

# *The Magic of Tone and the Art of Music*

DANE RUDHYAR





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European music and at what the musical score had actually done to the experience of tone.

All this led me, when I returned to New York for a few months in 1925, to expand further my investigation of books on Asian music and to write a large book, "The Rediscovery of Music." The wife of the publisher Alfred Knopf was interested in my project, but she found my manuscript far too unusual and controversial to have "commercial possibilities." My association with a few Hindu musicians at the time led me to write a much smaller work, *The Rebirth of Hindu Music*, which was published in Madras, India, in 1928. (It was reprinted in 1979 by Samuel Weiser Inc, New York.) In 1931 I revised and circulated (in ten mimeographed folios) a series of lectures, "Liberation through Sound," which outlined a metaphysical approach to sound and outlined exercises evoking the inner meaning of the intervals I discussed.

The Great Depression made it increasingly difficult for me to continue the lecture-recitals on "New Music" I had been giving to small groups of people interested in my philosophical and musical approach. There were very few more official means for composers to obtain grants or fellowships at the time, and what channels there were had become almost entirely controlled by advocates of Neo-classicism and formalism, a trend I strenuously opposed. Other personal considerations took me away from the field of music, except for brief periods of composing.

After World War II and the spread of phonograph records and tapes of non-European folk and classical music, particularly the music of India, a new generation of restless young seekers rebelling against "the establishment" and the Western approach to religion, morality, and artistic traditions became fascinated with meditative practices and Oriental music, particularly the music of India, the Sufi Near East, and Bali. My own compositions of the twenties began to be performed by young pianists, and a number of avid readers of my books on astropsychology and on a philosophy rooted in ancient concepts wanted to know my ideas on what in 1927 I had called "World Music." Several copies of my typescript of "The Rediscovery of Music" were made available to them, and I was urged to publish a new version of it.

In 1970 I did write an entirely new work, "The Magic of Tone and Relationship." It included much old material and developed ideas I





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# 1

## Communication: Man's Primordial Need

ORGANIC LIFE IN THE EARTH'S biosphere requires organisms to relate to other organisms. Human beings are particularly dependent on establishing enduring relationships with other human beings, and thus on their highly developed ability to communicate with them. The ability to communicate also exists in animals, many of which use some kind of language for communicating within their own species and genera.

When we think of language we tend to have in mind communication based on the emission of sounds, specifically vocal sounds. The word *language* etymologically refers to the tongue (la langue in French, lingua in Latin). But sounds used to communicate may also be produced by other parts of the body, and there are languages of gestures (for example the sign language used by some tribes and by deaf people).

The education of young animals, human infants, and adults depends upon the imitation of gestures and complex modes of behavior (for instance, playing musical instruments or sewing). The term *education*, however, is not accurate here. Animal young and human babies are not led out (e-ducere) in the now-fashionable sense of the term. If they are led out, it is out of the psychic womb of the family to eventually take their places in an open environment. This is very different from learning. What occurs in childhood learning is that





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ing and sculpture), the exact reproduction of the appearance of objects and persons becomes the goal of artists, whose predecessors had been concerned only with sacramental forms revealing not merely the ephemeral personality of people but their functional identity as participants in ritualistic and mythic activity.

Such a change of consciousness and activity within a culture-whole eventually radically transforms it; yet the transformation takes a long time to become entirely effective. At first only a few members of the culture-whole are affected. The mass of the people cling to the familiar biopsychic manner of living together and feeling together; they continue to think in terms of the traditional meanings given to words they had learned in childhood. Yet the transformation which a few inspired pioneers initiate—as semi-conscious agents of some mysterious evolutionary power rather than as individuals—displays an energy of its own, usually in socioeconomic circumstances favoring its spread. To accept it, at least intellectually, eventually becomes fashionable. It is formulated in new words, integrated in terms of more or less new concepts loaded with new feelings—at first mainly feelings of rebellion against authority, then the belief that one is very special and part of an elite. Sooner or later the new mental approach becomes socially and culturally organized, then institutionalized.

One can interpret such a basic yet gradual transformation in the consciousness and activities of the participants in a culture-whole in several ways. It has successive and simultaneous causes at several levels—biological, economic, political, intellectual, and religious, even planetary and “cosmic” (or spiritual). Here I wish to stress that the transformation involves a change not only in consciousness, but also in the *level* at which human beings are expected to communicate when they transmit the experiences the culture considers most valuable and significant. Although many human experiences always have to be communicated at the more primitive biopsychic and feeling level, our intellectually developed Western culture-whole collectively and officially values communications requiring the specialized use of the highly developed abstract mind. The abstract mind operates most significantly on the basis of number and form—thus, in terms of quantitative measurements, statistics, and formal arrangement and development.

