parry calls the basis of art-form. When a group of faculties, or a definite region of brain tissue, is weary with the appeal made by the same kind of sounds or of colors, it is the business of art to call into play fresh sensibilities by change of tone, form, or hue, and so give the nerve centres first affected time to recuperate. The mother's lullaby quiets the suffering child. The brain-weary worker finds refreshing for mind and body in home music or the strains of an orchestra. The soldier or sailor is nerved for battle by tunes resonant with patriotism. A worshipping congregation is physically impressed and often spiritually exalted by the organ's lofty peal. The immediate effect of music is far greater upon savage and uncultivated people than upon the intellectually refined; yet tears, ecstasy, and cataleptic symptoms are not infrequent among persons of extreme musical sensitiveness, in any age or land.

Plato rightly said that music was not given to men with the sole view of pleasing their senses, but rather for appeasing the troubles of their souls. The anti-Platonic philosopher, Herbert Spencer, has affirmed that "in its bearings on human happiness we believe that this emotional language which musical language develops and refines, is only second in importance to the language of the intellect, perhaps not even second to it." A thoughtful American writer considers that "music is one of the most valuable auxiliaries in the work of human civilization and refinement, preparing the heart for all else that is beautiful, opening up avenues of pleasure in other arts, inspiring a quicker sensibility to all the loveliness of nature, and softening our feelings to one another."

The physical and mental utilities of music lie on the surface; its real function is spiritual. It has always been associated with religion and religious worship. It is stimulant and ministrant to the higher part of human nature. George Eliot's poetical definition, "love in search of a name," touched the heart of the truth, for love is the dynamic of

spirit. It is of the very nature of him who is a Spirit, and seeks in his children spiritual affinity and response.

None could know better the real purpose and true function of this art than Sebastian Bach, greatest among masters for knowledge of its structure, and among the highest by inspiration. "Its final cause," he wrote, "is none other than this, that it ministers solely to the honor of God and refreshment of the spirit, whereof, if one take not heed, it is no proper music, but devilish din and discord." The Bach family were consistent to this high conception of the art for which they lived and wrought. Their festive gatherings, however jovial, always began with a chorale.

Infidelity has no hymnology. Unbelief in spiritual realities is incompetent to produce or fully to understand the highest order of music, which is always religious in character, if not in immediate purpose. This incapacity and irresponsiveness is manifested by men of all degrees of culture from the savage to the savant. The very tribes that possess no definite idea of a Supreme Being are the only ones destitute of instrumental music. This fact is probably an in-

stance of reversion, with intellectual degradation. The earliest cult, by the theory of historic evolution, was that of drum worship, said to have been once universal, in which men attempted converse with the spirit world by using instruments of percussion. The spirit imagined to dwell inside the drum spoke to the spirit in man through the rhythmic response of the instrument to the questioning strokes of the worshipper. Fetichism made the tom-tom, the gong, or other sounding or visible object of worship identical with the indwelling spirit; but in either case the origin of music, as of religion, was intellectual, with spiritual implications. When living belief in the reality of spirit goes, the capacity for music of spiritual quality and meaning soon atrophies, whether in the degraded savage or in civilized man.

Song remains, indeed, when worship ceases, the beauteous *Nachschein*, the echo-like afterglow, of departed religion. In music, unspiritual men still express emotions too deep for definite speech. Unworded music, above all other means of expression, is "the language of the ineffable." Hence it is, as Sabatier remarks in his "Life of St. Francis," that the musical ritual which is sung in an unknown

tongue often has upon the religiously impressible an effect which psalms and hymns in the common tongue never have, "like a celestial accompaniment which follows the believer's emotions, from the most agonizing struggles to the most unspeakable ecstasies."

"All nations," said Carlyle, "that can listen to the mandates of nature have prized music as their highest vehicle for worship, for prophecy, and for whatsoever in them was divine." This is the natural order. Sound is waiting in nature to be wrought into notes capable of loftiest and holiest meaning. The law of vibration is everywhere efficient, in solids, liquids, and the throbbing air, ready to convert sounds obedient to its infallible behest into melody and harmony. The ear and brain and soul of man are eager to receive and respond to these messengers of the spiritual world. The universal sequence is this: Music proceeds from creative Mind, is latent in all creation, and, touching the responsive spirit in man, is transformed into praise. Like the Egyptian obelisks, which, symbolically, are petrified sunbeams reflected heavenward from that sun-worshipping land, the

vocal praise of uplooking souls is simply an offering to God of his own rich gift, inscribed with the adoring gratitude of men whom it has blessed.

One of our leaders in Christian thought demands music for religion, "because it is the creation of God. Into everything moulded by his creative hands, music has passed from God's finger-tips. I know of nothing which is so much the creation of God as music. Man does not create it; he only finds it out. Man does not create truth; he only finds it out, and brings it into his life as a purifying power. God creates truth. Man does not create electricity; he only finds it out, and applies it to his needs. It is God who has stored the universe with electricity. Now music is as much the creation of God as is truth or electricity. God has put music everywhere. I believe that the very core and centre of God's own being is a sweet song of infinite love." No wonder that, with such a source and such a soul of meaning, music has been from the beginning the handmaid of religion, or that its best benison is denied to the heart without God.

The spiritual function of music is not an arbitrary office imposed upon it or upon man by omnipotent

authority. It results from the necessity in all spiritual beings for self-utterance, and from the supreme fitness of music for spiritual expression. God himself is under this law. Hence the universe. Hence man's religious history. Hence the Christ. Man, too, made in the spiritual image of God must find mediums and methods of expression for the living spirit within him, or else wither and perish of spiritual inanition. Upon this power of self-expression depends the active element of love, which is the very life of both God and man. There is a divine craving to bridge the void between spirit and spirit. God has uttered himself, in part, in the wonders and beauties of nature. All arts and sciences are but stammering efforts of human minds to think the Creator's thoughts after him, and not this only, but at bottom to commune with the inventive, beneficent, teaching, inspiring Mind at the centre of all that is good.

That created minds may be able to commune with each other and with their Maker, God has made provision for various means of mutual expression; cries, sighs, laughter, words, eye-glances, facial and bodily movements, telepathic impres-

sions, and, among manifold arts, the earliest known but latest developed, music. Civilization narrows the channels of human intercourse mainly to words, spoken or written, and more and more to printed symbols of thought. But it compensates for its greater poverty of other means of expression by opening wider and wider the portals of intelligible and soul-moving sound. Music can never be a universal and exclusive language for men in their present bodily encasement and needs; but it has more of undeveloped potentiality of spiritual expression than any other art. There is a many-sided possibility of spiritual intercourse by means of music as yet little known, but which will doubtless be the possession of a riper culture.

LAW IN MUSIC

“ God—the Mind that meditates in beauty, and speaks in law.”

—JAMES MARTINEAU.

“ Take but degree away, untune that string,
And, hark, what discord follows ! ”

—SHAKESPEARE.

“ A discord of sounds is unendurable, but we can hardly say that of violations of form and color. This shows that we are more finely related to the laws of sound than to those of form and color, and that the relation covers a wider range of our nature: or, in other words, that music is a better type of obedience. When its laws are broken, the history of disobedience is written out in the protests of our whole being—from quivering nerve to the indignation of the heart.

“ The musical ear recognizes laws for which no scientific basis is yet found. In the tuning of any stringed instrument certain requirements of the ear are obeyed for which no reasons can be given; the problem is too subtle even for Helmholtz—suggesting that music is that form of art in which man expresses his transcendence of nature. As man himself reaches beyond the material world and its laws, and goes over into another, even a spiritual world, so music is the art that lends itself to this feature of his nature, going along with it and opening the doors as it mounts into the heavens.”—T. T. MUNGER.

CHAPTER V

LAW IN MUSIC

OUR universe is entirely law-governed. If this age of science has demonstrated anything of value, it is the fact of the universal reign of law. But law is the expression of intelligent will. It is the laying down of orderly methods of motion and action, and always implies the originating will of a power possessed of intelligence equivalent, at least, to that displayed in the system to which they belong. The superb system of laws ruling every part of the known, and presumably of the unknown, universe evidences the sovereign volition of such a Power. Law is "ideal fact," and requires in the relations of Creator to universe an Author of the ideal able also to realize it.

That the Source of universal law is self-conscious and benevolent, can only be inferred from, not demonstrated by, the facts of imperfectly evolved, sin-disordered Nature. Music, however, with its his-

tory, possibilities, and correlations, furnishes valuable evidence of the being and sovereignty of a wise and kindly Ruler of the universe. Nothing in the cosmos more directly reveals the strict regimen of law, and so the existence and dominance of an intelligent Lawmaker, than this exact and exacting art. Its very limitations are corroborating proofs. The products of music-making agencies must inevitably conform to inflexibly ordered rules in the use of definite tones at definite distances, each from each, and in positive relations imposed by mathematical laws of vibration. One cannot take a tone here and a tone there out of myriads of possible sounds in nature, and throw them together in a series dictated by either chance, fancy, or arbitrary choice, and expect music to result. A process like this is possible to a limited extent in the use of the numberless nuances of recognized colors. But the consequence in the realm of sound would be discord worse confounded. Music must obey strict laws in the employment of well defined degrees of sound, or it is not music. Helmholtz explains this necessity by the fact that visible art has to do with space, not time, and thus its forms are always under the

eye for comparison, adjustment, and enjoyment, while music vanishes even while it is heard, and must proceed in ordered steps of tone and fixed tonal relations, or it can neither be understood, remembered, or enjoyed.)

Whatever the explanation, the absolute fact remains that the whole system of musical sounds is dominated to the last vibration by a most intricate code of laws. Hence it immediately involves the being of a Supreme Lawgiver, and also reveals what kind of Being is on the throne of the vocal and audible universe. Since a musical fault is always a logical and a mathematical fault, straight against nature, it is plain that the God of Music hates tonal transgressions. And since moral transgressions are injurious to music and musician alike, there is *a fortiori* proof from this art that God is the foe of all moral disorder. When certain accordant tones or melodic series of tones delight, refine, express, and exalt the best faculties in man, it is no less evident that the vibratory principles which govern their production and audition are the outcome of a regnant musical Will at the heart of the acoustic cosmos. A few illustrations out of

multitudes known to students will substantiate the position assumed.

The difference between mere noise and a musical sound is simply in the regularity of their respective vibrations. Two common stones struck together send to the ear air-waves of unequal size at irregular intervals. The effect is unpleasant to the listening ear and brain. Every musical tone is made such by equal waves of air falling upon the ear at regular intervals of time. Thus heaven's first law is vindicated in the production of symmetrical sounds, which alone are satisfying and beneficent to the hearing organ and the interpreting mind.

Musical tones are but the raw material of music. They combine in rhythmic series to form melodious and concinnous groups. Both melody and harmony are under laws of vibration which compel them to conform to a fundamental sequence of tones called a scale. Starting from different tonal points, and selecting a greater or less number of tones at definite intervals of pitch, various scales have been employed as the groundwork of musical forms.

But to remain music, these coordinated tones, whatever the scale used, must always obey the primal law which demands equal length and regular intervals of aerial waves beating upon the ear. Tones and intervals are governed by an elaborate system of vibration laws which make music an exact science and a complex art. The science of music is the most abstruse of all sciences in its possible mathematical ramifications. Happily this does not forbid the child or the peasant to enjoy its sweet stimulant. It does, however, confirm the definite assertion that "the most impressive result of the scientific apprehension of the order of the world is this, that the laws of the physical universe are laws of mathematical relation." Because this is so, tonality is possible, and musical invention can climb with sure step the *Tonleiter* of any scale system into the audible heavens.

Every scale, ancient or modern, Oriental or European, would furnish similar illustration of the argument proposed; but the accepted octave beginning, for example, with the middle A, which has a vibration number of 435 waves in a second, and including twelve semitones, is the most usable.

The Persian, Hindu, and Chinese scales with their finer tone divisions will doubtless add resources for a completer art, science, and philosophy, when understood and assimilated; yet, for the present purpose, it is not necessary to do more than refer to them. All scales illustrate the central principle of art, unity in variety, and also, in the use made of them, the ethical principle of free-will under strict law.

The series of partial tones which accompany all musical sounds, and make them richer and more characteristic as their partials are more numerous, indicates two facts of prime importance, that the cosmos is musical through and through, and that the modern Occidental scale in its main components is suggested in nature. The accepted "tone-ladder" by no means exhausts natural scale relations. It is not an anathema upon whoever adds to, or takes from, its degrees. Yet since the first five harmonics contain the major triad, which is the basis of harmony, and the others add most of the remaining steps, Sauveur's assertion was not without reason, when he affirmed that the overtones

supply Nature with the entire resources for a natural musical system.

In the diatonic series of twelve semitones, at relative distances dictated by definite vibration ratios which cause their equal component waves to fall upon the ear with a regular beat, is contained the elementary material for the boundless wealth of modern music. The whole art and science depend upon number. "Numbers are the spiritual essence of music." Or, if this descriptive phrase too much ignores a higher force of inspiration, music may safely be called mathematics glorified. Shakespeare's phrase, "Cunning in Music and the Mathematics" hints at a divinely appointed marriage tie. In visible nature God geometrizes. In music he thinks in vibration ratios. Mathematical music in a mathematical universe inevitably harks back to a mathematical God, whose heart-beat is music, and whose nature we learn to know as love.

Yet numbers are only the invisible skeleton of music. They give it proportion, and bind its ethereal elements, otherwise discrete and confused, into a harmonious whole. But all possible vibra-

tion rates, ratios, and logarithms could never of themselves produce even a simple, heart-moving ballad, or one strain of hymn or anthem which can lift the soul heavenward. Music is a spiritual product. No composer asks as to his tone-visions what is their mathematical architecture. In every inspired song or symphony the soul of the composer is embodied, and lives with a kind of audible immortality. In a musical universe, a musical Deity thus breathes into elect men something of his own nature of holy beauty and divine love, for the uplifting joy of his intelligent creatures.

The theistic argument from the universal presence of those spirit notes called overtones or partials, which are the most wonderful and potent things in music, will bear repeating. It is this. A system of tone relations in nature so intricate and so wonderfully adapted to spiritual expression and impression, cannot be conceived of as a mere by-product of an unintelligent, unmusical, non-altruistic evolutionary tendency. Their vibratory laws compel the use of the higher mathesis to unravel their endless permutations, and require a mathematical Mind as their source. Yet more than

this, their adaptation to the expression and generation of spiritual states points directly to a spiritual origin. Infinite in theoretic extent, they open a door into the infinite. They promise means of communion between the Infinite Spirit and finite beings, without the necessary interposition of the clumsy medium of words. When our gross senses are etherealized, or replaced by the far more sensitive faculties of a spiritual body, we may recognize the omnipresent voice of Deity in tones conveying truth, love, and power, expressed in forms which all audible and visible nature, as we know it, cannot possibly reproduce. The pure in heart shall *hear* God.

CORRELATIONS OF MUSIC

“But I guess by the stir of this music
What raptures in heaven can be,
Where the sound is thy marvellous stillness,
And the music is light out of thee.”

—F. W. FABER.

“Radium receives its energy from, and responds to, radiations which traverse all space—as piano strings respond to sounds in unison with their notes. Space is all a-quiver with waves of radiant energy of various lengths which constitute the ‘harp of life.’ We vibrate in sympathy with a few strings here and there—with the tiny X-rays, actinic rays, light waves, heat waves, and the huge electro-magnetic waves of Herz and Marconi; but there are great spaces, numberless radiations, to which we are stone deaf. Some day, a thousand years hence, we shall know the full sweep of this magnificent harmony, and with it shall vibrate in accord with the Master Musician of it all.”—ROBERT KENNEDY DUNCAN.

CHAPTER VI

CORRELATIONS OF MUSIC

A UNIVERSE which is product and embodiment of vibratory motion, must show close interrelations between its component parts. Natural selection through survival of victorious variations might, indeed, account for occasional correspondences which would sometimes have the appearance of guiding intelligence. The original and continuous cause, taking this term in a purely mechanical sense, being always the same, namely, rhythmical motion, there might possibly result something like a universe, a unitary product with a multitude of differing forms and factors. But that there could thus be evolved a true cosmos replete in every item with evidences of reason, psychical feeling, and intelligent, beneficent will, so that the whole infinite system would be manifestly one creative thought, in which every part bore the mark of apparently designed adaptation to logical ends; moreover,

that in this real cosmos everything in its evolving should trend toward conscious mind as its goal, and that in its progressive unfolding there should arise minds innumerable to which the material universe would speak of a Supreme Mind, exactly as a book or letter speaks of its author's thought and character, all without a creative Thinker and a single dominant Will,—this is utterly unthinkable and irrational. Motion of mass can produce only motion of mass. The bridge from foot-pounds to conscious thought has never been discovered. The evidence points the other way, from intelligent will to force and form. The bridge, when found, must be entered from the side of spirit.

It is possible, as a supposition, that a single wire might accidentally fall across the gulf from the other side, and serve as support to a fine-spun theory that thought is a product of molecular motion. Two or three such fortuitous wires might imaginably happen to connect the worlds of matter and of mind—if two different worlds, so named, really exist—with some show of causality proceeding from the side of unthinking energy. But when in our universe, as it actually is, a complete and complex system is

found of conjoined wires, as it were, all stretching in parallel lines, mutually correspondent, and giving plain evidence of a coordinating will as their architectonic cause, it is impossible not to refer the whole structure to one Supreme Mind. The creative Thinker is necessarily conceived of as planning, achieving, and maintaining the universal order.

In an intricate machine every added part increases the improbability of accidental origin. Each wheel and cog in perfect correspondence with the rest, adds to the proof of inventive and constructive intelligence. The interrelations of all parts of the universe are so absolutely governed by precise and unvarying laws, as to necessitate belief that it was planned, and is ruled, by a logical, all comprehending Mind. If the least change in universal chemical ratios would carry destruction into all related departments of the cosmos, as is doubtless the fact, would not the same result follow from any change of the fundamental laws of vibration, on which chemistry as well as music depends?

The correlations of Music are so many and so perfect, that of themselves they prove a Supreme creative Mind.

Take first the medium through which sound reaches the ear and brain. Of infinitesimal waves in the universal ether and the possible music they may make throughout uncharted space, we can know nothing except by inference and hypothesis. But with the terrestrial atmosphere in its elements and functions we are fairly well acquainted. Here the adaptation to intelligible sound and æsthetic uses is unmistakable.

The atmosphere which envelops our planet is a compound of gases so constituted as to fulfil a large number of unlike functions, absolutely essential to life under known conditions. Were it differently composed it might be fitted for some one use, like the transmission of light, yet be wholly unfit for others, such as oxygenating the blood, or correctly rendering sound. As it is, heavy oxygen and lighter nitrogen, with other elements in minute quantities, are so mingled that the physical world in all its parts and relations is what it is because the air is what it is. A slight change in its constitution would make the earth uninhabitable. The actual phenomena of light and color, with the arts and sciences having to do with them, are offspring of the common

air. The active chemistry of the sunbeam and the aerial forces at work upon the inorganic world would be ineffective if the atmosphere were otherwise constituted. Without it, human knowledge would be a blank. This would be a deaf and dumb world, or a world too confused and discordant for intelligible or artistic life, were the air around us anything else than it actually is.

The atmosphere is so compounded that it is true to tone. Sounds are louder or softer in proportion to distance, but, to the furthest limits of hearing, they always remain of the same pitch as at their starting point. If the gases which make up the atmosphere were not perfectly combined in the exact proportion which is now the case, sound would change its pitch in its passage to the ear. The trumpet would give an uncertain blast; voices would lose their identity. The conduct of practical affairs depending on audible sounds would be difficult, if not impossible. Music simply could not be. A very slight difference in the medium, according to Prof. J. P. Cook, "would confuse all those delicate differences of pitch on which the whole art of music depends."

The rate at which sound travels, differs in propor-

tion to the density and elasticity of the gas through which it is propagated. Our atmosphere is so perfectly constituted that the elasticities of its gases are exactly adjusted to its densities, so that the air passing through an organ pipe sounds as if it were one gas. "Had sound travelled in these two gases at rates differing as much as the rates in most gases known to us, the use of wind instruments would have been impossible; probably all music, even the tones of the human voice, would in that case have been discordant to an ear at any considerable distance from the source of sound. With the intense and elevating character of the pleasure derived, first from the tones of human speech, from the melody of birds, and other natural music, and secondly, from the art of music, we cannot but be grateful for this adaptation of the mingled atmosphere to the wants of man in his higher nature."

Now, a deaf, irrational, and purposeless nature, capable only of "the tremor of an inexpressive thought," if of anything to be called thought, could not conceivably have effected this wonderful adaptation. Even if, by any reasonable supposition, the gases of our atmosphere could in the course of

geologic ages have happened, without intelligent oversight, upon the exact ratio necessary for acoustic and specifically musical purposes, the probability that air so constituted would be exactly the sort indispensable for all the other uses of our present atmosphere, would be geometrically small.

It may be answered, that the air being what it is, all other things related to it in the inorganic, organic, and mental worlds must under its agency have become what they are. But this would be like saying that, human brawn and brain being chemically constituted as they now are, the history of Greece, Palestine, China, Great Britain and the United States must necessarily have been just what it is known to us; and more, that all the arts and sciences, and all philosophies and religions are solely the product of cerebral gray matter. This is a begging of the question. The spiritual content of human history is of another essence from the material agencies which have conditioned it. The spiritual force dominant and directive in the history of men has a spiritual source. All else is medium and environment. An organ with its keyboard and multitudinous pipes, which condition and

character all the music that comes from them, may as well be conceived of as self-built and self-played as that insensate nature guessed out the ratios of the air, fitted the ear, eye, brain, lungs, heart, arm, and fingers exactly to the resulting compound, and made them agree to tell the false story of a spiritual agent within, originating angelic melodies and fortuitous harmonies that stir the soul to its depths.

Terrestrial air and the human ear are so related, the one to the other, that aerial vibrations of infinitesimal amplitude and duration are duplicated in the auditory chamber within, and awaken in the brain innumerable and inexplicable sensations of musical sound. These are reiterated in the adytum of the conscious soul in such wise that not only the composer's conception and passion are communicated to it, but the soul itself is often raised to its highest degree of feeling, the emotion corresponding in intellectual and moral quality to the character of the listener.

The wonders of the phonograph somewhat illustrate the mechanical process that goes on within and behind the ear; but this remarkable instrument comes immeasurably short of the perfection of the auditory

organ. Above all, it lacks the greatest of wonders, a direct connection with a spiritual agent behind the sensitive diaphragm. The phonograph has no soul. It can neither create, understand, nor enjoy the music it reproduces.

The internal ear is a musical instrument of most intricate and exquisite workmanship. It not only combines and transforms vibrations of the common air into accurately toned sounds, but is an infallible "resonator" for the exact analysis of composite tones, far superior to the ingenious device for this purpose invented by Helmholtz. Every normal head is furnished with a pair of harps strung with microscopic fibres for sounding wires, to a number variously estimated as 3,000, 8,700, 13,400, and even 26,000 or more. These "rods," or "fibres, of Corti," so called from their discoverer, are attached to the cochlea as their sounding board, and each of them is connected with a terminal filament of the auditory nerve. The tympanum, or ear-drum, by means of a bony hammer conveys from the air vibrations of almost inconceivable rapidity to a liquid filling the gallery of the cochlea, and this sets the microscopic fibres of the auditory nerve into vibrat-



ing response with absolute accuracy. Different fibres, separately or in groups, respond to different sounds, and so permit the hearing of simultaneous tones, making harmony feasible. A most important item is that all sounds are instantaneously "damped," since continuous vibration of the fibres would make distinction of tones impossible. The hearing apparatus is so constructed as to perceive the pitch, loudness, and quality of each tone, which depend upon the number, amplitude, and form of the air-waves.

When this complicated mechanism has done its work, or while it is still doing it, there takes place the transformation from mathematical motion to conscious perception, feeling, and thought. Here is the abyss between vibrating matter and hearing mind which has never been crossed by the scientific reason. It defies imagination, yet the crossing of it is a fact of constant experience with every person possessing the sense of hearing.

The average child hardly out of infancy performs the miracle of perceiving and instinctively judging musical sounds, a process that involves a logarithmic solution. Any normal child possesses an organ

which instantly and without training reports to the newly formed brain the physical effect of sound-waves of enormous rapidity and complexity, and the infantile brain discerns at once not only the exact tones produced, but also the harmonious or discordant quality of the composite sounds perceived, and is correspondingly affected in conscious emotion. The ear is the first developed of the special senses, and comes into activity the most complete in functional power.

A thousand singers or players on many instruments, taking different parts, and ten thousand listeners of varying capacity are as one person in producing or hearing a wilderness of tones made by uncounted millions of vibrations in air and ear. Thus the thoughts of a composer long since gone to the realm of silence, are conveyed by the medium of every-day air to the minds of the living through the labyrinthic passage of the human ear. "Yet all this is done by persons both young and old, who may know nothing of mathematics, who understand nothing of the laws of acoustics, who never heard of a sound-wave or a vibration number, and yet who, by some mysterious power, work

out these subtle mathematical problems to perfection, enjoying, and communicating to others the intensest pleasure."

The extreme acuteness and accuracy of tone perception possessed by expert tuners and trained musicians illustrate the matter before us. Their keen ears are masters of quite eleven octaves, as compared with the octave and a half of definite sensations of color belonging to the eye. A visual error of not more than one-thirtieth would mark the average limit of perception possible to the skilled draughtsman. But this would be equivalent to only about a quarter of a tone in aural perception, while a forty-fifth of a tone is easily determined by the trained ear. A skillful piano tuner, as stated by Zahm, can distinguish between a true and a tempered fifth, where the difference is only one-hundredth of a tone. This would indicate a definite sensation of over six hundred sounds in an octave. A superior violinist is said to recognize at least a hundred more, or nearly three thousand in the forty notes of his instrument. Very acute ears can distinguish notes whose vibrational difference is that

between 1,000 and 1,001, or one sixty-eighth of a half tone. When we remember that the notes of an orchestra are produced by vibrations ranging from 33 to 4,608 per second, and compute the number of notes played by all its instruments during that time, wonder grows to amazement that the human ear can perceive, accurately judge, and keenly enjoy the innumerable throng of musical air-waves thus set in motion. And when it is scientifically determined that a sound can be heard when only two vibrations have been made, and a musical note distinguished with from two to twenty vibratory impacts of air upon the tympanum, the achievement of the Creator of air and ear seems indescribable.

In fact, the study of the human ear, in its function of hearing music and interpreting to brain and soul the joy and meaning of it, should be a sufficient cure for untheistic conceptions of the universe. Newton had knowledge enough of natural facts and laws to enable his unsurpassed scientific mentality to form a judgment worthy the respect of all, even in the twentieth century. His final conclusion was that a mechanism of wonderful structure, like the

ear, could not arise by the mere laws of nature. "In astronomy," to quote Dr. Chalmers in the introductory chapter to the Bridgewater Treatises, "the independent elements seem few and simple. For example, the law of gravitation explains all the revolutions of suns and planets. But in anatomy the complexity is so great, that the eye or the ear gives more intense evidence for a God than the orrery of the Heavens." If musical instruments and acoustical devices like the resonator compel belief in a human maker, most certainly does the marvellous apparatus of hearing by which living men interchange thought and feeling at first hand, and without which the worlds of speech and music would be annihilated, demonstrate a Creator of superhuman skill and unbounded goodness. How this organ came to be what it is, matters nothing in the argument. The mental content and spiritual efficiency belonging to the boon of audition must have originated in the primal Cause, and have a definite purpose of blessing as its final cause.

Other senses share the office of communicating between minds, and may even in a measure replace that of hearing. Helen Keller, with the one sense

of touch, has appropriated more treasure from the realms of pure thought and noble feeling than most persons with every bodily faculty unimpaired. But imagine the unspeakable wealth of sensation, power, and highest enjoyment that would come to that rare soul if the common gift of hearing were imparted to her! A heart like hers could not contain itself for intense joy and gratitude toward her undoubted Benefactor. The average mind must be constrained, with J. A. Zahm, an acknowledged authority in acoustics, to recognize "the stupendous results which the Creator accomplishes by the means employed, and to see in the astonishing phenomena of audition evidences of Divine power and wisdom as striking as any disclosed in the whole realm of animated nature."

The analogies between music and color have long been noted. Their mutual resemblances have led to theories of an essential kinship which have even challenged the inventive faculty. Brilliant experiments showing the effect of sound on flame, and of flames on the resonant air, have resulted in attempts at a "color piano." Vacuum

tubes illuminated by means of a keyboard discharging an electric current through them at the will of the performer, are capable of producing color melodies and color chords. The invention has remained a scientific toy, but it is claimed that all phases of musical composition can thus be translated into phonoscopic harmonies, progressions, resolutions, and, in fine, into real symphonies in color. The electrical displays at recent World's Expositions have come near to demonstrate the practicability of such a scheme. Artistic fads of symphonies in red, or lilac, or Nile green mayhap, rest on a general fact of correlation. Musical critics, also, have a scientific right to speak of phrases, motifs, movements, and their execution, in terms of optics, if only they know what they are writing about.

Light, color, and sound are alike products of vibrations in air and ether. The chief apparent difference between them is that light and its family of colors are produced by waves of tremendous rapidity, while musical tones are the product of vibrations of comparatively small frequency. From the most acute tone perceptible by the human ear to the extreme red of the spectrum, the vibration

difference is that between about ^{49,000} ~~four hundred~~ and four hundred and fifty-eight trillions, an interval of some thirty-four octaves. To produce the vibration number of red, a wire corresponding to that of the highest note in a grand piano would not be over one ten-billionth of an inch in length.

This enormous difference seems prohibitory of real relationship, yet Professor Gruber in *Nature* affirms that the connection is closer between musical sound and color than with unmusical sound or mere noise. The blind man who felt the blast of a trumpet as akin to his idea of the color red, may have been a first-hand witness to a twofold fact in nature. Vowel sounds have been reproduced by mechanical means following a calculated scheme of vibrational compounds. The sound of the vowel "E" is associated with the sensation of yellow, "I" with blue, and "O" with black. Van der Weyde's lectures demonstrated that the vibrations of the first, third, and fifth notes of the diatonic scale bear the same relations to one another as the colors red, yellow, and blue. Accordingly, he found most war-songs written in C (red), songs of the ocean and sky in G (blue), while many pieces de-

scribing green forests and meadows were in F (blue plus yellow, making green). Both the asserted facts and the laws inferred would seem to need verification, but some interrelation certainly exists.

The author of "Charles Auchester," Miss Shepard, puts into the mouth of her character representing Mendelssohn this description of an orchestral rainbow scale: "Strings first, of course; violet, indigo, blue—violin, violincello, double-bass. Upon these you repose, the vault is quite perfect. Green, the many-sounded kinds of wood—spring-head flutes, deeper clarinette, bassoons the darkest tone,—another vault. The brass, of course, is yellow, and if the horns suggest the paler dazzle, the trumpets take the golden orange, and the red is left for the trombones, vivid, or dim, or dusk."

In "Physiological Optics" Helmholtz suggests the following non-scientific analogies between the notes of the piano and the colors of the spectrum:

F♯, end of Red.	c, Yellow.	f♯, Violet.
G, Red.	c♯, Green.	g, Ultra violet.
G♯, Red.	d, Greenish-blue.	g♯, " "
A, Red.	d♯, Cyanogen-blue.	a, " "
A♯, Orange Red.	e, Indigo-blue.	a♯, " "
B, Orange.	f, Violet.	b, End of spectrum.

The seven prismatic colors and the seven primary tones of the diatonic scale are said to have the same proportionate rates of vibration. Triads of color ^{and} tone are fundamental in both.

Without further illustration, the close correlation of the optical and the acoustical laws of creation points directly to the conclusion that music is not a thing by itself in the universe, incidental and of human parentage alone. It is interwoven with the law-governed forces of nature, the action of which makes the universe a cosmos, and fits it to be the environment of spiritual beings. That music is cosmical, may logically be inferred from its correlation with light and color, which are known to be universal. Spectrum analysis proves that color persists throughout space. The hues of the most distant stars remain absolutely the same after their rays have traversed spaces immeasurable through long periods of time. No known reason exists in the laws of vibration why its lower frequencies should not stir the air of the most distant worlds in rhythmic pulsations audible to ears of teleacoustic power.

Each new factor of correlated force in the universe showing that the same mathematical laws rule in all its provinces, and that all things work harmoniously toward results of wise beneficence, *adds to theistic probability in geometric ratio*.¹

¹ An interesting parallel has been noted by Mr. Isaac L. Rice, in a monograph entitled, "How the Geometrical Lines have their Counterparts in Music," between the relations of geometrical lines in space and the metrical divisions of time in music. Space and time he defines as differentiations of one idea, infinity. They are the conditions of all finite existence, and the mediums of communication between the infinite and the finite. A line is the distance between two assumed points in space. A meter is the distance between two assumed moments or points of time. Starting with these simple data, a distinct likeness is found to exist between the orders into which geometricians have divided lines according to their functions in the measurement of space, namely, straight, circular, elliptic, parabolic, and hyperbolic, and the recognized meters of music—dual, triple, quadruple, quintuple, and sextuple. These analogous forms in space and in time are clothed respectively with colors and with tones, and are the groundwork of visual and audible beauty. Visible nature and audible art are mutual counterparts. Tone is the correlative of color; rhythm, of geometric form. "Rhythm is the shape, form, or proportion of things in time; shape, form, or proportion is the rhythm of things in space." Architecture is thus correlated with music, so that describing the Cologne cathedral as a "frozen symphony" is not using a baseless metaphor.

The "Chladni figures," made by the vibrations of musical sounds communicated to a membrane covered with sand or colored powders, are a beautiful illustration of the fundamental relations existing between geometry and music. Discords throw the lines as-

In all human experience the internal facts correspond with the external,—perception with light, color, form and sound; the spiritual sense of beauty with the beauty-making factors in nature; the principle of causality in human thought with the inevitable sequence of cause and effect in the whole universe; the generalizing propensity with the universal order. Beyond a doubt, the external facts have had everything to do with shaping the forms of organs and developing corresponding faculties of mind, but their influence can never account for the rational and spiritual contents of the evolutionary process, nor for the correlations existing between

sumed by the material on the membrane into confusion, while pure tones and harmonies cause it to assume geometric figures of great beauty. In Sidney Lanier's essay on "The Physics of Music," he says that the wonderful methods of reducing the proportions of musical vibrations to curves, visible to the eye, have been "carried to such an extent, that among musical scientists tones are known by their curves. . . . When the lecturer proceeds to cast these proportions upon a screen, in bands of brilliant light, and to bring out the most graceful and brilliant figures, ever increasing in complexity as he superimposes curve upon curve of note upon note, the enthusiasm of the dullest person is sure of being aroused." The æsthetic character of the correlation between visible and audible nature thus strikingly brought out under scientific manipulation, will reinforce the argument of the following chapter.

these and outer nature, and amid the different departments of nature itself. Matter may possibly be sensitive, but is never conscious. The fibres of Corti thrill in response to vibrations in the common air, and brain cells may thus be rhythmically stirred; but music begins only in the mind behind the brain. The power that made the microcosm of the human soul made the universe without to be its school, its tool, its changing home, and its possible Paradise.

THE BEAUTIFIER OF TIME

"He hath made everything beautiful in its time."—ECCLESIASTES 3: 11.

"Beauty to the Greeks was one aspect of the universal synthesis, communicate with all that is fair in manners and comely in morals. It was the harmony of man with nature in a well-balanced and complete humanity, the bloom of youth upon a conscious being, satisfied, as the flowers and beasts and stars are satisfied, with the conditions of temporal existence. It was the joy-note of the whole world, and echoed by the sole being who could comprehend it—Man."—J. A. SYMONDS.

"There flows onward, with the rushing music of mighty waves, an eternal stream of life and power and action, which issues from the original source of all life, from Thy life, O Infinite One! for all life is Thy life, and only the religious eye penetrates to the realm of true beauty."—J. G. FICHTE.

CHAPTER VII

THE BEAUTIFIER OF TIME

As a theistic argument, the evidence furnished by music for the being and universal activity of an æsthetically benevolent God, is part, and no small part, of the little developed argument from the Beautiful. In its entire reach, this is perhaps the strongest of all proofs for the existence of a Supreme Being, as it is one of the most attractive and characteristic disclosures of his nature.

The general argument is this: If anything is, beauty is, and beauty must have a sufficient and consonant cause. In conscious experience it is subjective, existing, as beauty, only within the perceiving mind; but so is everything in which mind plays a leading part. Referring to the Duke of Argyle's line of thought on this subject, Darwin wrote as follows: "Still odder, it seems to me, all that he says on beauty, which I should have thought a nonentity, except in the mind of some sentient

being. He might as well have said that love existed during the secondary or Palæozoic periods." ("Life and Letters," II., 248.) But science, also, is wholly a thing in the mind. It did not exist in the Palæozoic age, or even, as to the present conception of it, in the pre-Darwinian period. Nevertheless, physical science is a reality, because its facts and laws exist in nature. The scientist simply finds out what has been created or evolved in the universe from the beginning, and, if he can, how it has come into being. So far as he succeeds, the beautiful order of the cosmos becomes a present reality to him, though before unperceived and unenjoyed. Likewise, visible and audible beauty has always existed, potentially as regards man, really as regards the forms and forces which condition it and awaken the perception of it, when sentient intelligence is fixed upon it. Beautiful forms, colors, and sounds have doubtless always been in this everywhere beautiful universe. Rhythmic vibrations in the air, together with symmetry of visual forms in space and in certain atomic arrangements of surfaces and gases, have only awaited the perceiving mind of man to recognize, investigate, and enjoy

their product. There was no perception of either æsthetic or scientific facts in the secondary geologic period, and but little, comparatively, before quite recent times. Future generations may say the same of our own days. Yet the unspeakable joy of men in the beautiful, and also the wonder-working agency of science give ample evidence of their reality, and demand an adequate explanation of their facts in terms of causality.

Beauty has no sufficient ground in utility. The infinite diversity of artistic shapes assumed by leaves, flowers, vines, trees, feathers, scales, furs, crystals, and the larger organic forms, is not sufficiently explained by the uses they often subserve in nutrition, reproduction, and preservation. Darwin notwithstanding, each particular curve of a humming-bird's beak, each rainbow hue on scale of fish or feather of bird, cannot be necessary to survival. The exquisite symphony in crimson and gold of the autumn foliage has no such value. A blotch of raw color on shapeless petals would attract bees; but, lo, in a single blossom a little world of beauty, and in the floral kingdom galaxies of mani-

fold perfection. A raucous croak or a discordant howl would sufficiently announce the nearness of lover or foe, and associated memories of experience would do the rest. Yet in this one tiny out-of-the-way planet there is an increasing concert of sweet sounds innumerable, rising with man to the height of a heavenly art, having clear spiritual implications and incalculable possibilities. The closely correlated conditions of visible and audible beauty are present everywhere, and the realization of both is well nigh universal. Human eyes see and human ears hear but a millionth part of that actually realized of either kind. The thought cannot but arise and compel assent that, if there is a Creator who has so framed the universe that simple aerial vibrations of high and low frequencies constantly produce such effects on eye, ear, brain, and soul, and yet but the smallest fraction of all this beauty, actual or potential, is seen or heard by man, the chief purpose of its existence is to delight its Maker. Man in his studies and works seeks beauty for its own sake. Why not God? "He that planted the ear, shall he not hear? He that formed the eye, shall he not see?" The sense of beauty, may it not be "God's

satisfaction in his works" imparted to man, or "God in us, rejoicing in his perfect thought"? The contemplation of perfect beauty gives a satisfaction of mind and heart which serves to explain the creative mood and motive in the production of the beautiful by divine or by human hands. If on some parts of creation the Almighty has allowed the prentice hand of angel or demiurge to try its skill, thus accounting for signs of imperfect workmanship (better explained by other theories) which some think to detect here or there in nature, this cannot be said of the manifestations of a beauty-loving Mind everywhere perceptible. Here assuredly is no failure. Here is ideal perfection.

If we look at things with thought for their purpose, and as they finally interpret themselves to the heart, we shall agree with Professor Santayana, that "beauty is of all things what least calls for explanation." Since all being tends toward completion—we may even dare to say perfection—beauty seems to be the ideal manifestation of this final cause of being, and also the direct evidence of its possible attainment. Hence all beauty of form or of spirit

has a moral dignity and importance which should exalt it above low and selfish uses. It is "a pledge of the possible conformity between the soul and nature," yes, and nature's God, its self-revealing Author. We may see in it, therefore, a ground of faith in the ultimate supremacy of good. "Our souls," in the words of Brother Azarias, "are so attuned as to give out a music responsive to the chords that are touched." The æsthetic sense, which is as innate as physical taste or touch, has for its special function to elevate, refine, and spiritualize the lower nature of man. A faculty so important and so universal must, by every principle of science, have a corresponding reality to occupy it, and a high office which indicates its true purpose.

Beauty of every kind is a touch of the ideal, an overt hint of perfection, a breath out of the infinite coming to man in the dull round of practical life, to show which way he is to turn and strive after the perfect joy of existence. More than any other art, far more than formal logic or the physical sciences, music suggests the infinite, and allures through sense to the supersensual. The priceless susceptibility to

the beautiful, in this or in any of its forms, has been well said to be so much surplusage of creative goodness. Professor Huxley once wrote, "A vast multitude of pleasures, and those among the purest and best, are superfluities, bits of good which are to all appearance unnecessary as inducements to live, and are, so to speak, thrown into the bargain of life. Few delights can be more entrancing than such as are afforded by natural beauty, or by the arts, and especially by music, but they are products of, rather than factors in, evolution." In the same strain Goldwin Smith says, "It would be difficult to account for beauty, or the sense of beauty, by physical evolution; while their presence and the charm which they throw over life seem to bespeak a certain tenderness on the part of the Being in whose power we are, which softens the stern aspect of evolution." Music is well called by Isaac L. Rice "The Beautifier of Time." Its goodly office is "to adorn the ever-moving space of existence." What visible beauty is commissioned to do for the element of Space, that Music is sent to do for Time, which is yet more intimately and fundamentally connected with Life.

In both the contemplation of beauty and the power to think some of God's æsthetic thoughts over again in a halting, reproductive way, man comes very close to the great Lover of Beauty. The beautiful, as interpreted to the human spirit, is a frank revealing of the Divine mind and heart. Its perfect analogue can be found only in the inmost nature of Deity. That man can perceive and recreate it proves his kinship to its primal Author.

The first appeal of the beautiful is, indeed, to the senses, because all mental impressions must commonly come, in the first instance, through their five-barred gate. But pure beauty in the realms of light and sound quickly lifts the willing soul above the sensual. And to share the Creator's prerogative of producing new forms of the beautiful, tends directly to intellectualize and spiritualize the genuine artist. The inescapably severe conditions of artistic production compel self-mastery, and dedication to the higher strains of life. The sense of beauty is at its lowest among peoples of low intelligence, nearest the animal level. It develops with the growth of intellect, and is associated with,

and promotive of, moral improvement. It really seems to be a prize which God gives to intelligent beings when contemplating his most perfect works, and striving after some likeness to the ideal excellence they display.

Any sufficient answer to the inevitable question, What is Beauty? will lead straight toward its Source. Its cause and essential secret have been the quest of all thinkers susceptible to its power. So evidently is it something in mind, and accidental to matter, that it bears a plain stamp of the spiritual.

Plato held that beauty consists of self-existent forms or ideas superinduced upon matter, which are in truth the real beauty of beautiful objects. Its immediate cause, in Lévêque's theory, is a simple force distinct from matter, yet setting it in motion, vivifying it, and reducing it to beautiful forms. "The splendor of truth," Samuel Harris calls it; "ideal perfection revealed to the reason in some particular object or combination of objects." All beauty is in its essence spiritual. In its perfection looks us in the eye, utters itself to the ear. Since

tones, forms, and colors have been found close akin, audible beauty, as certainly as visual loveliness, points direct to the one Being in whom alone perfection dwells. Reid is right, therefore, in saying that the first cause of either is a divine Being whose volition immediately invests material objects, sounds and forms alike, with all their beautiful aspects. And so, beauty is nothing less than a revelation of the Unconditioned, a manifestation of the divine thought.

Existing at once in nature and in the mind, Wundt concludes that "the beautiful speaks to us of the profound agreement of the laws of the external with the laws of the internal; the two are one in nature, and our intuition alone makes and keeps them separate." Unity in variety, which may also be stated as variety in unity, is its ground principle, recognized from Plato down. Harmony of the unlike yet accordant is the secret of all beauty, visible, audible, or psychical. It is the cause of mental satisfaction and spiritual reconciliation, bringing repose, delight, and elevation in its train.

Universal order, in atoms and in worlds, is a dis-

closure of the cosmic principle of Beauty, which is thus shown to be a definite end in nature. The uniform effort of the disturbed order to right itself, by reversion to type, the resolution of discords, the natural *vis medicatrix*, and life always springing out of death, is evidence of this. All nature is "an apocalypse of the Beautiful." Harmony and the joy in it are its deep, glad purpose. This is the invisible force

" That meets all motion and becomes its soul,
A light in sound, a sound-like power in light,
Rhythm in all thought and joyance everywhere."

Poets and artists, to expand William Knight's setting of a well-known truth, "take us nearer the heart of things than the chemist or the physicist. They see life beneath all forces, a life like our own yet far higher and more perfect. Art thus bridges the chasm between the concrete and the ideal, and brings us into touch with the Infinite." This is true of all true art. Music, however, suggests the infinite of spirit, and to some minds expresses it, as no other art, neither science, philosophy, nor metaphysics can do. Browning's words are not extravagant:

“There is no truer truth obtained by man
Than comes by music.”

The audible cosmos reveals through sense to mind the divine unity in variety. Every note with its overtones is already a harmony, enriched by mystic dissonances. Regularity, symmetry, and expression are the body, soul, and spirit of music, and the threefold source of its power. Mathematical ratios in part explain the first two, but the secret of musical beauty is far deeper. The Great Mathematician is not all intellect, but is a full-orbed Spirit with a nature of purest love, seeking through the beauty of holiness the perfecting of his imperfect children. Music manifests the order of the universe in all its tones and forms, but accompanying these there is often a mysterious potency which can be ascribed only to inspiration. The immediate cause of this has been represented, as “that primitive and mysterious power, whose mode of action will be forever hidden from us, by which a theme, a melody, flashes into the composer’s mind.” The soul of music, which alone gives it expression and power over the heart, is something spiritual and divine.

If anything is certain in our reasoning upon the audible phenomena of nature, it is that musical beauty is not a mathematical product. It satisfies mathematical canons, but is no more their creature than a sunset is the product of optical formulæ. The most that can be conceded is the half mystical, half arithmetical dictum of Leibnitz, that music is "a calculation which the soul makes unconsciously in secret." But the soul is the chief and original factor in the process. The mechanical piano-playing devices which abound, can of themselves create music just as much as a printing press can create an epic, and no more. If the music is not first in the soul, it will never lay hold of the atmosphere with its rhythmic compulsion, and make it speak to other souls things unutterable.

No writer on musical æsthetics has seen deeper or truer than Eduard Hanslick, and he declares that musical beauty has nothing at all to do with mathematics. "In a tone poem nothing is calculated mathematically. Creations of the fancy are not arithmetical problems. All monochord experiments, sound-figures, proportions of intervals, etc.,

are out of place here. The department of æsthetics begins where these elementary relations cease. Mathematics prepares only the simple material for intellectual treatment, and remains concealed in the simplest relations ; but musical conceptions come to light without its assistance. What converts music into a tone poem, and raises it out of the category of physical experiments, is something free and spiritual, and therefore something incalculable."

Classic conceptions of the beautiful centred in its formal elements, rhythm, harmony, and proportion. Modern thought emphasizes its expressiveness, sees or hears in it an utterance of spirit. An analytical definition of beauty must include both the numerical and the spiritual, but the spiritual is its very essence, and its source of greatest power. Musical beauty is self-subsistent, apart from its effects. Its spiritual essence finds outlet and influence through the positive beauty of its forms. If unbeautiful, if monotonous or unharmonious, it wearies or irritates. Feeling belongs preeminently to the beautiful ; hence music is an elect agent for the production of emotion. In its tones and forms spirit speaks to spirit.

The immediate effect of music, it is true, does not always depend upon the perfectness of its forms. Crude, monophonic music, with more rhythm than melody, and entirely devoid of harmony, will stir the savage or half-civilized breast as the most accurate polyphonic compositions cannot, even with cultivated hearers. The simplest tone-forms rendered with fury or with deep pathos, affect the elemental passions of primitive natures in an inverse ratio to the power of the best music over intellectual and critical listeners.

Like every other force operating on mind, such as poetry, eloquence, or personal beauty, the power of music is subjective and individual. It depends on the stage of development and the law of association. A crude national instrument, a simple folk-song, a homely ballad freighted with tender memories, will move those susceptible to their specific tones in a degree utterly out of proportion to their musical quality. This is proof, at once, of the inherent power of tonal beauty, and of the divine beneficence which has made its ministry universal. It is not chiefly for an aristocracy of culture, but is for the joy and welfare of mankind.

Science, it has been said, is superhuman in that, like Jacob's ladder, it rests upon the world of sense, while its top reaches into the realm of spirit. Music partakes of this twofold character. Its forms start on the common level of physical agencies, but carry the mind upward and still upward into spiritual regions. It is superior to bald science in that on its ascending scale of tones angels of joy and blessing descend to fill the dreamer's soul with echoes of heaven's own harmonies. Handel felt himself inspired to write the majestic strains of the Hallelujah Chorus, so that he could say, "I did think that I did see all heaven before me, and the great God himself!"

A belief held by many of the noblest thinkers, and called by Charles Kingsley the "great Mysticism," is that all symmetrical natural forms are types of some spiritual truth or existence. Everything, Kingsley thought, is full of God's reflex, if we but perceive it. "Oh, to see it but for a moment, the whole harmony of the great system! to hear once the music which the whole universe makes as it performs his bidding! When I feel this sense of the mystery which is around me, I

feel a gush of enthusiasm toward God which seems its inseparable effect." Is not this mood often induced by the feeling of sublimity peculiar to mankind when under the influence of the grander displays of natural forces, or of the loftiest mental conceptions? Animals seem never to show this feeling in the least. It may be regarded as the shadow of the infinite passing over the human soul. The music of Beethoven and Handel, or the uprising of volumes of grand harmony from thousands of voices, produce this effect, and both humble and exalt the mind capable of being so impressed. It is like coming into the audience-chamber of the Almighty.

In Augustine's phrase, all things bright and beautiful are "footprints of the uncreated Wisdom." A scientific writer of our own day, speaking with acknowledged authority, says, "The fact that Nature is beautiful to us, that its action meets a swift response in our minds, is best explained, indeed is hardly explicable otherwise, by supposing that its informing spirit is akin to our own. Because of our intellect we are forced to suppose a like quality in the Power that shaped us." In the tone world

all lovely and uplifting music is thus both echo and evidence of perfect musical thought and feeling in the Oversoul of the universe. If the shattered colonnades of the Parthenon attest, beyond doubt, an architect intelligent and artistic, the broken music of earth no less demonstrates a creative Mind capable of devising an art so far above the reach of the merely human, so full of spiritual meaning and potency. To hear as well as to behold "the beauty of the Lord" is the sacred privilege of all who possess musical sensibility. And that the æsthetic nature was given us, not for selfish enjoyment alone, or for inducing mere self-culture, but to assimilate the human soul to its Maker, and to be a means for attaining the beauty of holiness, is plainly indicated by that remarkable prayer of old, "And let the beauty of the Lord our God be upon us."

THE POWER OF MUSIC

“ Music can noble hints impart,
Engender fury, kindle love,
With unsuspected eloquence can move
And manage all the man with secret art.”

—ADDISON.

“ O strange, sweet power,
Ineffable, O gracious influence,
I know not whence thou art, but this I know :
Thou holdest in thy hand the silver key
That can unlock the secret fount of tears,
Which falling make life green, the hidden spring
Of purer fancies and high sympathies.”

—LEWIS MORRIS.

“ And therefore I said, Glaucon, musical training is a more potent instrument than any other, because rhythm and harmony find their way into the secret places of the soul, on which they mightily fasten, imparting grace, and making the soul graceful of him who is rightly educated, or ungraceful of him who is ill-educated.”
—PLATO.

“ Music doth withdraw our minds from earthly cogitations, lifteth up our spirits to heaven, and maketh them light and celestial.”—CHRYSOSTOM.

CHAPTER VIII

THE POWER OF MUSIC

THE philosophy of the twentieth century is dynamic. Science is its foster-mother and servant. Civilization again obeys the principle of major force. The persistence and interrelations of physical energy give law to thought, and supply the conditions of material progress. Back of all is an infinite Power, a Power at the very least adequate to the origination and maintenance of all the active forces at work in the universe. No finite force is autogenetic or really automatic. All motivity must come from an exhaustless fountain of energy.

Music is a constant power in human life, exercising a spiritual force so vast, varied, and generally beneficial, that it demands explanation under the principle of casuality. This argument may appeal to the children of the Dynamic Age, when ordinary theistic reasoning fails to convince.

Spiritual effects must have a spiritual cause. In

human experience it is true that they are conditioned by physical environment and agencies. In the present stage of organic life, brain, nerve, and nerve stimuli are essential to the thinking process. Music reaches mind and stirs emotion only through physical media, the voice, fingers, strings, keys, and the sympathetic air. But its effects on thought, feeling, and action, are often so astonishingly great that the mechanical energy employed, even allowing for nervous reinforcement, is utterly inadequate to their production. The physical agency and the spiritual result are disparate ; they belong to different realms.

The energy liberated and made efficient by sound-producing causes, is sometimes, indeed, well-nigh incalculable. Darwin states that the notes of certain small insects may be heard on still nights a mile away. The tremor of atmosphere caused by them, he estimated, must affect from five to ten million tons of matter, while the insect weighs not more than quarter of a pennyweight. What would be the quantitative result of the aerial disturbance caused by a combined band of ten thousand performers, might be an interesting arithmetical prob-

lem, but would have absolutely nothing to do with explaining the spiritual effect of some single tone or strain of music. The psychic increment imperatively demands a coordinate cause sufficient to produce it.

Nerve excitation by infinitesimal air-waves explains the mechanical part of the process, but not the content of spiritual energy produced. Neural thrill is not sufficient to account for the specific and widely varied quality of the effect, nor for its thousandfold intensity, its uplifting, transforming, reflex, and impressional influence. Only on the theory that the psychical is always a mere product of physical forces, in the last analysis a refined form of motion in space, can the essentially spiritual essence of music be denied, or its first cause not be traced to the Father of spirits. None but a music-loving and benevolent God could have so filled the universe with melodic and harmonic elements, and constituted the mind of man to discover, appreciate, and truly create the system and forms of this wonderful art.

Considering only man's part in its development, Hanslick concludes, after a profound study of the

subject, that the spiritual force of music can be attributed solely to "the definite beauty of musical form, as the result of the untrammelled working of the human mind on material susceptible of intellectual-manipulation." To this must be added the power of association, and still more, the transference from soul to soul of mental moods, passionate impulses, and spiritual states, through the sensitive medium of musical tones and forms. Beyond and above these factors, must there not be recognized throughout the history of music in its effects on mankind, and in numberless cases of individual betterment under its influence, the manifest agency of a divine Spirit choosing this congenial medium of communion with the souls of men?

Fable, legend, history, and experience combine to illustrate the extraordinary effect of musical sounds on man and beast. Next to sun-myths and the kindred worship of the reproductive agency in nature, comes, in universality and significance, the early recognition of this potent force. The worlds in space were believed to have been framed by a rhythmic impulse of musical vibration, cities to

have been founded and destroyed under its constraining might, and both gods and men to be subject to its control. The fable of Orpheus embodies the ancient conception of the power of music, and vividly suggests the extreme primitive susceptibility to its charms. When not only wild beasts, but the trees and rocks on Olympus were said to be enthralled and moved at will by his lyre, the meaning evidently is that human passions are especially amenable to the neuro-psychical influence of music. This mental attitude was still more strikingly illustrated by the story of the Argonauts and the legend of Eurydice in Hades. When Orpheus played upon his lyre, "the heart of Pluto relented and Eurydice escaped, the wheel of Ixion stopped, the vultures ceased to torment Tityos, the thirst of Tantalus was forgotten, and the goddess of death did not remember to call away the infant or the aged from sweet life."

In our prosaic days the language of fable seems unreal; but the positive assertion of the equivalent spiritual fact by the deepest thinkers attests the substantial truth it conveyed. Plato, Aristotle, Confucius, Shakespeare, Luther, Napoleon, Goethe,

Wesley, and Moody, out of a multitude of leaders of men, represent widely different types of thought, but are one in ascribing exceptional value and power to this art.

Confucius believed with his educated countrymen that music acts directly on the mind without the medium of thought. After listening to the compositions of Quei he refused to partake of food, and for three months would think of nothing but what he had heard. "Desire ye to know," he asked, "whether a land is well governed, and its people have good morals? Hear its music."

The Hindus esteemed music to be a creation of the gods, and called it god-compelling, the peer of prayer and sacrifice. The Ragas, or musical modes, had specific magical powers, constraining men, animals, and inanimate nature to obey them. One Raga could produce rain, another could eclipse the sun; one charmed serpents, and another, lions and tigers. All this signified the power of music over sentient beings, and especially upon human passions. Pythagoras enjoined its practice, since it purifies the soul. Plato gave music a high place in his Republic. He used terms regarding its civic value

almost identical with those of Confucius. Cicero thought him rather ultra in his Latinized saying, "musicorum cantibus mutatis mutari civitatum status"; which may be rendered, "change of songs changes states." Aristotle held that music acts on minds in a primary, the other ^{arts} acts only in a secondary manner.

The thousand-minded modern dramatist made susceptibility to music a gauge of moral sanity. Luther exalted it above all other arts, and called it the most magnificent present of God to men. Napoleon's opinion was that "of all the liberal arts, music has greatest influence over the emotions and is the art to which the lawmaker should give great attention." Perhaps it would have been well for him and for the world had he yielded more in heart and life to the "only art that can draw tears." Bismarck declared that German song was one of the chief agents in bringing about German unity. He said, "It was not the size of our army but its spirit that enabled us to conquer. For this reason I hope no one will in future undervalue the power of music in arousing courage and devotion."

The indescribable influence of some national

hymns in exciting the utmost bravery and enthusiastic patriotism has been shown on ten thousand battlefields. The Marseillaise has been the song of victory or of death for French soldiers a hundred years and more. "God save the Queen" has been sung even with their last breath by brave Britons on land and sea in every part of the globe, "A plain tale of plain men" in Matabeleland, an American journalist has truly said to be as thrilling as any saga of Odin and his heroes. A little band of Englishmen was entrapped by the wily Lobengula, with six thousand men against their thirty-four. When the last cartridges were in their revolvers they stood up in full view of their slayers, reverently bared their heads and sang their national hymn. Said one of the Matabele leaders afterward, "We were so amazed to see men singing in the face of death, we knew not what to do. At last we rushed. They shot us till the last cartridge, and most of them shot themselves with that. But those who had none left just covered up their eyes and died without a sound. Child of a white man, your people know how to fight and how to die." That was, indeed, "a crowded hour of glorious life."

Those men, adds the narrator of the heroic story, "had no reason to think, and did not think, that their death-song would ever be heard by other ears than those of their destroyers. Their deed was not bravado, but modest, loyal duty. But their voices will henceforth live in countless throbbing hearts, and their valor will make life and the world nobler to all their fellow-men."

The history of our Civil War cannot be written without a chapter on the part played in it, on either side, by the martial lyrics and songs of home, love, and patriotism called forth by the stern contest. A multitude of brave men on each side died for their cause and country to the strains of national songs or Christian hymns.

Of the Indian tribes lingering in the far West their faithful friend, Alice Fletcher, has written from full knowledge of their character and customs. She says, "There is not a phase of life among them that does not find its subjective expression in music. Song nerves the warrior to deeds of heroism, and robs death of its terrors; it speeds the spirit to the land of the hereafter, and solaces those who live to mourn. Children compose ditties for their games,

and young men add music to give zest to their sports. The lover sings his way to the maiden's heart, and the old man tunefully invokes those agencies which can avert disaster and death." Few, if any, other uncivilized peoples have shown such appreciation of music. At the opposite extreme of culture, the Teutonic nations carry their devotion to it quite as far, with all the added advantage of scientific knowledge and inherited artistic wealth.

Possible illustration of the benign office of music and its power for good in all times, nations, ranks, ages, and homes, would soon become, in any limited space, impossible of even reference or classification. Two special points may be touched upon. One has to do with its therapeutic agency, and the other with its religious function and value.

The Egyptians were first to indicate the medicinal qualities of music. They called it *physic* for the soul, and ascribed to it specific remedial value. The Persians were said to cure various diseases by the sound of the corresponding string on their lute. In their belief the soul is purified by music, and prepared by it for converse with the spirits of light

around the throne of Ormuzd. The greatest philosophers of Greece attributed to it high medicinal efficacy for body and mind alike.

In modern therapeutics, both scientific practitioners and charlatans have employed music as a healing agent. The bibliography of this branch of the remedial art is increasing in many languages. Theory has outrun scientific practice in this direction, although instances abound of benefit and cure from wisely adapted music. Any full medical library furnishes enough verified examples to warrant attention from the profession. In institutions for the treatment of insanity and idiocy the value of musical therapeutcy is well known. Saul, Clytemnestra, Haroun al Raschid, Philip the Second and George the Third were historical "cases" indicating at least the temporary benefit of such treatment.

Dr. Davison, in the *London Lancet* lays down the principle that the human organism tends to vibrate synchronously with music. Even with the softest strains the blood pressure rises, heart action and respiration quicken. Dr. Albrecht prescribed certain tunes as a diaphoretic, and it is a

matter of experience that some sorts of music tend to produce perspiration in either performer or hearer. Lichtenthal gives detailed accounts of cures wrought musically in cases of gout, sciatica, epilepsy, catalepsy, plague, delirium, convulsions, typhus, and even stupidity! Musical instruments, made of different kinds of wood, as, for example, of cinnamon-tree bark, have been experimented with in the treatment of various diseases; but here the limits of admissible theory are reached.

A French physician, Dr. Chomet, has written a book on the subject, translated under the title, "Influence of Music on Health and Life," which contains interesting facts and suggestions, based upon a false theory, derived from Lucretius, that musical sound is a peculiar ethereal fluid which acts directly on the parts of the human system at will. A learned Russian professor asserts that music is a powerful medicine of the soul, and that medical science will yet exploit its great therapeutic value. His belief is shared by not a few alienists and musico-medical writers. Sporadic use has long been made of this form of mental therapeutry, but its principles are imperfectly understood as yet, and

its results do not warrant scientific generalization. Nevertheless, it is beyond question that in music mankind has a potent agency for the restoration and maintenance of bodily and mental health. It may be that, in the near future, science will utilize its power for the healing of mind and body, and the healthful discipline of both in an intelligent way. The next chapter will illustrate this branch of the subject at some length.

Of the sacred office and the incalculable value of music in the religious life of man, volumes would be needed even to sketch the story. It was the first-born of arts, and was doubtless early employed in aiding the approach of worshippers to their recognized deity or deities. Before men had a definite religion they lifted up mind and voice in adoration of the powers above them. Ever since, strains of religious music, rude and superstitious, or cultured and full of true devotion, have ascended from all lands on the globe.

Drum worship and the bell cultus probably sprang from the animistic belief in an invisible local spirit within the resonant object of faith. A similar in-

tent and consciousness of spiritual communion with the Author of the great gift of music, would be a wondrous aid to devotion in the musical forms it assumes in our day. Organ, harp, trumpet, and voice, employed in the ostensible service of religion, sometimes minister more to the æsthetic sense and to personal glorification than to the worshipful mood. The vibrational influence of nerve-reaction accounts for the immediate effect of music upon the sensorium and the physically impressionable side of the soul. But the history of sacred song and its instrumental attendant is too full of manifest spiritual power and blessing to be wholly explained by physiology. The physical action and the spiritual reaction are not equivalent. There is an ethical and religious increment far greater than any possible force contained in the vibration numbers of musical tones employed for religious purposes. A simple strain from a remembered hymn of untainted youth has sometimes melted a brazen heart, and reconstructed a wrecked life. To sum up the effect of sacred music in the history of the world's religions, and that of myriads of human souls that have been by its agency transformed, purified, refined, ele-

vated, and cheered on their way heavenward, would require a spiritual mathematics beyond human reach.

Christianity is the religion of spiritual song. It inherited a magnificent psalmody, but has given birth to an invaluable hymnology, and also to the new art of harmony to which modern music owes the greater part of its boundless wealth. Outside of Christendom, religious music has hardly shed the primitive animistic character of rhythmic noise, and children's songs are almost unknown. But the Christian religion found in music a congenial ally, ready to aid its progress in the individual heart, and in the world's history. The thought of God, of Christ and his cross, of the Christian graces, and of the immortal life, is entirely consonant with musical expression.

Hebrew psalmody and Christian hymnody have served as wings to bear the Gospel far and wide over the earth. Every upward movement of Christianity has been marked by a fresh outburst of lyric fervor which has added to it both expulsive and impulsive force. This spiritualized art element in

evangelism realizes Napoleon's motto, *Je remplace*, in that it drives out seductive evil by the higher joy and purer ministry of sacred song. Reformation and Revival have always owed a great measure of their power to its inspiring and truth-conveying aid. It has feathered the gospel arrow for quick flight to the hearts of sinning, sorrowing men. A clear gift of the Heavenly father to his earthly children, it has helped them mightily heavenward. Luther claimed none too much for good music. "It drives away the devil and makes men joyful. Through music one forgets all anger, impurity, pride, and other vices." ("She teaches us to be amicable, more modest, and more intelligent." "Music is a divine revelation. It is the language of angels in heaven, and on earth that of the old prophets.")

There was more than a symbolic suggestion of the universal religious potency of consecrated music, in the record of the dedication of the first temple at Jerusalem. The glorious Shekinah of Jehovah did not appear after priestly ritual or royal sermon, but "it came even to pass, when the trumpeters and singers were as one, to make one sound to be heard in praising and thanking the Lord; and

when they had lifted up their voice with the trumpets and cymbals and instruments of music, and praised the Lord, saying, For he is good; for his mercy endureth forever: that then the house was filled with a cloud, even the house of the Lord, so that the priests could not stand to minister by reason of the cloud: for the glory of the Lord filled the house of God."

After the Apostolic age closed, the first we hear of nascent Christianity is the responsive morning hymn of the persecuted disciples under Pliny's governorship. The long night of the catacombs echoed the same strains. Ambrose and Gregory, like new Amphions, built up the imperial Roman Church to the sound of their chants in the Greek modes exalted to Christian use. It was the hymns of Ambrose, not his eloquence, which conquered Augustine. Bernard, Savonarola, Palestrina, Luther, Marot, Wesley, and an army of hymning evangelists have since wrought greater things for Christendom than the exploits of those priestly trumpeters at Jericho, or of de Lisle with his Marseillaise. The Reformation spread and prevailed very much as its hymnody was known by the people, so

that Cardinal Cajetan said of Luther, "By his songs he has conquered us." The "infectious frenzy of sacred song" was a whirlwind force with which emperors, battalions, and the Inquisition itself grappled in vain. It is related that "when bloodthirsty crowds could not be quelled by John Wesley's coal-black eye, nor by Whitefield's imperial voice, they were known to turn and slink away when the truth was sung at them in Charles Wesley's hymns. Their ringleaders more than once broke down under them in tears and groans of remorse. They took the preacher by the hand, and went his way with him, arm in arm, swearing by all that is holy that not a hair of his head should be touched." The part which gospel lyrics have had in subduing the half-wild animal natures of American pioneer settlers, slum dwellers, and Belleville *ouvriers* is well known. Missionary work in all quarters of the globe would lose one of its most pervasive and persuasive forces if Christian propaganda were musically dumb. An incident which occurred in New Guinea not long since will serve as an illustration of the possible power of this agency. A party of native evangelists went to the territory of a cannibal

tribe to Christianize their dreaded neighbors. The heathen savages came out to meet them, and, after hearing the purpose of their mission, ordered them to return to their homes. The zealous but unarmed Christians could not consent to give up their apostolic task, and continued to tell their story and plead with their foes to hear of Jesus. But the savage heart was unmoved. The wild band brandished guns and clubs as though about to slaughter the brave messengers of the gospel of love. The missionary company knew not what to do, but with the spirit of martyrs ready to die, if necessary, as witnesses for Christ, they began to sing their Christian hymns. The sound arrested their enemies, softened them, convinced them of the unselfish motive of these friendly natives, and finally so wrought upon their evil hearts that they invited them to remain and teach their own tribe the new religion. The Holy Spirit aided the faithful ministry of those humble workers for Christ, and their enemies became their warm friends and followers of Jesus.

Music unlocks with magic key the silent forces of sacred memories, fond associations, and high

aspirations. Old men in the backwoods of the West have been known to weep like children at the long unheard singing of the Hundredth Psalm. It brought back their early home, the happy days of youth, and a thousand sacred recollections, and also stirred the slumbering religious sense deep down in every soul. But this subtle influence of association can no more wholly explain its profound effect on the turbid deep of human souls, and on whole generations of men, than can mere vibrations in air and ear. John Henry Newman suggests the true reason in these words: "Can it be that those mysterious stirrings of heart, and keen emotions, and strange yearnings after we know not what, and awful impressions from we know not whence, should be wrought in us by what is unsubstantial, and comes and goes, and begins and ends in itself? It is not so; it cannot be. No; they have escaped from some higher sphere; they are the outpouring of eternal harmony in the medium of created sound; they are echoes from our home; they are the voice of angels, or the magnificat of saints, or the living laws of divine government, or the divine attributes; something are they besides themselves,

which we cannot compass, which we cannot utter, —though mortal man, and he perhaps not otherwise distinguished above his fellows, has the gift of eliciting them."

MUSICAL THERAPEUTICS

"Music that brings sweet sleep down from the blissful skies."

—TENNYSON.

"And for music the health-giver, what an untrodden field is there! Have we never known an invalid forget pain and weariness under the stimulus of music? Have you never seen a pale cheek flush up, a dull eye sparkle, and animation succeed to apathy? What does all this mean? It means that music attacks the nervous system directly, reaches and rouses when physic and change of air can neither reach nor rouse. Music will some day become a powerful and acknowledged therapeutic agent. And it is one especially appropriate to this excited age. Half our diseases come from disorder of the nerves. I point to a new vocation—the vocation of the Musical Healer."—H. R. HAWEIS.

CHAPTER IX

MUSICO-THERAPY

AN accumulation of interesting evidence touching the therapeutic value of music warrants an additional chapter at this point, illustrating the position assumed that the divine benevolence is by this means exemplified. It would seem graciously fitting, if not ethically demanded, that the Maker of an organism so "fearfully" as well as "wonderfully" framed as the human body, with its intricate and delicate system of nerves and brain cells, so adjusted that the least disturbance of their balanced action deranges psychic states, should also provide a neuro-psychic agency that would mediate among the disturbed relations with restorative potency. Such a benign influence is actually provided by the musical potentialities of the common air, through the vibrations communicated by it to the brain and nerve tissues. As indicated in the previous chapter, the fact that music has great value

in both exciting and calming the neuro-mental states, was recognized as far back in human history as anything like history goes. Trustworthy records of scientific observations in this interesting field, however, are limited to the last hundred years, and principally to the past twenty years. Recent experiments in various countries, undertaken by experts both medical and musical, furnish material for at least tentative induction as to the specific effect of music in different diseases. As would be expected, disordered conditions of brain and nerves, accompanied by more or less mental disturbance, have been found most directly amenable to its influence.

In the early part of the last century, Pinel and Esquirol, two distinguished alienists of France who made great improvements in the treatment of the insane, experimented with music as a therapeutic agent among their patients in the Bicêtre and the Salpêtrière, and with considerable success. Their immediate imitators overestimated the influence of music, and used it so promiscuously as to aggravate the condition of some of their patients. In 1824 and 1825 Esquirol adopted more system-

atic measures. He gave his personal supervision to the experiments, and carefully selected the subjects on whom they were tried. His observations led him to advise that with the insane the musicians should be few and out of sight. The music must be carefully adapted to each patient, preference being given to pieces that had been agreeable to the individual prior to his malady. While the mental affection was acute the effect would be uncertain; but with the convalescent music would be found of real value, if not too exciting. It was considered by Esquirol to be a complicated form of treatment requiring great medical care and skill, with some degree of musical knowledge.

An eminent Dutch physician, Dr. J. Petersen, writing upon the subject, says that the same music will have very different effects on different psychic states, and affirms that in all acute mental conditions music is contra-indicated. In more chronic forms of mental disease and in convalescence it frequently serves a beneficial purpose, inducing natural sleep and pleasant thoughts. In moral insanity, this writer says, it seems to produce no effect, except when the condition is the result of

education and environment. It is to be deprecated for children, neurastheniacs, and in acute stages of delusional and impulsive insanity. "For the rest, we may regard music as a valuable agent in particular affections, to employ the patient, to lead his thoughts into definite channels, to improve his disposition, and to control his will. Orchestral music comes into prominence in fostering mutual kindness of disposition, provoking a friendly cooperation and an interest in the patient's surroundings, and furthering the progress toward a better social bearing."

The great sympathetic influence of music when it coincides with temperament, is indicated in the following appreciation of it as a therapeutic means employed in Irish asylums, written by Dr. Drapes, an Irish alienist. "Nothing cheers these patients, or helps them forget their troubles in an equal degree to music. It transports them to another region for the time being, removes the cloud of depression, assuages grief, tranquillizes excitement, and rarely, if ever, produces the slightest ill effect. The position of music in the treatment of the insane is, and ought to be, a high one, and its importance can hardly be exaggerated."

A society, called the "Guild of St. Cecilia," was formed in London in 1891 to furnish trained musicians who would supply hospitals and infirmaries with music for the treatment of patients under the direction of physicians. Its members were to be ready to meet calls for such service at any time. Music-boxes and musical phonographs were also utilized. The plan included the hiring of a large central hall, in which there would be continuous music to be conveyed by telephone to hospital wards and sick rooms. It was under the leadership of Canon Frederick K. Harford, of Westminster Abbey. Queen Victoria was much interested in the experiment, and Miss Florence Nightingale gave the project her warm approbation. The efforts of the Guild were reported from time to time during 1891 in the *British Medical Journal*. Its editor expressed appreciation of the benevolent endeavor, but doubted whether the Cecilians would ever "charm away a tumor, or purge a tuberculous lung of bacilli." He said, however, that music, within its limits, may be a most useful handmaiden to medicine, and that in this age of 'nerves' it might play an important part in the prevention of

many diseases fostered by depression and fatigue. As a sedative and hypnotic, "its influence in calming the delirium of fever may be allowed, and of its real usefulness in certain forms of nervous disorder there can be no question."

Among the cases reported by the Guild's leader were the following: "First Group: one case of severe pain after crushed leg; one case of dropsy with great pain; two cases of mental depression. All kept quiet for half an hour while the music was playing, and the dropsy patient said that this was the first time she had been free from pain since she entered the hospital. Second Group: one case of melancholia; had not talked for two weeks. At the end of the 'Lullaby' she wanted it played again, and talked freely for several hours. Third Group: a case of delirium tremens, very violent. Became quiet after music began, later talked rationally, and finally discoursed on 'soothing harmonies.'"

Following this example, a St. Cecilia Guild was formed in New York for the same purpose. Lack of pecuniary support cut short the laudable undertaking in both instances. Musical treatment was

furnished for a time by the New York Guild for the insane patients in the Manhattan State Hospital on Ward's Island. Several years earlier similar experiments were tried among the insane on Blackwell's Island by Mr. J. W. Pattison, an expert pianist, and Downing's Ninth Regiment Band of forty pieces. It should be remembered that the physicians in charge were not musical experts, while the musicians were not trained scientific observers. The music tests were, therefore, necessarily crude and imperfect. A few representative cases are appended to illustrate the effect of the treatment on different phases and stages of mental aberration, together with the opinions of the physicians in control of the experiments. From the report of the fifth attempt on Blackwell's Island in 1878 the following cases are selected.

Case 1. Female ; in asylum five years. Chronic mania ; prognosis bad ; brought in violent. Beethoven's "Funeral March" played ; patient quiet and smiled, but after two minutes became violent again. Pulse 120. More "Funeral March," pianissimo : patient quiet again. Pulse 100. Lively music made her frantic, and the pulse could

not be counted. Total pulse change from 150 to 80.

Case 2. Female thirty-five years old; three years in asylum. Chronic mania; prognosis bad; brought in with straight-jacket on, violent and using profane language. A Chopin Nocturne played: result, stopped swearing, and talked sensibly. An Adagio of Beethoven: less nervous. Sent back without straight-jacket.

Case 6. Female, thirty-two years old, three years in asylum. Chronic mania. All kinds of music made her intensely religious. At present attempt, she immediately fell on her knees and began to pray loudly. This made her prognosis good.

Case 7. Female, age thirty. Incurable melancholia; automatism. First dose aroused her; second made her more intelligent; third dose, she became affectionate; at fourth, she was exalted and talkative. Remark: "Fine case."

Case 8. A dement of long standing, who became quiet after the "Rhapsodie Hongroise" was played.

Case 19. Became quiet after hearing "Cradle Song."

“Conclusions. (1) Instrumental music has in some cases a temporarily good effect, which varies according to the temperament of the patient. Music tranquillizes the violent, soothes the nervous, and makes the stolidly melancholiac chatty, cheerful, and disposed to weep, the latter being regarded as a sign of improvement. (2) In all probability, these effects of music may be made permanent by continuous treatment adapted to individual cases, and administered in properly regulated doses.”

In 1900, another experiment was made at the hospital on Ward's Island, when eighteen cases were treated, eleven of acute mania, and seven of acute melancholia. The treatment covered a period of two months, with five seances each week. This company of extremely demented people could not be called a favorable class of subjects for musical therapy. Two of the patients most happily affected by the treatment are thus reported:

XIII. An exaggerated case of agitated melancholia. Was looked upon as a favorable subject, well educated, and of refined habits and manner. Was deeply affected and appreciative from the beginning. Lively music, such as familiar marches

and the like, always cheered her to smiles. The effect was generally lasting. Rapidly improved and has since gone home.

XIV. A case of acute mania; considered favorable. Music of a quieting nature always had a sedative influence on her. She soon became attentive and interested in all kinds of music. Has since recovered.

“Conclusions. (1) That music is a powerful agent in affecting the emotions of some of the insane. (2) To get this effect, it is necessary that the patient have a natural love for music, as otherwise her sympathies cannot be reached in this way. (3) The quality and character of music have to be regulated to suit the natural preferences of the patient. (4) Melancholia seems to be best suited to this kind of therapy, since the attention of the patient can best be arrested by sound vibrations. (5) In cases of mania, simple, slow, dreamy music is best adapted.”

“Observations. (1) Pulse, respiration, and bodily temperature usually increased in nearly all cases. (2) Bodily nutrition greatly improved in large majority of cases, three-fourths showing a marked in-

crease in weight. (3) After musical treatment, patients were less disturbed through the night, showing that the calmative effect was at least prolonged for some time."

"Calculations. (1) Recovered, 38.88 per cent. (2) Improved, 33.33 per cent. (3) Unimproved, 27.21 per cent. (a) Benefited, 72.21 per cent. (b) Not benefited, 27.76 per cent."

The recent experiments of Doctors Bond and Monette under the oversight of Dr. E. C. Dent, the Superintendent of the Woman's Hospital on Ward's Island, seem to show the value of the color treatment for the insane, the fundamental principle of vibrational influence being the same with that ruling in musical therapeutics. Patients are placed in rooms painted in one or another of the primary colors, according to the type and stage of their malady, and they generally manifest the favorable effect of the color environment. The black room is used for cases of acute mania. The patient placed in it, and thus removed from all aural and visual disturbance, usually soon becomes quieter. Red, with its high vibration frequency, is employed

for subjects of melancholia. From the red room they are removed to one in deep pink, then to one of a flesh tint, and, finally, to a white room. A less number of hours need be spent in the color rooms as improvement results. The Report for 1902 expresses doubt concerning the efficacy of this treatment in chronic melancholy, but attributes a good influence to the color environment combined with quiet and isolation, in soothing the perturbations of mania, and diminishing its intensity. Phototherapy is a new development of the same general principle. Whether the cure of lupus, tuberculosis, and other diseases by the concentration of light rays is the effect of a chemical or of a mechanical process, the healing cause is at bottom a matter of intense vibrational frequencies.

The principle of establishing cerebral equilibrium by the effect of vibrations communicated to the brain from the ether and the atmospheric air, through the optic nerve, or the tympanum and its interior channels of sound, would appear to be valid as to both senses. The actual results of the musical treatment of patients in the institutions above named indicates a similar therapeutic po-

tency more marked than those obtained under the color test.

In perhaps every large institution for the insane in the United States music has been found a valuable auxiliary to other forms of treatment, and positive cures have sometimes been apparently wrought by its means. The cost of this "most expensive kind of noise," and the practical difficulty of a continuous and thorough application of such a method of treatment in the present incomplete understanding of musical therapeutics, limit its utility in actual practice. Several superintendents of hospitals and asylums for the mentally diseased have kindly given their opinion as to its value. The following are fairly representative.

Dr. Samuel B. Lyon, Medical Superintendent of the Bloomingdale Asylum at White Plains, N. Y., writes: "So many different means are used in hospitals for the insane to interest and divert patients, and to substitute healthy for morbid ideas, that it is hard to assign the relative value to each one. That we value the effect of music on our patients is evident from the fact that we maintain an orchestra of

eight or ten pieces, composed of our medical attendants, and also that we have distributed a number of pianos about the house. We have regular musical entertainments at frequent intervals, and we encourage patients who have musical talent, or who have cultivated the art in the past, to take it up while they are with us. We can all appreciate from our own experience the cheering and soothing effects of certain kinds of music, and no doubt the same influences are exerted upon persons whose minds are abnormally excited or depressed."

Dr. G. A. Blumer, Superintendent of the Butler Hospital, Providence, R. I., says, in reference to a brilliant paper prepared by him when connected with the Utica Asylum, and since published in the *American Journal of Insanity* for January, 1891, "I still have faith in music as mind medicine, but the enthusiasm of my paper is, I fear, not quite borne out by the facts of general experience. All we can say concerning it is that it is one of many important agencies in the moral treatment of nervous and mental invalids."

Dr. Charles W. Pilgrim, Superintendent of the Hudson River State Hospital at Poughkeepsie, N.

Y., also testifies: "I have always believed in the good effects of music upon nervous patients." As chairman of a committee on the maintenance of musical organizations in State hospitals, he says in its Report: "There are so many obvious reasons for the maintenance of bands in the hospitals, where they can do so much for the sick and feeble, that it is unnecessary to recount them. In our opinion, there is nothing that can give so much pleasure to the patients, or add so much to the reputation of a hospital, as the maintenance of a good musical organization."

When systematic and long continued experiments with this therapeutic agency have been made under skillful scientific supervision, there will doubtless be more considerable and more definite results reported. Enough has already been learned of its efficacy in the treatment of the nervously and mentally diseased to warrant farther investigation and wise experimentation.

The idiotic are peculiarly sensitive to musical sounds, and are intensely fond of music adapted to their condition, therefore they are especially benefited by it. In institutions for the imbecile on both

sides of the ocean results of positive value have always attended the use of instrumental music. The stolid are mentally awakened, the morose are mollified and humanized, and in some instances the abortive soul comes to its real birth and a life among men. If the human soul have a value beyond all material estimate, an agency which, like music, can almost create a spiritual personality, must be held to have a divine origin and purpose.

A contribution to the "therapeutics of the emotions" worthy of attention from students of the subject has been made by a specialist in nervous diseases, Dr. J. Leonard Corning, of New York City. An interesting account of his treatment of various classes of nervous invalids is found in the *Medical Record* of January 21, 1899. The principle on which it was grounded is that of the revivability or rejuvenescence of the emotions along strictly physiological lines.

"The rhythmic concatenation of sound which we know as music," Dr. Corning observes, "is capable beyond all else of achieving the revival of the affective memories. But its relation to the feelings

does not stop here, for, as Ribot justly remarks, 'while certain arts at once awaken ideas which give a determination to the feelings, this of music acts inversely. It creates dispositions depending on the organic state and on nervous activity, which we translate by vague terms—joy, sadness, tenderness, serenity, tranquillity, uneasiness. On this canvas the intellect embroiders its designs at pleasure, varying according to individual proclivities.'” To avoid the arbitrary influence, especially of a depressing character, exerted by music upon nervously disturbed minds in a wakeful and self-conscious state, the plan was adopted of utilizing musical vibrations just before and during sleep, supplemented by the employment of chromatiscope figures as sleep inducing. The theory was that the soporific effects of music are produced by vibrations imparted to the brain itself through the intermediation of the acoustic apparatus. “When later,” Dr. Corning says, “I glanced through the meagre literature touching this important question, I found that the essentially physiological view was held by a considerable number of writers, notably by Buccola, Boudet de Paris, Vigouroux, and Mortimer

Granville, whose researches, one and all, go to show that music acts ultimately as a species of vibrative medicine. If this, the scientific view, be accepted, it follows that in so far as the ultimate material effect of music upon the central nervous system is concerned, the participation of consciousness is not essential."

Acting upon this theory, Dr. Corning devised an apparatus for communicating definite musical vibrations to the brain at the will of the operator. An acoustic helmet was made covering the entire head, but leaving the face exposed. This shut out other sounds from the ears except those intended to reach the tympanum. Over openings against the ears in this helmet-like hood were placed metallic cups connecting by rubber tubes with an Edison phonograph placed on a shelf or in an adjoining room. After the patient's power of attention had been diverted and exhausted by looking at a bright object on a screen rapidly revolved and illuminated by a hidden light, in the drowsy state thus produced "the musical waves of sound surging into the labyrinth and onward to the sensorium produced effects indescribable. . . . From

the far-reaching nature of the psychical effects of music it is evident that the cerebral areas both directly and indirectly influenced by such vibrations must be extensive. When allowed to produce its full effect, this vibrative treatment is capable of mitigating a number of troublesome symptoms by which melancholiacs, neurastheniacs, and other neurotics are burdened. . . . After prolonged and numerous trials, I have become convinced that here, in this untrodden field, we have spread before us a host of new opportunities, not of theoretical acquisition merely, but of substantial achievement in the realm of the tangible and useful." A number of instances of decisive improvement under this form of treatment are given in detail, with the injunction that it be considered only an important adjunct to purely medical resources already known.

The *Académie des Sciences*, of Paris, has recently deemed the treatment of disease by music worthy of experimental investigation. Electric currents interrupted according to musical rhythm were utilized. A rhythmical contraction of the muscles was thus produced, responsive to the rhythm em-

ployed, whether of waltz, jig, or solemn music. This agency, combined with mental suggestions, was found to have specific effects in nervous diseases. As with other experiments of the kind made elsewhere, respiration and circulation were increased by lively tunes and discords, but were diminished by *rallentando* and *diminuendo* passages.

The *London Lancet*, perhaps the foremost medical journal in the English language, has followed experiments of this kind with careful attention for twenty years. In 1886 (xi, p. 755) it says, "Music influences both brain and heart through the spinal cord, probably on account of music being vibratory or wave motion, which stimulates the nerve centres. . . . The idea of 'mind' must be eliminated, and only physiological action on tissues considered, or else a clear scientific idea cannot be obtained." In 1888 its editor says, "Music acts as a refreshing mental stimulant and restorative. Therefore, it braces depressed nervous tone, and indirectly through the nervous system reaches the tissues. It is of most use in depressed mental conditions." A recent volume of this jour-

nal contains the matured opinion that "the value of music as a therapeutic agent cannot yet be precisely stated, but it is no quack's nostrum. It is one of those intangible but effective aids of medicine which exert their healthful properties through the nervous system."

The same journal describes the "ergograph" of Professor Tarchanoff, an apparatus for measuring the effect of musical vibrations on the body, as giving results of decided scientific value. By means of this sensitive indicator it is proved that tired muscles regain their strength under the influence of music, although sad music has the opposite effect. Tarchanoff's theory is that "the voluntary muscles being furnished with excito-motor and depressant fibres, act in relation to music similarly to the heart; that is to say, joyful music resounds along the excito-motor fibres, and sad music along the depressant or inhibitory fibres." The St. Petersburg scientist concludes, after rigid experimentation, that "music may fairly be regarded as a serious therapeutic agent, and that it exercises a genuine and considerable influence over the functions of the body. It is a good antidote to

the pernicious habit of introspection and self-analysis."

The ancients had much greater faith than the moderns in the efficacy of music as a curative agent in disease of every kind, while the modern scientific mind demands a degree of evidence which history cannot furnish for asserted cures by this means in the earlier days of man's life on earth. The psychical power of melody and harmony over the sick has always been noted, even in some organic diseases. Music exercises a double influence upon the body, directly by means of vibratory motion, and indirectly through its powerful effect upon the mind. To which of these its reputed success in traumatic healing is to be ascribed, scientific judgment must decide. Theophrastus affirmed that wounds and snake bites were cured by music in his time; but his assertions cannot be verified at so distant a day. The following account, however, is taken from a reputable journal of recent date. If as true as interesting, music might possibly be thought a real vulnerary.

"A man was conveyed to a hospital in Paris suffering from an accident which resulted in a serious

wound. This wound refused to heal, and all the various treatments applied to it failed to effect the desired end. The man was attacked from time to time by violent paroxysms, and death appeared certain. At length the surgeon enlisted the services of a good violin player and treated the sufferer to a musical remedy. The patient's paroxysms ceased, and from that time the wound began to heal. The violin playing was continued at intervals till recovery was assured.

“In another case the wound continued to suppurate despite all that could be done. The violin was called into requisition in this instance also, and the instrument was played close to the injured part, which was bared for the purpose. The surgeon soon observed a change. The wound assumed a healthier appearance, and the process of healing began and progressed rapidly.”

Vibratory treatment, however, has been thoroughly tried in the case of open wounds, by the use of large tuning-forks and musical instruments, but without effect. It may, therefore, be concluded that the reported cures in the Paris hospital, if as stated, were caused by the influence of the mind,

excited and cheered by the music, over the morbid condition of the body, or, perhaps, by some favorable change in conditions. Even if so, music might have part of the credit.

Entirely within the limits of observation and experience is the great utility of right vocal culture in disordered conditions of the throat and lungs, and in improving the general health. Whether its efficacy is of a chemical or a mechanical character, its value is indisputable. The practice, also, of deep breathing of pure air, if possible, demanded and fostered by vocal music, is invaluable as a means of health maintenance and improvement. It is deemed by some a panacea, and it has no uncertain spiritual analogies. Singing is a most healthful exercise for body and mind.

The musical city of Boston ought to furnish well-prepared soil for the growth of the healing plant of song. In fact, the good seed has sprung up there and borne fruit of promise. An Easter and Christmas musical mission in the hospitals is productive of much benefit as well as great pleasure to their inmates. It has been noticed

that in some of the smaller ones, where the Sisters in charge sing to the patients every evening, a less amount of opiates is needed to quiet them for the night. A cultivated musician of altruistic bent, encouraged by her influence in cheering and even healing the sick, has issued a professional card offering to use her gifts for invalids in hospitals or at their homes. The "shut-ins" especially enjoy her ministry of song. Her theory is that music is harmony, and harmony is order; therefore, music appeals to the principle of order, and thus counteracts the disorders of body and mind which are the causes of sickness. A kindred theory affirms that every individual has a constitutional key-note, which responds to music harmonious to itself, as an edifice trembles to sounds in its particular key. Hence, health of body and of soul may be promoted by properly adapted music.

The experience of those who have been much among the sick and wounded in military hospitals during actual war, confirms belief in the value of music as both a moral and a physical power of untold influence for good to the lonely victims of battle or of disease. Mrs. Mary A. Livermore,

known and honored for her benevolent labors in behalf of the soldiers in the Civil War, organized a corps of singers among the nurses, who were sent for in every direction to sing to the sick and dying in their hardest conflict with the insidious foes to life and health, nostalgia worst of all.

When musical culture has become universal, and the advanced races of men have returned to classic and Christian simplicity of living, it may reasonably be expected that the therapeutics of music will have a broader basis and more responsive material to operate upon. Sufficient facts, however, are already within reach to show that here is an agency of no small power and value in the treatment of human ills of many kinds, and especially in ministering to minds diseased. Music is a fitting medium of grace through which a sympathizing Creator might conceivably, and even probably, communicate a healing force to bring comfort and cure to the myriads of his sentient and suffering creatures on earth.

NOTE.—Increasing attention has been paid of late by both medical and musical writers to the subject of healing by music. Among other articles is one of special interest in the *Arena*, for March,

1901, by Mr. Henry W. Stratton, on "The Key-note in Musical Therapeutics." The general principle is expressed in this way: "Music is the health, and noise the disease, of sound. Music heals by substituting its own state of harmony for the state of mental and physical inharmony called disease." Every organism has its key-note, which makes the individual organism respond to sounds of coordinate degree. Hence, find the key-note of the human individual, and suit the musical remedy to the particular case. All food is nutritious, but only certain foods are adapted to certain persons, or to disturbed bodily conditions. Not all medicines cure every disease, but only remedies carefully adapted to the individual case. So music should be wisely selected and skillfully applied to render it a useful therapeutic means.

Another article by the same writer in the *Arena* for February, 1902, entitled "Music and Crime," brings together valuable evidence from many sources to prove that the ethical influence of music, both educational and remedial, is of great social importance. Besides facts and opinions from various quarters worthy of attention, the following theory is advanced by the chaplain of the House of Correction, South Boston, Massachusetts, which has a bearing upon physico-mental therapeutics by the agency of music, as well as upon its undoubted ethical and social utility. Chaplain S. S. Searing gives this as the conclusion he has arrived at as the result of much experience with the younger criminal class:

"I think that knowledge of correct musical intervals and the intoning of these intervals assist the mind to regain its lost sense of harmony. I believe that all our thoughts are intervalled, so to speak, according to the laws of music; but when the mind is abused by wrong thinking, our thought-intervals become distorted; that is, they become sharpened or flattened. The singing of correct musical intervals sets the mind into right moral grooves, and restores its equilibrium. Music should be applied more systematically to vicious children."

DESIGN IN DESIGN

“Now it cannot be that music has taken this place in the deepest and holiest matters of man’s life through mere fortuitous arrangement. It must be that there exists some sort of relation between pure tones and the spirit of man, by virtue of which the latter is stimulated and forced onward toward the great End of all love and aspiration. What may be the nature of this relation, why it is that certain vibrations sent forward by the tympanum along the bones and fluids of the inner ear should at length arrive at the spirit of man endowed with such a prodigious and heavenly energy, —at what point of the course they acquire this capacity of angels, being up to that point mere particles trembling hither and thither —these are, in the present state of our knowledge, mysteries which no man can unravel.”—SIDNEY LANIER.

CHAPTER X

DESIGN IN DESIGN

"THE history of music is a history of design." Undesigned vibrations, sounds without order, are noise, not music. Every note in a musical composition is where and what it is because it is meant to be so. Shall men be free, within law, to work miracles in the realm of sound, and God be shut up to an acoustic chaos, forbidden by his own laws to direct finite minds and worlds toward any rational and beneficent end ?

There are machines that act with seeming intelligence swifter and more accurate than that of most men. The automatic screw cutter is infallible up to the fifty-thousandth of an inch. The forge lathe is called by mechanics the "iron calculator," because it turns out the most gigantic tasks with invariable accuracy. Such marvels of mechanical art are instinct with purpose. Inventive genius and constructive skill intended them to do their wonders of

exactitude, and they do them just because they were meant to do them. No design in the universe? This intricate art of music with its rigid perfections of law, its composite adaptations and correlations, and its magnificent outcome, is it without any purposed structure or designed end of blessing? It would be far easier to see in American machine tools an automatic evolution of unconscious, unwilled forces, than that this most complex of arts with its spiritual involutions and beneficent influences, should have no ultimate genesis other than accidental tremors in the original, homogeneous ether.

The scheme of creation by evolution throws no obstacle in the way of initial or continuous design in the making of a universe. Darwin said with positiveness, that his theory required more teleology than it displaced. This assertion is verified by the musical constitution of things and minds, which absolutely demands in its authorship distinct purpose, both scientific and benevolent. Music is one of the most conspicuous proofs that the Creator of the universe is a Being of mathematical, æsthetic, and altruistic attributes. The idea that such a

Mind could work with no intelligent or benevolent intention is irrational. Clerk Maxwell's saying: "I have looked into most philosophical systems, and I have found none that will work without a God," might be made specifically as to the æsthetic laws and facts of the universe. Atheism could find some excuse in a dumb or ugly world; but, in one filled with melody and harmony, to deny God any part or purpose in their existence, is a crime against art, logic, and the law of gratitude.

It is true that causality does not prove finality. Forces might be conceived to act in straight lines and within narrow limits so accurately as to give the appearance of unconscious design, if the two words do not kill each other. But it is more in accord with the natural working of minds like ours to see purposed ends in results of such a character as those attained by music, than it is to imagine a pseudo-immanence of finality directing a system of sounds so complicated, perfectly adjusted to the rest of the universe, and with spiritual implications of incalculable significance. By the theistic theory, the strain upon either reason or faith is immensely less. But leaving the general argument in the

hands of specialists like Janet, Harris, Diman, and Flint, it will be enough for the present essay to indicate a few points at which the facts and philosophy of music confirm the theistic view.

The mathematical character of the laws that govern the universe in all its parts, is the most impressive feature of current scientific conceptions of the processes of nature. Modern science echoes early Greek philosophy. Number rules all. Gravitation, the stellar orbits, chemical combination, in fact all the transformations and manifestations of force admit of precise numerical expression. "Each color in the rainbow that spans the arch of heaven and makes the heart leap up, is due to a certain number of vibrations within a given time, and so are the long-drawn notes of the organ that uplift the soul in praise, or the varied accents of the human voice. A crystal is frozen geometry, and the tiny feathers in the wings and tail of the humming-bird are all numbered."

But number, reasoned, organized, correlated, presupposes mind and will. The quasi-thinking ma-

chine works out only the mathematical thought put into it by inventive and constructive mind. When we find the fundamental laws of vibration, which govern "the deep pulsations of the world," working with a complex accuracy comprehensible only by the use of the higher mathematics, the necessary inference is that they were intended so to work. A single musical note with its component overtones sounding up the acoustic scale, like an audible spectrum, every step prescribed by strict mathematical law, leads the mind upward to the Great Mathematician. Some ears cannot perceive these higher notes that accompany each primal musical sound, as Tyndall's comrade could not hear the shrill call of certain insects plainly heard by him, though this did not cause either to doubt their existence. That minds accustomed to look only at second causes and their scientific relations, seem unable to take the logical step from facts presenting plain evidence of mathematical thought to a Thinker planning and executing his works in invariable mathematical sequences, cannot be permitted to annul the rational inference to this effect. The greatest philosophers of old and most plain

thinking people of to-day agree in arguing from number to a Numberer.

The complicated mathematics of music do not begin to explain its spiritual secrets, yet, by themselves, and still more when taken along with the geometry of the heavens and the mathematical ordering of everything in the universe, they do foster, if not compel, belief in a Supreme Mind thinking and acting with infallible accuracy toward reasoned results. The soul of music is not an æsthetic Frankenstein to be created out of acoustic material according to scientific formulæ; yet its highest inspirations and most aerial flights are subject to mathematical law. The musical theoretician does but discover and follow the logical steps in the divine thinking. If the history of concrete music is, in Parry's phrase, the history of human design, its mathematical constitution, on which the whole art and science rest, much more certainly proves a divine Designer.

What, now, is the significance of the fact that the æsthetic element in musical compositions and the incalculable power they exert over the human soul

have never been scientifically accounted for? Helmholtz, Hauptmann, Hanslick, and later writers of musical and philosophical authority pronounce the problem apparently insoluble. The easy Spencian method for disposing of it does not convince such minds. The great composers have often thought themselves inspired from above. By the weakest supposition, the æsthetic content of any music worth the name is a non-material factor, of ever-changing form, and affecting the spiritual faculty in man with a direct, deep-reaching influence. It is not a coldly reasoned or deftly manufactured product. Still less can it be explained in terms of physics, as solely the effect of skillfully managed aerial vibrations acting mechanically on ear, brain, and nerves. It is too immaterial, mysterious, and spiritually powerful to be a merely physical phenomenon. Music has every appearance of being, or of exercising, a spiritual force, intended as a medium of communication between spirit and spirit, between God and men, and among men.

Reasoning from effect to cause is legitimate in this instance. Whatever the origin and nature of the tone-creating agencies, the æsthetic force devel-



oped by them produces on mind and heart such profound and lasting effects as to warrant the belief that these effects were purposed. If induction ever proves design, the history of music, religious, educational, social, and moral, in promoting the well-being of men in all ages, ought to lead to this conclusion. The abuses of the art cannot nullify the force of the induction any more than in the case of religion itself. Man was made to be religious in a true sense, and his musical endowment was likewise meant to help him develop his nature in its higher and finer faculties. Dr. Chalmers spoke only the truth in affirming that "the power and expressiveness of music may well be regarded as a most beautiful adaptation of external nature to the moral constitution of man,—for what can be more adapted to his moral constitution than that which is so helpful, as music eminently is, to his moral culture?"

The development of music, as an art and as a science, strikingly illustrates the progressive principle of evolution and bears the same mark of tendency toward the perfecting of finite beings through processes that develop their own best powers. This tendency appears with the beginnings of variation

and differentiation. Death and sex were among its earliest helpers. Whatever the part natural selection has played in the history of development, its steady purpose, or result suggesting purpose, has been for betterment. Darwin often used language of design, as when he said in "Movements of Plants": "In almost every case we can clearly perceive the final purpose or advantage of the several movements." Tyndall, in the Belfast Address, asserted as a general truth that "the continued effort of animated nature is to improve its conditions and raise itself to a loftier level." Add to such utterances, by way of completion and contrast, words like those of the idealist author of "Phases of Thought and Criticism": "There is another and higher nature. It is the nature of a soul in which dwell order and method; which coordinates all knowledge; which recognizes the ideal; in which the good, the true, and the beautiful are cultivated each according to its nature and by its own method. It is the rhythm of a thoroughly disciplined intellect and a well regulated life. That dream comes to us all. If we do not realize that harmonious development to its fullest extent, we

should cultivate both the spiritual sense and the moral sense with care and assiduity." The corollary to be drawn for use in the present discussion is that the history of music illustrates the upward trend of evolution, and that its ministry is an invaluable aid in developing the spiritual ideal in the soul of man. It points toward perfection, and greatly helps in its attainment. It thus reinforces the argument for ethical purpose in evolution, adopting the method proved most efficient in the whole course of organic development.

The evidence for theistic design furnished by the universal presence and beneficent office of the beautiful in its myriad forms, gives great force to the specific discussion of this subject. Beauty, whether visible or audible, is the attempt in nature or by man to realize the ideally perfect. "The idea of beauty unfolded in its full significance discloses the idea of God." In its sensible manifestations it fitly represents the inevitable effort of a Perfect Being to body forth his perfections, and aid his creatures to attain their full measure of them.

In the Symposium, Plato describes in singularly

eloquent language what he calls the absolute beauty, but in terms which can be understood only, as he probably intended them, of a Supreme Mind possessing and radiating all perfections. The true order, he reasons, is to use the individual beauties of earth as steps along which the seeker mounts upward for the sake of that other beauty, which is beauty only, absolute, separate, simple, everlasting; which, without diminution and without increase, is imparted to the ever growing and perishing beauties of all other things. In communion with this pure, divine beauty man has hold, not of an image, but of a reality. If, in love of it and wedded to it, he brings forth and educates true virtue, he will be enabled to become the friend of God, and be immortal, if mortal man may. "Would that," asks the lofty minded philosopher, "be an ignoble life?" But the notion of a substance, infinite and perfect, worthy to be called absolute beauty, which, without consciousness, volition, or motive, communicates from its own unwasting mass something which pervades all lower forms of the beautiful, and makes them such, this, surely, is a figment of transcendental imagina-

tion. Only conscious mind can create or perceive beauty. The conditions, ground, and media of the beautiful, such as surfaces, angles, colors, tones, the air, the eye and ear, must be purposely arranged by mind filled with the love and knowledge of ideal beauty.

To recognize and enjoy this in any of its forms, is the exclusive perquisite of minds able to perceive and enjoy it. The causal link between author and percipient must be gracious intent. All human works having the beautiful as either the supreme or only a subordinate element, are the result of design. They exist and are beautiful because the artist or artisan meant them to be what they are.

The graver intends his polished surfaces and significant lines to be distinctly beautiful, yet nature excels his finest art. We cannot avoid the conviction expressed by the Duke of Argyle, that the endless variety of beautiful forms and etchings of shells had the same motive as that of the graver. The same is true of every art. Even the cave-dweller had æsthetic intent when he scratched the rude figure of a deer upon a piece of bone. Art

is the assertion of man's spirituality. It has been described as the infusion of his personality into dead matter. It is the overbrimming of that which is divine in him. This being true of man, how much more of his Maker, who is Creator of all that makes for beauty in the universe.

If we cannot reason from the prius of human art to a like motive in the divine Artist, we are left to intellectual anarchy. The world of thought is mere chaos, and beauty might as well not be, if this supremely admirable and beneficent cosmic fact has neither intelligent cause nor adequate end. Happy are those who not only appreciate the audible beauties of music, but also hear in it the kindly voice of their most gracious Creator.

The adjustments of nature to provide for music and its enjoyment give cumulative evidence of the purposive activity of a scientific, æsthetic, and generous Being at the causal fountain-head. The theory that these apparently designed adjustments are but the outcome of a continuous equilibration of internal with external relations, does not sufficiently account for the very complex result, with

its logical and interdependent connections. Immanent plan clearly indicates anticipative design. Intellect is in it. Goodness is manifest. The system as a whole, with its prophetic tendency toward perfection, is such as friendly wisdom would have planned. Chance variations and a Kilkenny struggle for survival could never issue in a cosmos crammed full of marks of scientific purpose and divine benevolence. Far more in accordance with reason is the theory of Leibnitz, that a "pre-established harmony" of interacting agents can alone explain the consistent and beautiful results observed in nature. The end proposed and attained does not belong to the nature of things, for quite a different universe might easily have come from the same elements. Final cause, in Hegel's definition, is a concurrence of independent agencies acting toward the production of a definite end. The actual universe has every appearance of having been planned to attain by the agency of independent yet converging forces, not the present wayside status, but such a condition as that foreshadowed in Christian revelation. Its Maker and Builder is not alone the God of things as they are,

but rather the God of things as they will be in the ever developing future.

An example or two from the realm occupied by musical sound will illustrate and confirm the position taken.

It is certainly significant that definite musical tone plays but a small part in nature, while by far the greater portion of the auditory apparatus seems set apart for the most minute discrimination of the pitch and quality of tones, and for nothing else. The human ear and throat are expressly adapted for song, which is an intellectual and spiritual event. The ear possesses a selective power that almost merits the epithet of miraculous, by which it is enabled to carry audible messages to the brain, there to be transformed into mental and spiritual experiences. In his standard work, "The Philosophy of Music," William Pole illustrates this truly wonderful fact in every-day audition somewhat as follows.

By the "law of Ohm" the ear refuses to recognize any sound-wave except of the simplest form. Imagine the task, it has to accomplish when over-

whelmed by the numberless mingled and conflicting sounds of, say, a promenade concert. The only means by which the hearing organ can perceive such a rushing tempest of sound-waves continually breaking upon the ear, is by the condensation and rarefaction of particles of air at the end of a tube about the size of a knitting-needle, forming therein a single air-wave so complex as to contain some element representing every simultaneous sound in the room. Yet when this wave action reaches the nerve tips, through the delicate tapping of the microscopic piano keys of the possibly twice twenty thousand Corti rods, the nerve filaments automatically single out each element, by itself, and convey to the conscious mind not only the characteristic notes of every instrument and class of voice, made such by their distinctive overtones, but also the quality of every accidental noise, the tramp of feet, the shutting of doors, the rustle of gowns, the plash of fountains, conversation, laughter, and sounds from the outside world. Each of these is reported to the mind as accurately as though it had been heard alone. If the "tetanus" theory of William James were correct, attributing the same

effects to successive instead of composite impressions on the hearing organs, the wonder would be no less.

In John Fiske's "Through Nature to God," the extreme complexity of sensation produced by a single musical tone is vividly described. On a violin sound the F one octave above the treble staff, and several thousand psychical states, he says, are produced which together make up the sense of pitch; also, fifty-five times as many psychical states which together give the sensation of tone quality; and, still farther, an immense number of psychical states which together convey the sensation of intensity. When the almost innumerable elements of a single tone impression are multiplied by the number of sensations present to consciousness in every successive instant of a concert or an opera, the analysis of either the acoustic or the psychic fact passes the grasp of even the most vigorous imagination.

Each sound in any such acoustic conglomerate has a definite effect upon the mind of every hearer, which differs according to his personality. Each person, also, has a similar selective capacity of

mental and moral choice, amounting to practical free-will, as to what sounds shall influence him and how. The psychical results of music, in little or in large, may determine the course of a life, the action of a community, the history of a nation, the type of a civilization. The songs of a people inspire and impel, while their laws may only compel or restrain.

Considering the numberless adjustments necessary in the simple act of hearing a single composite tone, then the inconceivably complex sounds of such a concert as supposed, and then the coordination of these with the infinitely more complicated relations of human life, does not the solution of the various problems involved that is offered by purely physical theories, seem almost childish ?

The factor of tonality in the government of scale relations furnishes a specific example of manifold adjustment for a controlling end, which strongly suggests purpose. This feature, as recognized in modern music, is the inherent tendency of melody and harmony to rest finally on the tonic as an acoustic corner-stone, or key of arch, or centre of gravity. This centripetal influence corresponds to

the attraction of gravitation that binds the stellar universe together, and makes planetary life possible. Its importance in a matured system of music is a comparatively recent discovery. Aristotle knew of it, as he had prevision of nearly all the universal truths of science. But it was lost sight of. For a thousand years ecclesiastical music ended, as it were, in the air. In the tenth century that inventive genius, Guido of Arezzo, supplied the lacking note at the base of the diatonic scale. But not till the sixteenth century did Palestrina, the genius of spiritual melody who "set Christianity to music," give to tonality its long waiting throne. Oriental nations with their half-developed musical systems have still to learn its full value. The music of the Occident may be too exclusively submissive to its sway.

Henry Mills Alden, in his suggestive book, "God in His World," expresses a correct estimate of this fundamental fact in music as illustrated in nature: "Gravitation—this restraint of nature—what knowledge have we of it? All but its mathematics escapes our analysis. It is the bond of unity and harmony in the universe. It is to-day what it was

when the morning stars sang together. It is indeed the tonality of that song continued. And it is in musical tonality, with its accord and inward obligation, that we have the nearest symbol of natural or spiritual harmony."

The theistic significance of this force in music, which binds all the notes of any complete scale to one basal centre, lies partly in its cosmic analogy to gravitation, and partly in its office of coordinating the scale relations. It supplies the unity in variety that is the central principle of art. It gives relative character to every note, makes modulation possible, and is the anchor cable that holds the melody and its precious freight of harmony from drifting upon acoustic shoals. That this vital fact in music could merely have happened, that it is only a *post hoc* in the course of unguided evolution, that it could have its office and power without creative reason or intent, is too difficult for even scientific faith.

THE ALTRUISTIC ART

“ Music, sister of sunrise, and herald of life to be,
Smiled as dawn on the spirit of man, and the thrall was free.”

—A. C. SWINBURNE.

Mario singing by the wayside to fill the hat of a beggar; Jenny Lind giving the best of her wonderful powers at every call of charity; de Reszke emptying his pockets to save an immigrant family of musicians from starvation, are examples of the generosity of those whose nature music makes responsive to human need.

“ Music leaves logic behind in the race toward sympathy and action; if it were not in itself noble and true, it would work great mischief in society. It abets reason, and only discloses its full power and works its mightiest results when used in the service of truth. Hence there is no music in nations and races that are without nobility of thought, and there is no truer test of the quality of a nation than its music. Bach and Haydn and Beethoven would be impossible in a nation that did not produce a Kant, a Schelling, and a Schleiermacher, and the former are as truly exponents of its character as the latter.”—T. T. MUNGER.

CHAPTER XI

THE ALTRUISTIC ART

THERE are two ways of learning the character of a personality, whether human or divine. One proceeds from concept to deeds, and compares the two. The other sees in actions certain qualities, studies their results, and reasons from these to the sort of character behind them. Music, as a universal fact and with a history fertile in definite results, invites to the search after God along both these paths.

The idea of perfect being is a necessary product of thought, as the mind inevitably rises from the physical to the metaphysical. A personal Being who corresponds to this conception will be not only structurally complete, but also morally perfect. And moral perfection demands and is compact of that self-forgetting, self-giving impulse which moderns call altruism, but of which the old, best name is Love. A divine Person, if such there be, will, by the impulse of his essential nature, plan and labor

to make all his sentient creatures, and especially his dependent children, happy in ways that benefit as well as delight. He will seek to purify, refine, elevate, and incite to unselfish action those whom he has formed in his own likeness, since true and lasting happiness can only thus be attained. Nothing in the original arrangements of the cosmos, except the family relations, so fully meets this demand of reason on a Creator morally perfect and able to make his creatures happy and good like himself, as does music.

“ Low in the Purple under us,
High in the Purple above,
That music weird and wonderous —
O Universe, whisper me whether
The key of it was not Love.”

Or, we might argue from the intrinsic qualities and verified effects of music that a fact and an art so spiritual, joy-giving, and morally potent must have emanated from a Creator who is pure benevolence, and who himself loves and makes music. In the search for its real nature, its origin, and its end, we should look to the mature art and its best results to furnish our data.

Each of these lines of argument starts from the primary psychological law of self-expression, which is instinctive. Mind must articulate itself, if not in material shapes, yet in definite thought-forms demanding audible or visible embodiment recognizable by other minds. By etymology, nature is that in the universe which is continually coming to the birth, externalizing itself. In the psychical realm personality will out. A benevolent Creator must express his essential character in ways fit and intended to make his creatures better and happier. This law of necessary self-enunciation applies to all intelligent beings in a degree corresponding to their faculties and powers. It is the source of art, the means of improvement, and the chief agency for producing like admirations, affections, and endeavors in other minds. The strongest social bond, it fosters reciprocity, and discourages self-isolation. True art is the expression of whatever is best in the soul of the artist. He is under inward compulsion to actualize his noblest conceptions, not merely to gratify the irrepressible impulse to incarnate his ideals, but also to impart to others something of his own joy in the beautiful.

Even more potentially than speech, music is probably a universal mode of self-expression. It is a cosmic fact and power. The morning stars caught the theme of creative goodness given out by their Almighty Maker, and the universe still rings with its developing motive. Earth, we may believe, is but a diminutive sample of innumerable worlds filled with singing flames and waters, melodious birds and insects, and, must it not be in other worlds than one, with intelligent beings capable, like ourselves, of taking the divine hints in nature, discovering the tonal laws of universal acoustics, and creating true music, antiphonal to that which springs from nature's heart.

The history of altruism in the natural realm began, it is said, with the self-dividing process by which the earliest infusoria multiplied their kind. This being so, fatherhood, motherhood, heroism, and vicarious redemption had their physical origin in the temporary self-sacrifice of the amœba for the sake of posterity. But we must go farther back for the fountain head of unselfish love. Care for others sprang eternal in the

heart of God. Creation was never the outcome of a selfish desire on the part of the Deity for mere self-realization, still less for self-glorification, but in the very act was included, as its central motive, the purpose to bless the objects of creative power. God does not so much love to create, as he creates to love. Hence, in the elementary arrangements of the universe the provision for music is involved in the cosmic laws of vibration. It is not irreverent to say that mentally, like skilled composers, or even audibly by causative will, God sings as he creates. The noblest music of earth seems but an echo of supernal strains.

The delight of most animals and many insects in musical sounds of their own or of human make, is an instance of the Creator's thought for the welfare of all his sentient creatures. A musician once lent his aid to scientific tests of the effect of various instruments upon the animals confined in the London "Zoo." The account given, in the book, "Wild Animals in Captivity," is interesting and suggestive. The fable of Orpheus and his lyre was turned into latter-day, scientific fact. The only animals entirely indifferent were the seals. Elephants, wolves, jack-

als, and foxes did not seem to enjoy the kind of music offered them. Almost all the other animals were more or less pleased, especially the serpent tribe. As a rule, the shrill notes of the piccolo annoyed, frightened, or enraged, while the flute soothed, or pleased. The violin suited the animal auditors best of all, which shows a fine appreciation. He who watches the sparrows fall has provided for his humbler creatures some share in the pleasure given by sweet sounds, an overflow, as it were, of his own joy in them.

Musical sound is defined by Hauptmann to be sound capable of being used as a means of expression. As a cosmic fact, music, whether potential or actual, is an outflow of the benevolence of an artistic Creator, in which some of his choicest attributes express themselves. It is incumbent now to point out ways in which this proposition may be proved by both the history and the philosophy of this art.

The ability to distinguish musical tones and intervals is practically ecumenical. German statisticians report as many persons naturally incapable

of tone perception as lack any other faculty, that is, about six or eight in a thousand. What this well-nigh universal æsthetic capability means for human happiness and welfare is beyond computation. Huxley was much impressed by it. "One thing," he said, "which weighs with me against pessimism, and tells for a benevolent Author of the universe, is my enjoyment of scenery and music. I do not see how they could have helped in the struggle for existence. They are gratuitous gifts."

The value of music as a means of individual culture and enjoyment is a matter of common experience. Its importance to the social nature and to social organization is at least equal. The gulf between souls widens with advance of knowledge and refinement. Humanity differentiates as it evolves. There is a solidarity of atoms, and among most animals, of a degree that has little counterpart among men. To bridge the distance between human individuals God has given the race various means of expression, and among them the art of music. What possibilities it contains as a method of future intercourse between souls, finer and more catholic than the rest, cannot be foretold. It may yet prove an æsthetic Volapük.

But the social value of music can hardly be overstated. There is a wholly beneficent communism appertaining to the art.

It is a blessing not always appreciated, that music, like all man's best privileges and possessions, is bestowed as a potentiality, not as a finished product. Men must mine, explore, experiment for it. They cannot "sing like a bird" without hard work, which the bird is entirely spared. The rudimentary and incomplete elements of music furnished in nature might seem a handicap to man's artistic career, but are in truth the best possible provision for compelling the use of reason and will. This arrangement is a prime condition of rational and æsthetic evolution. Both character and culture result. Insects drone, and hear but a few noises, and those at short range. Birds and beasts repeat the same notes from age to age. Their faculties run forever in narrow grooves. Before man opens the boundless universe of material, mental, and spiritual reality, and he is forever allured onward in the search for new truth, fairer beauty, unattained goodness. Growth and culture are gained in the pursuit of scientific knowledge or of artistic excellence, that

would be impossible if either came Minerva-like, full statured and equipped. A complete science of music, or a perfect symphony handed down from the skies, would be a more than doubtful boon. The necessary materials and organs, the æsthetic faculties, the craving for joyous expression, and the passion for progress are given man, with elementary hints in the so-called music of nature to entice to the search for a more adequate art of euphonious sound. Thus the music-loving mind is tempted and guided onward in the twofold path of melody and harmony, until it not only knows the ecstasy of consummate musical sound and form, but the artist becomes a creator, and shares God's peculiar joy of imparting pure and elevating happiness. The musician of every degree may also minister to minds diseased and to suffering bodies, as well as to the healthful enjoyment of all, young or old, in any land or season. The provision of such a therapeutic means, an unmixed blessing to the well, and a delightful remedy for the sick, is a clear indication of presiding goodness in the world. As a mental and moral discipline music takes rank with the most valuable educational means. Pythagoras under-

stood this, and the Greeks long maintained his quadrivium, in which music was one of the most important of the four branches pursued. Gymnastic and musical disciplines are again resuming their proper places in education. As yet, however, neither has been thoroughly adapted to its place and work. Music is still far too much a mere accomplishment, an unthinking recreation, or an exceptional adjunct to culture. It contains elements of mental and spiritual betterment, which, fully developed and utilized, would excel those furnished by any other single art.

Like all real art, music is an exacting mistress. It frowns on sensual indulgence, and turns its back on those who do not yield entire obedience to its behests. Consecration, industry, intelligence, and costly feeling are conditions exacted for its high rewards. The senses are thus trained to finest perception, the mind is made intent and retentive, and the side of the soul toward the invisible and infinite is rendered acutely sensitive. (Prophets and poets have always sung their loftiest messages in rhythmic if not melodic strains. Though the votaries of this inherently beneficent art often misuse its capabilities,

and abuse their own souls by making selfish enjoyment or gain their chief end, yet the generous element of self-donating devotion is the legitimate issue of music rightly pursued.

The primal source of music we have found in the essential nature of God, which is characterized by wisest love, perfect harmony, and holy beauty. Its supreme excellence is not so much the pleasure it everywhere gives in this world and, we infer, in all inhabited worlds, as the fact that it tends to reproduce the same qualities in human life. It is preeminently the Christian art. Except poetically, music is not "love in search of a word," but love in the act of expressing itself audibly for the delight and betterment of others. The beautiful, in Windelband's conception, is "the object of a completely disinterested pleasure." Right enjoyment of it robs no one. Like charity, like religion, it enriches the giver. The exercise of musical faculty is the forthgiving of very life. In it imagination, sensibility, understanding, and nervous energy harmoniously cooperate. Tonal beauty utters itself for immediate effect. It must please, or it is a failure. The purpose of the musician is to give

pleasure. Unless the artist is false to his art and his God, the ruling motive in all he does is so to please as to refine, cheer, and elevate. "Fundamentally altruistic," music has been pronounced by good philosophic authority.

Nothing in æsthetics or in Scripture forbids personal enjoyment of art, while activity in it imparts pleasure to others. The exercise of artistic faculties comes within the purview of the second great commandment, "Thou shalt love thy neighbor as thyself." Musical gifts imply the right to share their benefits with those who are in the neighbor's place, according to the ability of each to enjoy them, whether actively or passively. Dr. Van Dyke, in "The Ruling Passion," puts the twofold principle in a happy way: "He was selfish enough to want the pleasure of making everybody feel the same delight that he felt in the clear tones, the merry cadences, and caressing flow of his violin. That was consolation. That was power. That was success."

What endless comfort sympathetic and, also, contrasted music has given to the heavy-hearted children of earth! Camps, battle-fields, hospitals,

shipwrecks, pilgrimages, prisons, the stake, and the arena have witnessed its healing, cheering, conquering power. An example or two must suffice.

A medical writer, of musical intelligence and taste, relates that when death had laid his finger on the sensitive, restless, and highly poetic Chopin, he sent for his friend, the Countess Potocka, to assuage his death agony by her melodious voice. The heart-broken singer obeyed her master. The dying man came under the spell of her sympathetic tones; he forgot his torment, and fell asleep with a feeling of grateful comfort that such soothing had come to him from his beloved art in his last extremity.

Mendelssohn wrote to a friend that Madame Ertmann told him that, after she lost her last child, Beethoven shrank from coming to her house for some time. At length he invited her to visit him. She found him seated at the piano. Simply saying, "Let us speak to each other by music," he played on for more than an hour. "He said much to me," was the testimony of his bereaved listener, "and at last gave me consolation." Referring to

this incident, Mendelssohn said of himself, "Music is a distinct language, speaking plainly to me." Those who are sensitive to its accents and cognizant of their meaning, often find in its unworded messages inexpressible comfort. Even when the thought they bear is not literally comprehended, the sweet and tender tones themselves bring spiritual balm to the sad hearted. But the fitting words of psalm, or hymn, or sympathetic ballad, borne on the appealing strains of familiar music, have had a history of cheer and healing far wider than that possible to instrumental harmonies.

Hans Christian Andersen relates, in the autobiographical story of his life, a characteristic incident of Jenny Lind, and remarks that on this occasion only did he ever hear her express self-conscious joy in her great talent. She had become interested in a society for the aid of unfortunate children, and offered to give a night's performance at double prices for their benefit. It returned a large sum, and when she heard that she had thus helped a large number of worse than orphaned children, her countenance beamed, and tears filled her eyes. "Is it not beautiful," she exclaimed, "that I can

sing so!" "Through her," the author friend of unnumbered children adds to his account, "I first became sensible of the holiness there is in art. Through her I learned that one must forget one's self in the service of the Supreme." Music has with much truth been called the only unfallen angel.

The volunteer visitor among the prisoners in New York City who won the title of "the angel of the Tombs," spent two days in the death cell of an Italian murderess. She said afterward of this experience that she regarded it as the greatest achievement of her life, and described it in thrilling language: "She lay in my arms when she received the death sentence. I went to the prison with her. It was an August night. I stood at the barred window looking out. The only thing we could hear was the tramp of the guards. I felt dispirited as I watched the moon flooding everything. It seemed awful. Suddenly there came to me music. It was low and soft at first. Then I made out hymns. The choir of the prison was at practice. As the music came to me I knelt down by the girl, and I knew that if it would do any good I would

give my life for hers. Then I resolved that if I could save but one woman, my life would have been well lived." When Rebecca Foster was borne to her reward in a literal chariot of fire at the burning of a New York hotel, this memory might well have been a strong support in the fiery trial, and strains of heaven's own music doubtless greeted her as she entered the home of the Christ-like.

It would be impossible to compute the effect on character and life wrought by the ministry of music in lifting the selfish out of their narrow "prison of the soul," and displacing low thoughts and habits by the expulsive power of a disinterested enthusiasm of art. The results of popular choral classes and societies, like the Choral Union conducted by Mr. Frank Damrosch in New York City, furnish abundant evidence of its uplifting and refining influence. One of the most fruitful instances of the kind in this country was that of the work undertaken among the poor children of Chicago by Mr. William M. Tomlins, conductor of the famous Apollo Club. In an address made by request at the Parliament of Religions, he gave a most inter-

esting account of the experiment and its outcome. The narrative is worth somewhat extended insertion as well illustrating the topic of this chapter.

Mr. Tomlins began by speaking of the multitude of voices spoiled by wrong habits that might have been corrected in childhood,—a pertinent illustration also of the need of right moral training in youth. He determined to help the rising generation to better things in both respects. For nearly or quite a score of years he taught gratuitously several large classes of children, not from the avenues, but most of them from the alleys and poorer streets of the city. His immediate object was to train them to the right use of their voices. At first they were rough in manners and selfish in everything. But soon a better mind came to them through the influence of music taught in a Christian spirit. The children sang always and everywhere, at home and in the streets. Their characters gradually changed. Rude boys became gentle and helpful, wild girls, thoughtful and modest. Some went to the hospitals and sang. Others started little classes for their ^{see} favored companions. One boy established an "Old Clothes Club," to gather up worn clothing

and distribute it among the poor. Another issued a little philanthropic newspaper. With that spirit of helping others, a great blessing came to the children themselves.

Under its generous conductor's lead, the Apollo Club gave ten-cent concerts to the working people of Chicago, seventy thousand of whom attended them in four years. Then the same leader in artistic well-doing went to the musically gifted among his working-class audiences and said, "God has given you voices, and taught you to use them; why not sing to help your neighbors?" The appeal was responded to in the same spirit, and the results, ethical and æsthetic, showed a widely self-multiplying power for good. The address before that gathering of religionists from all parts of the world ended with these words: "It is my desire to show you that in art, as in religion, the lines all lead upward." The record of every such endeavor, undertaken in a kindred spirit, shows that the lines of altruistic art lead outward as well as upward, and inclose an ever increasing number of beneficiaries who in turn become benefactors, and so fulfill the essential law of Christianity. With a change of two

or three words these verses of a hymn express what should be the feeling of every musician :

Yea, we know thy love rejoices
O'er each work of thine ;
Thou didst ears and hands and voices
For kind deeds combine ;
Craftsman's art and music's measure
For thy service
Didst design.

Here, great God, to-day we offer
Of thine own to thee,
And for thine acceptance proffer,
All unworthily,
Hearts and minds, and hands and voices,
In our choicest
Melody.

THE SOCIAL ART

“The united action of the full chorus and orchestra is a perfect transcript, down to the last and finest particular, of perfected human society. The relation of voices and instruments to each other, the variety in harmony, the obedience to law drawing its power from sympathetic feeling, the inspiration of a noble theme, the conspiring together to enforce a mighty feeling which is also a thought—we thus have an exact symbol of the destiny of humanity.

“As in nature there is a resolution of forces by which heat becomes light, so emotion, of whatever sort, if intrusted to music, turns into joy. What alchemy is like this! We are moving on toward an age and a world of sympathy, and sympathy is the solvent of trouble. In some supernal sense, then, music will be the vocation of humanity when its full redemption is come. The summit of existence is feeling; the summit of character is sympathy, and music is the art-form that links them together.”—T. T. MUNGER.

CHAPTER XII

THE SOCIAL ART

THE pursuit of scientific truth is usually a solitary quest. It has as an ultimate end the greater good of the greatest number; but the search after the physical or the psychical secrets of nature ordinarily demands silence and entire devotion to the exacting task. Art is more social in its nature, its environing conditions, and its human aim. Artist folk are a sociable people. Their all-comprehending object, beauty, in one or other of its forms, has direct reference to hearers or beholders, to audience or spectators.

Music is essentially communistic. The "unchartered freedom" of the common air divides its wealth without partiality among all who have power to receive and enjoy. It does not even require the light of day or of lamp, nor the faculty of sight, to convey its benison to ears attent. The "stilly night" carries its message to mind and heart with

often an added freight of meaning. The visual arts have somewhat aristocratic limitations, though they, too, are vested with a democratic suffrage of the Athenian sort. But music has all times, places, and peoples for its own.

The ministrants of music's bounty are perforce compelled to pay regard to all who aid and all who receive. Their business and the laws of their art require united intention and attention, with reciprocal sympathy and cooperation, under penalty of excommunication by the benevolent despotism of acoustics. Play in time and tune, or be silent! Artist and artisan, composer and listener, all concerned in the realization of potential music must be in actual, conscientious agreement, if it is not to be strangled at its birth, or murdered afterward. The law of syntony exemplified by Marconi's invention, binds performer and hearer in mutual obligation, or the most exquisite music is given in vain. Many of God's best messages for the ear and soul of man wander on Herzian waves of the spiritual atmosphere, seeking, inquiring everywhere in vain, for hearts attuned to receive them. The saying, "He that hath ears to hear, let him hear," gains

greatly added force from the new revelations of acoustical law made by the science of our day.

This, then, is the democratic art. The laws of sound are the same for all. Vibration numbers are identical in every zone and land, and doubtless throughout the universe. Sounds at all pitches move at the same rate of speed in the same medium. Hence alone harmony is possible, and is the same for all ears. The same æsthetic principles must rule with all normal minds. They afford endless scope for differing conceptions, styles, and tastes, yet inhere in what may some time be found an exact science.

Racial and individual tastes divide mankind into temporarily opposing camps, but there is a growing internationalism of music that gives candid hearing to every school and style. The same masterpieces of tone poetry are enjoyed the world around by all who possess sufficient culture. The priceless heritage which Teutonic peoples possess in the great composers belonging to that stock, had no small part, if Bismarck was a competent judge, in welding together the German empire. A similar influence is visible in the history of other nationalities.

A truly American national hymn, without a trace or memory of sectionalism or race spirit, would be a powerful agent in perfecting the solidarity of our composite republic. It is, perhaps, a Providential incident that our commonly used lyric in praise of country and liberty is sung to a tune of foreign origin. The fact that its strains are possibly of German parentage, and furnish the national anthem of Germany, *Heil Dir im Siegerkranz*, and that they are also used around the entire globe to express the loyalty and patriotism of the subjects of imperial Britain, may be prophetic of a time not far distant when the splendid vision of Cecil Rhodes, of a peace-compelling Dreibund of three great nations of essentially common stock, will be realized. Music is to have an influential rôle in preparing the way for the hoped-for federation of mankind. Folk-songs were probably the first attempts of men to express the social feeling, and also to represent tribal, national, or racial characteristics. This function doubtless increased the "survival value" of musical peoples by giving them a sense of oneness, clan sympathy, and the beginnings of patriotism. Is it too much to hope for a

world folk-song, which shall be common to humanity, and shall keep alive the feeling of unity amid endless variety of race, nation, religion, and culture?

This noble art teaches the indispensable social principle of liberty within law. The laws of musical sound are exact and imperative. The loftiest genius that seems at times to make new laws for the art, is, nevertheless, subject to their sway. Yet, in either unconscious or conscientious obedience to them, the most original and inspired of artists find the fixed laws of sound an invaluable aid to ordered freedom. They are wings, not chains; at the least, they are beaten paths among the heights enabling him to ascend his mounts of vision, and descend to the waiting world with secure step, bearing great treasure. In nothing is the benevolent wisdom of the Creator more evident than in putting his creatures endowed with a goodly measure of free-will into a universe governed by strictest law. The system of universal order finds in music a most instructive analogue and a beautiful example. It has long taught men the beatitude of obedience, and will yet be a schoolmistress to help

them win social redemption. Music gives freest scope for individuality, while restraining independence within the bounds of self-mastery, essential alike to art and to society.

If the summum bonum of social organization is, as Spencer and Giddings affirm, the full development of the personality of social man, then society has in this puissant art an effective agency for securing this very end. Complete personality cannot be attained without reference and deference to society as a whole, and to the other members of it. Anarchy is social discord. Every man for himself, would be the same in principle as every instrument and voice for itself. The resulting acoustical chaos would aptly represent the social condition that would ensue. Prof. Goldwin Smith has been perhaps the only writer to insist on the universal teaching of music in schools for the young as a specific against anarchistic tendencies. It is a proposition worthy the attention of statesmen and educators.

Men will always be separated by intellectual conceptions. Charles the Fifth could not make his roomful of clocks tick together. The civilized world

has in good part learned the lesson his experience taught him too late. But feeling, fundamental human emotion, unites. One true touch of it makes the world akin. Mungo Park found quick sympathy from a heathen woman in darkest Africa, when a falling branch hurt his head. Telegraph and cable send nerve shocks of common pain to people in every land on the globe, when calamity has fallen heavily upon any of human kind. This is one fruit of Christian civilization aided by the inventions it has inspired. The Christ spirit will yet blend all human hearts in a sympathetic unity denied to the intellects of men. Music will mightily help on the good day when the law of kindness shall rule mankind. It appeals to the universal element in man's nature. This element, in its ultimate analysis, is the æsthetic susceptibility. By the derivation of the word, the æsthetic sense is perception by feeling, and the original verb meant to perceive by the ear. Thus music is the fundamental art, and touches all men in their common human feelings. Great music brings us very close together, soul to soul, without regard to accidents of birth, station, or other divisive

factors. All music which interprets the human heart, in a word, human music, is understood by people of all nationalities, all classes, and every grade of culture.

Democracy needs music to humanize, refine, and elevate it. Music of the right character will have this effect; but there is always need to discriminate, and to select only that which will benefit. Having such direct and subtle power over the emotional and sympathetic nature, and being so closely connected with the nerve centres in its origin and influence, it may easily leave the susceptible mind open to evil impulses. Therefore, time, place, kind of music, and company should be carefully chosen. The music of the home, the school, and the friendly circle has a socialistic importance even greater than that of the public audience room, or possibly, of the church.

The subject of the present chapter involves so wide a range of both theoretical and practical concern that it can be presented, in limited space, only in the way of suggestion. It opens up a vista of possible, and also probable, social achievement for the benefit of all mankind that should attract

thinkers and encourage practical effort. A passage from Mazzini's essay on the Philosophy of Music, forecasting the possibilities of the art, is appended as stimulating and suggestive.

“The power of Genius will be strengthened a thousandfold by a sense of the greatness of the social aim, the vastness of the means at its disposal, and the possibility of achieving an immortality to which none dare to aspire at the present day. It will ascend to heavens yet unexplored, and its unbroken harmonies and Raffaellesque melodies will present to us a reflex of the Infinite to which the human soul is born to aspire, and of which the starry firmament, woman, beauty, love, pity, the memory of the dead, and our yearning hope to rejoin them are among the thousand rays. Genius will solve the problem of the struggle that has gone on for thousands of years between mind and matter, good and evil, heaven and hell; and will elevate the social idea—for this is the true mission of Music—to the height of a religion; raise our cold, inoperative belief into enthusiasm, and enthusiasm into activity of sacrifice and virtue. Genius will recompense and console sacrifice by leading the spirit

through the musical expression of all the passions in an ascending series of sublime harmonies, wherein every instrument will represent an affection, every melody an action, every concord a moral synthesis."

THE RELIGIOUS ART

“There is a constant endeavor of man to relate himself with the Infinite, not only in the cognitive way, but also in the emotional way. We can only think *toward* the Infinite; it may be that our love can reach nearer its Object. As a philosophic truth, music does carry our emotion toward the Infinite. No one can doubt this who reflects for a moment on the rise of music in the Church. Not only does it win its way into the Church, but it gradually takes on more and more importance in the service of worship. There are those who declare that music is to be the Church of the future, wherein all creeds will unite like the tones in a chord.”—SIDNEY LANIER.

“The truth that music is for religion is evident in the fact that nothing calls for it like religion. Eloquence and logic will not take its place. Worship being a moral act or expression, it depends upon the rhythm and harmony of art for its materials. And so the Church in all ages has flowered into song. We may get to God in many ways—by the silent communion of spirit with Spirit, by aspiration, by fidelity of service, but there is no path of *expression* so open and direct as that of music.”—T. T. MUNGER.

CHAPTER XIII

THE RELIGIOUS ART

GOD is a religious being. Every man should be. Religion is the voluntary recognition of all personal relations, and an accordant life. More largely stated, it is the self-expression and mutual response of right-minded persons, the one to the other, of the superior to the inferior as well as conversely. *Noblesse oblige*. God owes to men relatively what he commands of men, and more.

Religion is the outgoing of the whole personality, not of any one faculty alone. Like all conscious existence, it has its rise in feeling, but must include the activity of the whole being, sense, intellect, emotion, and will. Otherwise it is religiosity. Character and culture are religious only if ruled by, and responsive to, the divine ideal.

God is truly religious in that he is always governed by the perfect laws of his own nature, expresses that nature in faultless forms of truth, beauty,

and goodness, and responds to the real need of every created being with impartial love, wisdom, and justice. His nature is holy, unselfish love. This expresses itself to his creatures in method and measure adapted to the capacity and need of each. The religion of our God is seen in the ceaseless out-giving of the infinite riches of his own perfect being for the benefit of the intelligent creation. He scatters stars like dust through space illimitable, that he may bestow upon their inhabitants blessings innumerable. The greatest possible blessing for beings made in the formal likeness of God, is to be really like him in the supreme love of truth, of beauty, and of unselfish goodness. To secure this end, their Maker imparts himself to them in multi-form modes of self-revelation. For all men the starting-point and constant condition of a religious life are that they shall know him, and shall give back to him in turn, and then to their fellow-creatures, the generous love which is his greatest gift to them.

Some common medium of expression is necessary for this mutual relation. Thought naturally bodies itself in words, but language, always varying and narrowly limited, is a clumsy, imperfect chan-

nel of mind. Feeling is before, beneath, and after thought, and demands a mode of utterance of its own. Music furnishes a fit and universal medium for this greatest psychical power. The universe is God's expression of himself in nature, and the universe is filled with, and ruled by, the elements, laws, and potencies of music. All living beings are subject, in greater or less degree, to the sway of melody and harmony, and most, if not all, have some faculty of musical manifesto.

By what medium should God declare himself to finite minds? Not through sense alone or chiefly, for nothing so easily discolors thought. Sense and spirit are not coordinate. Neither could the divine self-revelation be mainly to the logical faculty, for this has to do with the forms of thought, not directly with its spiritual content. The moving force in the world of spirit is emotion. The whole man stirs only when feeling is stirred. "Nothing ever yet had any great power over man that was divorced from feeling." Pure intellect, Aristotle said, moves nothing. Emotion is excited in the first instance by motion. Isochronous vibration is the simple mechanical means by which God communicates to

men the idea of beauty. To move the soul immediately there is no power in nature like that of music, for music is motion spiritualized.

This is not to say that musical vibration causes emotion in a mechanical way, or that emotion is the sole object and end of music. The imagination, regal faculty of mind, is the medium between the vibrant creations of this spiritual art and man's heart and will. Art is God's chosen messenger of ideal beauty. Eye and ear alike take from the air its vibratile message, and the interpreting brain, by some process beyond our comprehension, translates aerial waves into beauty of form, color, or tone. It is the mental vision or audition of the ideally beautiful thus brought into consciousness, that stirs the emotions. Here is miracle indeed. And here is divine beneficence beyond appraisal.

In nature God speaks to men chiefly by light and sound, by color and tone. All the arts have their highest function in the reciprocal converse between God and man, but music is the elect art of religion. It speaks of God, from God, for God, and to God. "The most religious of the arts of expression," Fiske calls it. Few have been more

sensitive to the ambassadorial office of music than Horace Bushnell. "We have," he wrote, "an argument for God more impressive in one view, because the matter of it is so deep and mysterious, from the fact that a grand, harmonic, soul-interpreting law of music pervades all the objects of the natural creation, and that things without life, all metals and woods and valleys and mountains and waters, are tempered with distinctions of sound, and toned to be a language to the feeling of the heart. It is as if God had made the world about us to be a grand organ of music, so that our feelings might have play in it, as our understanding has in the light of the sun, and the outward colors and forms of things."

Madame de Staël carries the same thought into the inner world of man's spiritual life: "Of all the fine arts it is this which acts most directly upon the soul. The others lead it toward this or that idea; this alone appeals to the inmost source of existence, and changes entirely the interior disposition. What has been said of divine grace, which instantly changes hearts, can, humanly speaking, be applied to melody." The other arts materialize

the spiritual; music spiritualizes the material, and is thus a congenial agency for the divine Spirit in his work for human perfecting.

Like other widely seeing minds, Max Müller felt that in the art he loved with lifelong devotion there is a spiritual element, which reports an origin above the merely human. His latest thought upon the subject is given in these suggestive words: "Is there not in music, and in music alone of all the arts, something that is not entirely of this earth? Harmony and rhythm may be under settled laws, and in that sense mathematicians may be right when they call mathematics silent music. But whence comes melody? Surely not from what we hear in the street, or in the woods, or on the sea-shore; not from anything that we hear with our outward ears, and are able to imitate, to improve, or to sublimize. Neither history nor evolution will help us to account for Schubert's '*Trockne Blumen*.' Here, if anywhere, we see the golden stairs on which angels descend from heaven to earth, and whisper sweet sounds into the ears of those who have ears to hear. Words cannot be so inspired, for words, we know, are of the earth earthy.

Melodies, however, are not of this earth, and the greatest of musical poets has truly said,

' Heard melodies are sweet, but those unheard are sweeter.' "

The history of religion and the history of music are inseparable. If animism and fetichism were the first steps in man's converse with invisible spirit, his inchoate religion was generated and expressed by rude musical sounds. His elementary worship was first of the supposed indwelling spirit revealed by the tones of drum or bell or beaten sticks and stones; then it became worship of the sonorous object itself. Possibly Matheson's suggestion is also worth considering, that the continued existence of the thing worshipped, were it only a rag, in contrast with man's seemingly brief life, gave earliest hint of immortality, and so, in time, led to the idea of deathless deity.

All races have worshipped their gods by musical offerings thought to be pleasing to celestial ears. The pictured harp on the wall of a tomb at Thebes shows a certain degree of musical knowledge at a time when all art was religious. The inferior gods of India were believed to have originated the other

arts, but Brahma himself gave music to men. The Vedic hymns were chants sung at sacrifices to the nature gods of the Indian Aryans. They were especially part of the sunrise worship of households around the literal family altar. The Apollo legends and the Orphic hymns give evidence of the religious origin of the musical cult in Greece. The hymns to the gods, accompanied by the lyre, were the root of Greek literary art expression. The poetry, drama, sculpture, and painting of later days were the efflorescence of this early musical worship of the gods of Hellas. In other lands, a similar course of artistic development followed a similar initiative.

The Bible story of human beginnings ascribes instrumental music to the inventive artistic taste of the Cainite clan. This may intimate that vocal music was the preferred medium by which the Sethite tribe worshiped Elohim. Sacrifices were central in the religious rites of nomadic and pastoral peoples, but around them grew up among the Hebrews a musical ritual. Miriam was not the only one who brought the music of Egypt into the wilderness on the great trek of the Israelite slaves.

The other arts that had been learned in the land of their bondage, served to build and adorn the tabernacle, but music was the permanent medium of their worship, the solace of their wanderings, and the source of refining culture during years of struggle with hardships and desert foes. The priests and Levites had charge of the music of the moving sanctuary. The art remained in a rudimentary stage till the tribes became settled in their future home. When the ark was brought to Jerusalem, the Levites were prepared to celebrate the great event "with instruments of music, psalteries and harps and cymbals, sounding aloud and lifting up the voice with joy." After the building of the temple this tribe furnished a permanent choir and orchestra of four thousand members, ready at all times to lead the praises of the people. The name of King David represents a long line of psalmists who wrote the sacred songs of the nation. "All the music of the human heart is in the Psalms," Gladstone said, and these, perhaps, had more to do with shaping the national character than had all its kings and priests. If David had written a doctrinal treatise instead of some

of the favorite religious lyrics of his people and their descendants, his name might never have come down to us. Judaism might not have survived its birth period if it had not been a singing religion.

More than any other class, the prophets of Israel and Judah embodied and preserved the national faith. Prophecy and music were indissolubly wedded. The schools of the prophets were schools of music. Why should Jehovah choose this method of imparting the most important truths of religion, not only to the chosen people but also for the whole world in all after ages, unless there is in music something akin to the nature of truth, and to the divine nature?

Sacred song and sacrifice continued to be the mediums of Jewish worship while the temple stood. Christianity was born to the strains of celestial anthems, and at first worshipped around the national altars with the hereditary ritual. Jesus and his followers doubtless often sang together, although it is not necessary to infer with Bettina that he was a great musician. At the climax of his mission on earth, "when they had sung a hymn, they went

out," he to the great sacrifice, his disciples to begin the task of the world's conversion.

Christianity redeemed the music of the classic and pagan world. Barbarians were won and transformed by the sound of Christian hymns. The conversion of the Slavonic peoples has been attributed to the sacred melodies of the Church of Constantinople. The Saxon English were so devoted to their folk-song tunes that the churchmen often sang them to attract the public to their services. After the Norman settlement, sacred words were frequently set to secular tunes. This led to part-singing, or descant, and this to counterpoint. Harmony was the offspring of religious music, and became the prophetic symbol of redeemed Humanity.

The Reformation brought with it an era of religious hymnody for the people. Luther was the first for long centuries to write sacred lyrics in the popular tongue. Music once restored him from a swoon in his cell, and through him it helped awaken Europe from religious stupor. The Reformed doctrines sang their way through the nations. The history of evangelical music is a story

of evangelistic triumphs in later times. The power of Gospel truth, and the dignity of worship in modern religious history, are largely due to the varied development of religious music. Marred and limited by many imperfections of spirit, art, and use, the service of Christian song and the consecration to it of so many musically gifted servants of Christ and art furnish no small part of the "live force" of Christianity in the present day.

The devotion of their powers to the service of religion by some of the foremost composers of modern times is another intimation of the high source of the best music. Haydn's frequent "In nomine Domini" and "Laus Deo" noted on his manuscript works showed the deep religious feeling with which he wrote his noblest compositions. Beethoven did not often speak of his religious emotions, but manifested the true Christian spirit in his character and constant benevolences. Like Mozart, the great composer whom Sidney Lanier calls "Sole Hymner of the whole of life," he looked forward to death with content and hope, wishing toward the end "that he might breathe his last on Good Friday, in hopes of meeting his good God,

his sweet Lord and Saviour, on the day of his resurrection." "Nothing can be more sublime," he wrote, "than to draw nearer to the Godhead than other men, and to diffuse here on earth these god-like rays among mortals. But what is all this compared to the grandest of all Masters of harmony—above, above!"

A Parisian journalist insinuated that the Requiem by Verdi was not to be taken seriously as indicating genuine faith in the Last Judgment. "I do take it seriously," he answered, "as I take all my religion. I cannot understand how it is possible for an artist or a poet to be without religion. The most beautiful master works have been inspired by Christianity. Neither Raphael nor Angelo, neither Palestrina nor Mozart would have been what they were without strong religious convictions. If my Requiem has power and worth it is because it is the work of a believer." This testimony is verifiable by the best biography of art.¹ It may well be

¹ "If we turn for a moment from the world of executants to the world of composers, one fact must strike us—that not only were the great composers, as a rule, not addicted to the excesses which some would have us believe inseparable from a musical temperament, but they appear to have been singularly free from them. It

heeded by those who are tempted to take a materialistic view of either ethics or æsthetics.

Mazzini's earnest advice to young musicians, if regarded by them, would tend to secure the highest artistic success and also the true end of living. The Italian patriot and philosophic statesman wrote to such: "The art you cultivate is holy, and you must render your lives holy, if you would be its priests. The art intrusted to your ministry is closely bound up with the progress of civilization, and may become the very breath, soul, and sacred incense of that civilization. Music is the harmonious voice of creation, an echo of the invisible world, one note of the divine concord which the entire universe is some day to sound. How can you hope to seize that note if not by elevating your minds to the contemplation of the universe, viewing with the eye of faith things invisible to the unbelieving, and compassing the whole creation in your study and affection?"

is noteworthy that so many great composers have been men whose emotions were so severely disciplined, and whose lives were so well regulated, that they stand out as examples not only of steady and indefatigable workers, but also of high-minded and even religious men."—H. R. HAWES; "Music and Morals," p. 81.

An art which is interwoven with the very warp of the cosmos, which is one of the most distinctive proofs of the Creator's beneficent wisdom, which appeals to the spiritual nature in man, and furnishes wings to the soul in its upward approach to God, has clear theistic implications. It indicates an artistic Mind at the source of all things. The joy-giving potencies of music are such a provision as a kindly Father would make for his children, sharing with them his own delight in it.

Some direct means of spiritual expression and of communion between the Infinite and created spirits is especially needed in a universe that so overwhelmingly impresses the senses. The religious history of music declares it eminently fit for this double use. Like all best things, this divine art may easily be perverted and degraded, but when employed for spiritual ends it has never failed to elevate the mind above crass materialism, and aid the seeker after God to draw near him. Music comes with a universal and easily comprehended appeal for faith and adoration toward the Artist God. It also brings a solemn charge to hold it

sacred in all its forms for the higher needs of men, "meet for the Master's use."

"Charles Auchester" voices this obligation in words as true as tenderly devout: "It is not that anything we can offer can be worthy of the feet at which we lay it: it is not that anything is sweet or sufficient for our love's expression; but every little word of love, or smile of love, is precious to us, and must be so to Love itself, I think. Only in music does God now reveal himself as in days of old, and I do believe that he, dwelling not in temples made with hands, yet dwelleth there. I suppose that as we make the music that issues from the orchestra, or from the organ where all musics mingle, so he makes the love that Religion burns to utter, but that Music, for the musical, alone makes manifest. All worship is sacred, but that is unutterably holy. How holy should the heart of the musician be!" Whoever makes his art work the incense of a life devoted in everything to the Holy One, of him it may be said,

"His song was only living aloud."

Music, in fine, seems to be a force of spiritual

telegraphy between the spirit in man and the Parent Spirit of the universe. To secure its true effect, there must be spiritual syntony, the receiver being attuned to the Sender, that he may catch the message intended for the individual soul, but which is unperceived by all who are out of unison with the divine.



MUSIC AND IMMORTALITY

“ While we hear
The tides of music’s golden sea
Setting toward eternity,
Uplifted high in heart and hope are we,
Until we doubt not that for one so true
There must be other nobler work to do.”

—TENNYSON.

“ There is music in heaven because there is no self-will. Music goes on certain laws and rules. Man did not make the laws of music: he only found them out, and, if he be self-willed and break them, there is an end of music instantly; all he brings out is discord and ugly sounds. Music is fit for heaven. Music is a pattern and type of heaven, and of the everlasting life of God which perfect spirits live in heaven; a life of melody and order in themselves; a life in harmony with each other and with God.”—
CHARLES KINGSLEY.

CHAPTER XIV

MUSIC AND IMMORTALITY

MUSIC is like human life in that it vanishes with the conscious moment; "its living is its dying." The evanescence of music has always tinged the enjoyment of it with a shade of melancholy. In so impermanent a fact can there be valid indication of an endless duration of the life of man, which seems almost as transitory? Fleeting as its audible forms always are, there is, nevertheless, in the cosmic reality of musical sound, and in the possibility of its endless repetition in a practically infinite variety of form, strong reinforcement for the long-ing belief of men in all ages that human life on earth is but the beginning of their existence. In the timeless freedom of eternity the sadness of per-ishing joys must pass away, like the icy brilliance of a wintry sleet-storm when the warm sun has gently freed every branch of burdened tree and im-prisoned shrub from its transient investment of

beauty. Even as we look, it perishes; but spring comes on, and a new life soon leaps to the tip of every twig, and swells each bud with the promise of an enrobing more beautiful and enduring. The melting wreck of an hour's radiance feeds the soil from which the current of a fresh life is drawn. So, it may be, the very loss of present sweetness and delight ministered by music for the passing moment, is a laying up of impressions, emotions, hopes, and aspirations that can be realized to perfection only in an enduring state, toward which the heart turns with all the more longing and purpose because the past is gone forever. The incompleteness and fleetingness of the joy which music brings, constrain the forward look of the soul to a world where the best things do not perish in the instant of their enjoyment.

The shaping tendency in nature is toward a complete embodiment of ideal perfection. To this gravitating trend of things in our universe both evolution and revelation bear witness. The increasing effort of nature has been to express some definite thought or plan, or that which has every appearance of being such. Absolute perfectness is

scidom, if ever, attained in the natural order, but the general course of evolution points steadily toward it. To quote again from Professor Fiske's last book, this conclusion is strongly stated: "Toward the spiritual perfection of Humanity the stupendous momentum of the cosmic process has all along been tending . . . as the true goal of evolution, the divine end that was involved from the beginning."

This tendency has exerted unmistakable influence over human history. Mankind has been caught in its spiral advance. The race as a whole has shared the upward impulse. Hence art and all human progress. The genius of ideal beauty ever beckons men with irresistible charm. Hear Plato: "O my dear Socrates, that which can give value to this life is the spectacle of eternal beauty. What would be the destiny of a mortal to whom it should be granted to contemplate the beautiful without alloy, in its purity and simplicity,—no longer clothed with the flesh and hues of humanity, and with all those vain charms that are condemned to perish,—to whom it should be given to see face to face the divine beauty!"

The glimpses of perfection which man, as man,

at times beholds, which are the more alluring as the soul rises nearer to it, have a twofold effect. The contrast of the actual with the ideal shows only too sharply the incompleteness of the best attainments of mortals here; yet it awakens a sense of powers undeveloped, and gives keen edge to the hunger for ideal good.

Present imperfection is a necessity of unfinished evolution, but largely also it is the result of moral sluggishness and the misuse of privilege. That the imperfect should continue such forever, is by no means inevitable. Rather is it to healthy minds a goad to spur on toward the perfect. If the good is too often the enemy of the best, fair ideals are yet true friends of the imperfect. They arouse and stimulate the slumberous soul. Salvation is arousal. Heaven is opportunity. Eternal life is endless possibility. Of this brighter side of human incompleteness the nature and scope of music offer encouraging evidence. The art is in its infancy, the science far from finished. The momentum of the whole creation toward the complete, which Newman Smyth presents as a valid argument for immortality, strongly indicates the future pro-

gressive perfecting of both music and the power to utilize and enjoy it.

The highest attainments in this art are but tide-marks showing limitations as well as achievements. Art is limitless; life at the longest is too short to master perfectly any branch of it. In this "terrestrial imbecility" few become more than journeymen in the use of any sense or faculty. Like Newton and Darwin, whose total of learning and discovery seemed to them as a few pebbles gathered on the sea-beach of boundless truth, Beethoven felt that he had but touched the fringe of musical possibility. "I feel," he said, "as though I had written scarcely more than a few notes." Every composer of original ability strikes out a new path through untravelled regions of accordant sound. Finer senses and deeper understanding will give musicians new worlds of melody and harmony to conquer.

Between the four hundred vibrations per second of a high tenor note, or the two thousand and forty-eight of the highest soprano on record, and the four hundred ^{trillion} ~~millions~~ of a definite red in the spectrum, there is space, it is estimated, for twenty

senses, each equal in range to those we now possess. Where in this vast unknown of ethereal vibration the dividing line runs between the sense of possible hearing and that of potential sight is beyond knowledge. Prof. Benjamin Peirce in that inspiring book, "Ideality in the Physical Sciences," says, "That the immense extent of unheard and unseen vibrations with which the universe is palpitating should never become available to the soul, is contrary to the analogies of Nature. It is far from unreasonable to suppose that there will be a corresponding variety of ways of knowledge, and of opportunities for scientific study, for the development of strange inventions, for reinforcing the sense, and for the creation of wonderful, grand, and lovely forms of fancy and imagination." Henry Ward Beecher supposed an instrument which would do for the ear what the microscope does for the eye, and exclaimed, "If an auriscope could be invented, we might go forth into a world as new as that opened to a short-sighted person when he first puts on near-sighted glasses." X Carrying the thought farther, Tyndall imagined that "the air about us may be full of heaven's hallelujahs, while we

hear only the feeble whispers of our own prayers."

It did not burden the scientific imagination of the learned astronomer just quoted to suppose that, "in the exquisite organization of the celestial substance, the range of sensible vibrations may be increased immeasurably; and the ultimate limits to which future perception and education may advance, is possibly a mystery transcending the research even of archangels." Reviewing the ideal development which began with the process postulated by the nebular theory, he concludes the study thus: "It is not a tale told by an idiot, signifying nothing. It is the poem of an infinite imagination, signifying IMMORTALITY."

Science and revelation alike represent as possible a more perfect and enduring incasement for the finite spirit, than the frail framework it now inhabits for a very brief span of years on earth. Wonderfully made as the human body is, with its organs of sight and hearing so admirably fitted to serve the inhabiting spirit, it is legitimate to conceive of an organism with all its senses as preternaturally acute as a single sense is found in ex-

ceptional persons. Other avenues between the cosmos without and the microcosm within are also conceivable. The human frame is a mechanism expressly adjusted to convert physical energy into psychical force. It is the instrument through which the indwelling spirit directly communicates with other spirits. Having accomplished its special mission in the present stage of existence, it would be according to the analogies of organic history that the individual soul should organize about itself an envelopment fitted for a more perfectly developed state to which the present is but preparatory.

As a rational and artistic personality, man is the crowning product of evolution. The human race is the only part of the biologic series which has arrived at anything that deserves to be called science or art. The probability is infinitesimal that unguided evolution could attain to such a result, out of the numberless different possibilities of progress from undifferentiated universe stuff. Taking the single problem of the origin of music, some sort of melodious sound might be imagined as an acci-

dental outcome of an automatic process in nature; but not such an art, such a science; not a Beethoven, a Wagner, a Paderewski. Yet in every human individual are faculties, germinal and unpromising though they often seem, which, developed to the full, would equal or excel those of Mozart or Handel. Wherefore this unlimited range of spiritual potentiality, if there is to be no realization of the ideal possibilities of human nature?

The moral factor, it is true, is vital and dominant. If the individual fails to eliminate the poison of moral evil, it may, perhaps, prove the ruin of the structural elements of his being. But that, for example, a universe of artistic beauty could be developed on a scale practically without limit, offering itself to a growing appreciation also apparently without bound, and then that the spiritual beings who alone of earth's denizens are fitted to apprehend and enjoy it, should all be annihilated in the primary stages of educated ability to appreciate it, is simply irrational, and would be unjust. Strange indeed if a song, which is but recorded breath, may live on for ages, while the mind that created it could be

snuffed out by a breath of bad air, poisoning its bodily casement!

Is it not more reasonable to send the thought in sure flight from the music of earth, transitory but full of an immortal stimulus to hope, upward to its fitting home and a life undying? Isaak Walton found in the nightingale's song not only exquisite pleasure but also occasion of praise in anticipation of the far sweeter melodies of heaven. His delicious meditation carries the devout soul almost within hearing of the celestial choirs. "But the nightingale, another of my airy creatures, breathes such sweet, loud music out of her little instrumental throat, that it might make mankind to think miracles are not ceased. He that at midnight, when the weary laborer sleeps securely, should hear, as I have very often, the clear airs, the sweet descants, the natural rising and falling, the doubling and redoubling of her voice, might well be lifted above earth, and say, 'Lord, what music hast thou provided for the saints in heaven, when thou affordest bad men such music on earth!'"

The whole course of evolutionary history shows

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that organs and faculties have developed along with environment. Air and wings, water and fins, are correlates. First light, then the eye. The visual sense has been perfected contemporaneously with the geologic and biologic advance of nature which would furnish objects of sight for nutritive, defensive, and æsthetic purposes. Likewise, the auditory apparatus has doubtless kept pace with the provisions for its exercise. That environment has had a leading part in developing the organs of sense, and even the intellectual faculties, matters not. Evolution is, above all and through all, a thought-process. Immanent design is latent intelligence, always under guidance. It depends for realization upon a power not its own. The plain inference is that the same intelligent, directive agency manifest in evolution will see to it that potential faculties already belonging to man will develop to a degree surpassing present conception, in response to environing influences of a higher sort than any hitherto experienced. In heaven we shall see, hear, and know as we are seen, heard, and known by the heavenly ones themselves.

Organic development and the history of music

are alike in the fact that, when one idea or stage of progress has been worked out, another is always taken up, and continuity is lifted to a higher plane. The unused potencies of nature immeasurably exceed the bare fringe of multiform force hitherto discovered and utilized. Science often challenges increase of faith. It points more and more directly to a future when faculty shall overtake potentiality, only to find fresh fields of development and opportunity. The vast provision in the universe for artistic progress has not been made for no sufficient purpose. No possible advance in human craft or science can more than touch its nearest border in the short period of mortal life. Personal immortality is demanded to master and minister the resources of infinite beauty. But few in any generation, under the most favoring circumstances, can make even a beginning in the culture of powers which have every promise of exceeding the furthest reach attained by the highest earthly art.

The same promise belongs to every faculty and every art. The territory of truth open before the intellect is boundless, and the scope of noble action in a life without end must also be unlimited. The

example of a single art, the one most universally enjoyed, may appeal to the majority of minds with illustrative and alluring force. As the most spiritual of all the forms of artistic expression, music is most prominent of all in Scriptural references to the heavenly state. There is reason for this in the nature and conditions of the art. The aged Gounod, looking forward to a speedy departure from the scenes of his artistic labors and triumphs, dwelt much upon the spiritualizing influence of music, and said, "It gives a foretaste of the immateriality of the future life." A Persian sage expressed the belief entertained by the best among his people, in this way: "The soul purified by music longs for communion with higher beings and purer spheres; and, though darkened by the opaqueness of the body, is yet prepared for converse with the spirits of light, standing around the throne of the Almighty." The vision of the Christian seer was clearer and saw deeper. The redeemed are those who have "washed their robes and made them white," not by the refining and spiritualizing influence of any art whatsoever, but "in the blood of the Lamb." With the motive of unmerited re-

demption, they unitedly lift heart and voice in the Hallelujah Chorus of heaven, unto him who loved them and gave himself for them. The song of praise is represented as the only adequate vehicle of adoring gratitude for those who have eternal reason for offering the highest expression of their love and devotion.

It has been a favorite imagination with some in ancient and in modern times, that music will furnish a medium, if not the chief means, of vocal intercourse among the inhabitants of heaven. A Christian scholar of the last generation, who joined to philosophic insight the high faith and hope that make the next life, in Lowell's phrase, the nearest life, expressed this thought in words not to be changed: "There is a fine art of sound. It rests upon this fact that we have not only a mortal body, with transient wants, in the supplying of which such coarse and temporary contrivances as arbitrary words are well enough, but that we also have an enduring spirit with lasting emotions, and that these emotions, which belong to the nature of spirit, have specific sounds, which are their natural

expression. And here arises music, the eldest if not the divinest of the fine arts. Every emotion of the intelligent spirit has its appropriate intonation of sound, or of that which in another world may take the place of sound. These intonations are the elements of music; and, further, the harmonious flow and succession of emotions in a pure spirit should express itself in a like harmony of sound, rising of itself, like the unconscious voice of the harp of the winds, or of falling waters; so that it may be that in a better land the emotions of pure spirit

‘voluntary move
Harmonious numbers,’

and so the spirit goes spontaneously singing a perfect *Æolian* strain in its blessedness.”

This certainly must be true in a future life continuous with the intellectual and emotional experiences of the present, that souls will still be organs of feeling, and feeling being then loftier and finer than in this most imperfect state, the language of feeling must be finer and more perfect. Besides, as Bushnell argues, “what is the joy of the glorified but the joy of society; that is, of feeling expressed,

society in pure and great feeling, immediate, spontaneous, universal, propagated, of course, by some fit medium. By what other, unless by voices of feeling whose speech is music, voices angelically tempered by inward love and purity, flowing into choirs of harmony and improvised anthems, that are but the ocean beat of bosoms conscious of God."

Confucius seemed to have a conception of such a world, when he named heaven the "House of Hymns." The "new song" heard by the Revelator represents the hymnody of redemption in its history from Moses to Jesus, and on to its consummation. Whatever the scale or tonal scheme of that music, it will be the outpouring of grateful, adoring love, uttered in melodious forms expressive of the highest spiritual emotions.

The heavenly art of sound is, by the conditions of the heavenly life, the expression of spiritual harmony. Music we have found to be eminently the social art; polyphony is its prophetic type. If melody is necessarily individualistic, harmony is the art-form of the idea of Humanity, significant of the all-including synthesis and perfect accord of the

entire citizenship in the Heavenly republic. "Fellowship is life's last, greatest, and immortal word." Order is nature's first thought; but mutual service is the end for which order itself exists. The original cell divides itself by a law that conditions all progress, not for the law's sake, but for the sake of multiplying its kind. Soon groups of cells are found, each subserving progress and the common good. When organs and members are formed by the allied efforts of the multitudinous living atoms that preceded them, every component cell and every organ and member are found laboring for the others and for the composite whole. Rising higher in the scale of life, the common law of the kingdom of nature and of grace is that no man liveth or dieth to himself alone. The kingdom of heaven is simply the full development and fruition of this principle. The art of music is its æsthetic embodiment.

Two voices must agree in their relative vibration numbers, or dissonance is the acoustic crime of one or both. The musician always thinks of others; of composer, fellow-musicians, listeners, and even the unmusical. When many voices or instruments

sound together, every singer or performer is sensitively attent to every other, consciously or unconsciously. If his first thought is necessarily for his own notes, it is lest they fail in relative accuracy or in sympathy. The two great commandments of executive harmony are counterparts of those given by the Master to cover all duty. The individual member of orchestra or chorus must above all else heed the regnant tonic, so that key and pitch shall be rightly taken and kept; and then he must pay constant regard to the acoustic and æsthetic tone of accompanying voices and instruments, even as he would that the others should regard his own. The double law is imperative: Follow the leader's baton with all the mind, and keep in touch each with his neighbor, as he would have his neighbor do to him. The heavenly choirs and orchestras are in absolute harmony because they perfectly obey this twofold law with all the heart.

Discord is musical sin; sin is moral discord. Self-love is the anti-social violation of the musical principle fundamental in ethics. The only excuse for either acoustical or moral dissonance is that, by reason of the very distress it occasions to ear, mind,

or heart, the longing to return to the calm current of pure consonance, is heightened. An expectant discord, "dear to the musician," has this effect, because the ear and mind naturally desire to rest upon agreeable impressions. This is an æsthetic reason, for nothing in nature requires the resolution of a discord. False ratios of vibration numbers never cure themselves. A musical will must interpose and restore the missing accord. Sin, we may believe, is expectant moral discord which by free and accepted grace can be fully resolved and atoned—at-oned—in the harmony of the heavenly life. Grace can do what nature cannot. The divine reconciliation of the sinner is the ethical resolution of his moral dissonances.

"Therefore, to whom turn I but to thee, the ineffable Name?
 Builder and Maker, thou, of houses not made with hands!
 What! have fear of change from thee who art ever the same?
 Doubt that thy power can fill the heart that thy power expands?
 There shall never be one lost good! What was, shall live as before.
 The evil is null, is nought, is silence implying sound;
 What was good, shall be good, with, for evil, so much good more;
 On earth the broken arcs; in the heaven, a perfect round.

“ Why else was the pause prolonged, but that singing might issue
thence ?

Why rushed the discords in, but that harmony should be prized ?

. 'Tis we musicians know.

The harmonies of heaven, as an ideally perfect state, are first spiritual, then social, then æsthetic. Its music realizes the ground law of ideal society : Thou shalt love thy neighbor as thyself. Its locality, whether on a renovated earth, or in some other sphere, cannot matter if holy, altruistic love rules there. The accord of the hundred and forty-four thousand voices—number of universality—in the vision-anthem of St. John, prophesies not more the sublime harmony of universal praise offered by all the inhabitants of heaven to their God and Saviour, than it does the absolute unity and mutual regard that bind them together in the eternal kingdom of love.

THE GOD OF MUSIC

Praise ye the LORD.

Praise GOD in his sanctuary :

Praise him in the firmament of his power.

Praise him for his mighty acts :

Praise him according to his excellent greatness.

Praise him with the sound of the trumpet :

Praise him with the psaltery and harp.

Let everything that hath breath praise the LORD.

Praise ye the LORD.

“God in his totality as the Absolute Being is conscious, not *in* time, but *of* time, and of all that infinite time contains. In time there follow, in their sequence, the chords of his endless symphony. For him is this whole symphony of life at once.

“For as, even in the finite symphony, every chord restlessly strives after a musical perfection that in itself it only hints, but as nevertheless this very perfection is in the whole symphony itself—so in the universe, every temporal instant contains a seeking after God's perfection. Yet, never at any instant of time is this perfection attained. It is present only to the consciousness that views the infinite totality of this very process of seeking.”—JOSIAH ROYCE.

CHAPTER XV

THE GOD OF MUSIC

To the question, Whence this world and the universe of which it is an almost infinitesimal part? music, as an elemental and spiritual art, gives answer:—From GOD. To the more momentous question for individual men, Who and What is God? music again makes reply:—The one almighty and all-wise Creator, Lover of beauty and of man, whose laws are harmony, and whose life it is to bless. The theistic argument from the musical point of view is a valuable contribution to the general discussion as to the being and character of God. It will have cogency according to the scientific knowledge, musical understanding, mental habit, and religious attitude of each person.

Speaking with authority, both as logician and as apostle, St. Paul affirmed that “the invisible things of him since the creation of the cosmos are clearly seen, being perceived through the things that are made, even his everlasting power and divinity.”

The quantitative evidence for an almighty Maker and Ruler of the universe has always first and most strongly impressed the human mind, when man has faced the overwhelming physical power at work in nature. Afterward men have found that the personal quality of the Supreme Energy is the immensely more weighty element in the theistic problem. The contribution which the art of viewless sound makes to the perception of the invisible divinity of the Author of all perfect beauty, is directly in point. The testimony it gives to the scientific, moral, and æsthetic attributes of the Being who is the one divine Source of manifold beauty and the universal blessing it brings, should be peculiarly persuasive. A summing up of some of the chief aspects of evidence which may be gathered from this cosmic fact and the art springing from it, may aid toward a true conception of the character discoverable in "the Eternal Genius that built the world."

The unity of creation is the ruling thought of our day in both science and philosophy. It implies a single creative Mind. In the unitary scheme

which has been worked out through endless complexity of form and function, music has an essential part to play. Everything in the universe is harmoniously related to everything else. By musical law, everything is the logical consequent of its antecedents. One system, one efficient power, and one directive thought leading to a harmonious consummation, prove unity of cause, if reason is to be trusted. All physical forces are phases of motion. The universal method by which potentiality becomes transitive force is that of wave-vibration in the ether. Lord Kelvin's theory of atomic constitution as simply that of uniform whorls in the substance called ether, still holds its hypothetical ground. Heat, light, color, chemical energy, electricity, sound, including musical notes, and perhaps the vital forces, are products of differing degrees and forms of vibrant motion. All the arts are members of one family with common vibratile parentage, and having the same purpose, to interpret God to man. Each of them gives its special evidence to the creative skill and unceasing benevolence of the Divine Artist, whose gracious provision they are.

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Music, both science and art, overflows with marks of design. Its historic development, according to laws immutable yet permitting free exercise of genius, is an instance of the educative good-will of a far seeing Creator. By itself, music speaks convincingly of consummate intellect, taste, and goodness guiding the purpose of the single Author of this unitary system. If many gods had taken part in a composite preparation for such an art, inevitable discord would have been the result. But when a harmonious unity of plan is found to exist throughout all the different departments of evolutionary activity, the probability of one Evolver who was also the Involver of everything normal that issues during the process, becomes substantial demonstration. The evolutionary scheme, like a symphonic poem, has its unity, continuity, and distinctive character only because these are in the original plan. Music, in its manifold perfections of harmonious form, is a beautiful example of the oneness of the universe. It illustrates the fact that nature is an intellectual unity in a composite variety, which, without a single coordinating Mind would be discordant chaos.

Human reason demands a cause for every fact. Second causes depend upon a First. Physical causation cannot explain itself. Mere order is not causal. It requires thought, and thought implies a thinker. The unity of nature is the product of a single intelligent Cause. Its order is unmistakably that of a thought-process. As an example, the music of the universe, latent in acoustic forces and their laws, temptingly hinted at in both animate and inanimate nature, coming to definite birth and unfolding glory in the art history of man, absolutely requires an intelligent Source of its scientific constitution and its æsthetic development.

As a peculiar manifestation of cosmic forces ruled by universal laws, music comes under the same principle of causality with the entire cosmos in its complex yet unitary structure. The underlying reality of the universe is now believed to be spiritual, it being more and more doubted whether there is any such thing as a separate entity to be called matter. The art which is most spiritual in its elements and processes, traces its lineage directly to a non-material origin. Matter, as matter, neither thinks, feels, nor creates motion; therefore, it cannot pos-

sibly impart thought, emotion, or motivity. All the physical forces in the world, Grove asserts, cannot generate new force enough to move a grain of sand. Much less could they produce one musical note apart from intelligent will in or above nature; for every musical note is a complex event demanding mind for either production or audition. Therefore, a merely physical origin of music cannot be possible. Its original source must be the primal Mind from which all ordered force derives its energy and character.

Within the sonorous embodiment of musical tones aligned in law-governed forms, is a psychical content that must have had a psychical origin. This, in our common experience, is the human mind, but ultimately it must be traced back to the originating thought and will of the Infinite Spirit. As a mere combination of sweet sounds to give sensuous pleasure, music could never satisfy the soul of man. If an appeal to sense only, this art would deserve no more consideration than that of the soda-water purveyor. But it appeals to the spiritual nature. He who truly feels, stands in immediate relation to the insensuous world, to reason, imagination, sentiment,

love,—to God; and music is a guiding influence that may bring the sensitive soul quickest into this presence. It is alone among the arts in that its utterances pass direct to the consciousness. Hence, Gurney thinks, is its power to awaken in thousands inaccessible to any other form of high emotion, a sense of beauty, order, and perfection. And hence we must infer a spiritual authorship for effects so thoroughly spiritual.

But music is not mere expression of feeling. It calls for the cooperative activity of imagination, understanding, and purposive will. By their harmonious action it gratifies the profound craving for ideal beauty. In its time and place, it has power over the spiritual nature of man beyond that of reason itself. After the mathematical and purely physical elements in music are taken account of, there is a spiritual increment present which is by far its most important factor. In the original scheme, and in its guided development, this must be traced back to a personal, divine Spirit. Nothing but soul can put soul into music, and the soul is God's work. The more of God there is in composer or performer, the loftier and purer the strain. Tribes without a defi-

nite idea of a divine Being are also destitute of anything that can be called music. At the other end of the scale of civilization, philosophic atheism is also, as a rule, musically barren. Unbelief does not praise. The real Author of melody and harmony keeps these priceless boons, in their best forms, for the special behoof of those who take the Giver with the gift.

It would be expected that, with such authorship, so ethereal an art, with a mission of universal benefaction, would be harnessed under strict law, lest it wander in confused and willful ways, and so spoil its high intent. With all its plasticity and free range of form, from the airiest of swift-winged notes to the sombre requiem or measured fugue, no elemental force is more bound by exact statutes of unbending nature. Mathematics are as fixed as fate, and music, in its physical constitution, is nothing but number applied to sound. If law has its home in the bosom of God, there it finds music, and sends it forth with an inner frame of acoustic steel that will carry it to all worlds unchanging and unhurt.

The law of absolute order in harmony is clearly manifest. "Regular and measured in its movements as the celestial orbs, no deviation is allowed to harmony even in its boldest flights. An almighty will seems to have bound it to magnificence and grandeur, restricting its freedom to the latitude of the laws whose expression it is." Melody is more free, though subject to tonality, scale relationships, and fine laws of expression which guard it from random and rebellious flights. Harmony, too, has its wide range of modulation and novel combination at command. Freedom under law is the God-given charter of the human spirit. Music, in its two grand divisions, shares the same order, is "in the bounds of law," and is thus a subject of the same Lord.

It is not strange, therefore, to note that musicians, who are really such, are a law-abiding class, nor that kindly song, with its rhythmic charm and its pure and happy associations, has often quelled moral and social disturbance, brought peace to distracted minds, and stimulated the weary and despairing. The statutes of God's musical realm may well be our songs in the house of our

pilgrimage. They are his spiritual law in the natural world. Laws so perfect and so beneficent could only come from a Lawgiver of ethical and æsthetic perfection.

In primal chaos the laws of matter are latent and inoperative. Atomic arrangement from the first discloses orderly mind. Arrangement for a definite end shows design plus motive. The mathematics of music save the universe from acoustic chaos. Its tonal beauty reveals a creative love of the beautiful in sound, and also an intention in the Creator to awaken the same in intelligent beings, and share its joys with them. Design is shown not more in the mathematical regimen of music than in the manifold beauty of its ordered forms adapted to spiritual ends.

There is an ascending scale of things beautiful that is plainly meant to lead from the lower to the higher, from the natural and human to the divine. Physical loveliness is the fitting envelope for intellectual and moral beauty, a lure from outward to inward perfection. First come certain arrangements of matter not in themselves beautiful, but

which awaken the æsthetic idea in mind that can alone perceive beauty. Then follows, kindled as spark from flint by these purposely ordered atoms, the sense of unity, symmetry, and grace. This is the conscious perception of æsthetic beauty. It is echoed and magnified in the action of the mind itself, so that well ordered thought is more admirable than ordered form. Last and highest, is moral excellence, "the calm beauty of an ordered life." This is the essential beauty of spiritual being.

The primal principle of each and all these degrees of perfection is the principle of absolute truth. It is the law of God's own being. The question why this principle should take on an investiture of universal, many-sided beauty, leads to the conclusion that it was to reveal in congenial and alluring manner the nature of the divine Mind, and so to attract men toward the higher, spiritual beauty. The beneficence of the beautiful, as the manifestation of the divine character thus made concrete and fruitful in blessing, reveals a side of God most inviting to all his creatures capable of æsthetic pleasure.

The love of beauty inherent in the divine nature explains the place it holds in man's mind, since he is structurally like his Maker. Hence it is that the human soul reacts so universally to the visibly and audibly beautiful. Man feels a sense of kinship, Professor Shaler says, with the Author of this exquisite creation. "The fact that Nature is beautiful to us, that its action meets a swift response in our minds, is best explained by supposing that its informing Spirit is akin to our own. Not as naturalists, perhaps, but as reasoning beings, we are forced to suppose a like quality in the Power that shaped it."

In the mind of God the various kinds of beauty, physical, intellectual, moral, and spiritual, must be inseparable. Too commonly, men select the lower forms of the beautiful to cultivate and enjoy, neglecting or opposing the claims of the True and the Good. This is literal heresy, according to the etymology of the word, and heresy of a most unworthy sort, fatal in the end to both the lower and the higher types of beauty. That music should be snatched from hands celestial, and made to minister

to sensual or self-glorifying uses, is æsthetic blasphemy and ungrateful atheism. Holiness is wholeness, moral unity. A voice or an instrument that should break away from the written harmony, and follow its own sweet or unsweet will, regardless of other concerted parts, would not more surely make unbearable discord than in moral relations does the artist, or any other self-willed individual, who chooses to enjoy music solely for the pleasure or sordid gain it may bring. Beyond other arts, music, in its native purity and power, represents the holiness of beauty, and commends the beauty of holiness. Happy indeed are mortals who see in their Maker the union of both, and aspire to realize both in their own spiritual history. Goethe's saying, "The eye must be sunny that would see the sun," applies equally to audible art and to spiritual sight and hearing.

"He only sees who is happy in the seeing,
He only hears in the gladness of belief."

To know and enjoy the highest beauty of art, the soul must know beauty's Author. And, conversely, those who know God, see and hear more

in his works than other men. For them the absolute beauty shines and sings in all its inferior forms.

That the Divine Artist, himself perfect in holiness, seeks in every way the holy wholeness of men, is evidence of purest altruism in the world's Governor and government. The Great Musician continually furnishes to all sentient creatures the elements of tonal beauty which he has made them capable of enjoying. He leads men on in the development of this art which ministers health, happiness, and potency of grace wherever rightly known. Not only does it greatly increase the "vital value" of life in this world, but adds to it a spiritual value of progressive worth good for all worlds.

In the closely articulated book of nature an illuminated chapter might be found showing the place, nature, history, and manifold benefit of the universal fact of music. It may be conceived of as a strand of audible beauty running through the whole fabric of evolution, to bless the sentient creation more and more, and especially to spiritualize the race of man. Or, is it to be thought of as a divine

theme given in the beginning, when the morning-stars sang together, and ever since worked out in forms of increasing complexity and beauty adapted to each stage of advancing development, till in human experience it has become representative of the harmonies of heaven, past, present, and yet to be? No boon richer in potential blessing, except Redemption, of which music is a ministering agency, has been given to mankind.

This art, then, should be held in sweetest reverence, and treated as a revelation of Deity for man's highest good. In this respect, St. Hildegarde set an example worthy to be remembered. She had, as Dr. Storrs in "Bernard of Clairvaux" tells us, great reverence for music, which she declared to have an origin in the divine voice of the Spirit of God, of which terrestrial melodies are but echoes. So she insisted that the art should be cultivated in a devout frame of mind, and called sages those who served well on organs.

It is, indeed, the greatest blessing of music that in it the very voice of God testifies of the Creator's own profoundest love of the beautiful, and his desire that every living creature, according to the capacity

of each, shall share his joy in it. It tells man of the many-sided nature of his Maker; that he exists to bless the offspring of his creative Fatherhood; that his omniscience is pledged to maintain absolute truth in the least and the greatest works of his power; that his laws are justly uniform in all parts of his universe; that his nature is perfect in goodness, truth, and beauty; and that he has formed man to perceive and richly to enjoy the divine self-revelation in either form.

In the unforced development of the art of music, the Sovereign of the universe gives proof that the inhabitants of this world, at least, are accorded true freedom under a wise and beneficent reign of law. Able to do whatever he wills, he wills to do only that which is in harmony with the true and the beautiful. This is the liberty he would have his earthly children freely choose and enjoy.

By the system of inflexible law which rules the universal acoustic realm, the All-wise shows that the Beautiful rests upon the True and the Right. These principles of his own nature are basic in all nature. His character is moral adamant. His æs-

thetic thought is harmonious light and shadow, form, color, and music. His sole motive is love. In the perfect harmony of the divine qualities man has a perfect standard for life here and hereafter.

Æsthetic tastes and pursuits are sometimes looked upon as signs of mental weakness. Too often, they are regarded as chiefly fitted to minister to passing enjoyment or still lower ends. When Confucius, Plato, Shakespeare, Bismarck, and other men of like force and leading find in music a source of strength, stimulus, and healthful delight, it is evident that, to avoid enfeeblement or perversion, the only need is to maintain right proportion of the practical, the ethical, and the æsthetic.

The Infinite One is the embodiment of sanity and integrity, yet clothes himself in robes of visual and audible beauty, as fitting garments of that holiness which is perfect wholeness. And this is his gracious will for his intelligent creatures, that they shall be like him in solid structure of character, and, like him, shall put on the exquisite, joy-giving grace of the Beautiful. Such a God, however named or worshipped, deserves to be known, loved, and imitated.

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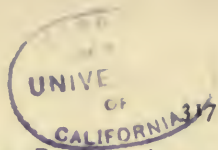
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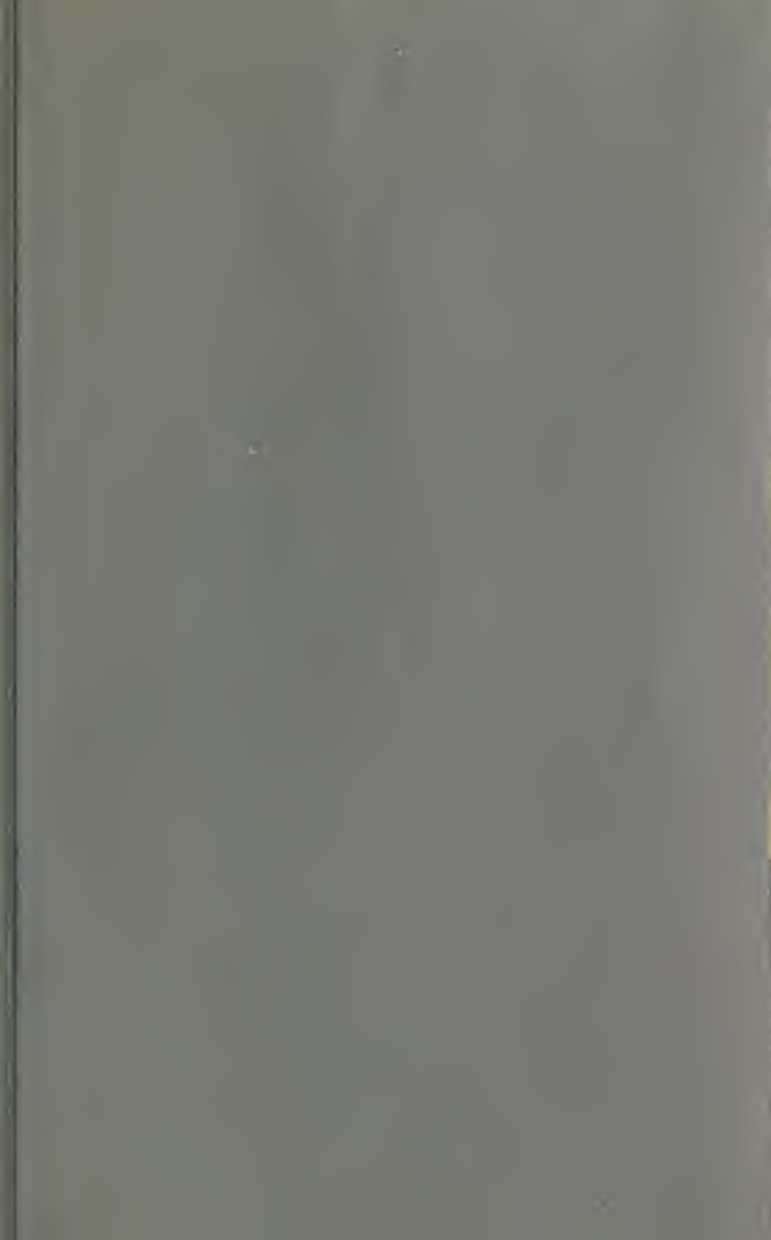


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