When its collective abstract mind develops sufficiently, a culture-whole reaches the stage of civilization. It then operates at three levels.





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which Genesis 1:3 refers—that is, *before* the sun and moon appear—the term *light* symbolizes the conscious mind operating in terms of duality: the most basic and primordial dualism a human being experiences is that of light and darkness. Thus, while light symbolizes the emergence of the objective consciousness it makes possible, Sound refers to the operation of the creative will.

We are normally aware of light only to the extent it is reflected by some material substance, including the atmosphere. Reflected light makes us conscious in a certain manner of an external world of objects extended in space. Similarly, what we call sound (sound as vibration of molecular matter) may have to be understood as the repercussion of dynamic currents of energy upon the matter it sets vibrating. This energy is that of the creative will as it makes an essentially qualitative impact upon molecular substances like the air, which in turn transmit the impact to the resonating mechanisms of the human ear.

In ancient India, sound was believed to exist in two forms. Physically perceptible sound vibrations were termed *ahatta*. An inaudible, spiritual kind of Sound, to which in special conditions the non-physical aspects of the human consciousness could resonate, was called *anahatta*. Anahatta Sound should be understood as the power of the divine will, which sets in motion the proto-matter of chaos (Genesis's "dark waters of space," the medieval alchemists' *prima materia*). This creative Sound makes matter spin into vortices of motion.

Atoms spin and so do planets. Cosmic Sound is the power that generates the rotative motion of every globular form of existence.\* As

\*If there are periodical changes in the rotation of the earth—as advocates of various pole shift theories claim (cf. *Pole Shift* by John White [New York: Anchor Books, 1980])—the rationale for these changes may have to be found in the periodic action of some central galactic Sound (for the earth moves in galactic space as well as around the sun), rather than in millennial modifications of some external features of the earth's surface (for instance, Antarctica's enormous ice cap) or in the movement of continental plates.

Changes in atomic structures may also normally result from the activity of an intra-atomic power, of which modern science still knows nothing, while references to it are made in many ancient books, for example, in the great Hindu epic, the *Ramayana*, where mysterious rays that destroy a whole army—rays sent from flying vehicles—are clearly described. In H. P. Blavatsky's *Secret Doctrine*, the mysterious force which an American inventor, J. W. Keely, seems to have discovered just a century ago is discussed at some length. One of Keely's supporters, a Mrs. Bloomfield-Moore, wrote most interestingly about some of Keely's discoveries and theories. As Blavatsky suggested, the use of such a force in the hands of present-day scientists, technologists and military establishments could have been utterly disastrous and leading to results even more destructive than the global nuclear war everyone dreads but which no one so far seems able to exorcise from the human mentality.



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music and similar types of musical organization in non-European cultures, especially in Asia. Basic differences exist not merely in the form of such repetitive series, but in the spirit in which they are considered and used as the foundation of music—and above all there are differences in the *quality and essential character* of the sounds they organize.

There is a fundamental difference between a *tone* (in the dynamic, vital, magical, and/or sacred sense of the word) and a musical *note* as part of a scale (thus in relation to other notes). Unfortunately musicians use the words *tone* and *note* interchangeably, because they are not aware of the difference between them, and traditional Western composers, music schools, and universities have given only minimal attention to it. It is therefore essential to define these terms clearly. *Sound*, *tone*, and *note* each have a specific meaning, even though they may refer to the same auditory phenomenon. Each represents a different response to a musical event—a different way of feeling and thinking about what has been heard.

*Sound* (in the nonmetaphysical sense) simply refers to the transmission of vibratory motion and its perception by the auditory center in the brain after the various parts of the ears have resonated to it. A *tone* is a sound that has conveyed (or can convey) significant information to the consciousness of the hearer because it is charged with and transmits (or can transmit) the special nature and character of the source of the sound. Thus a tone is a meaning-carrying sound. A tone has meaning in itself, as a single phenomenon experienceable by a living being endowed with some degree of consciousness.

A musical *note*, on the other hand, has no meaning in itself. It has meaning *only in relation to other notes*. The same note may be played by several instruments producing very different actual sounds. A note's meaning is abstract, because it is not essentially attached to any particular pitch, timbre (quality of sound), intensity, or mode of production. A note may be transposed (that is, its frequency can be altered) to another level of vibration without its musical meaning being greatly changed, *if* its relationship to all other notes remains the same. A note is even more abstract if it is considered one of a myriad of elements in a written musical score—a score which may never be performed (that is, actualized by sounds the ear can perceive), yet which, at least for trained musicians, in fact *is* the music.

Since the sixteenth century Western music has resulted from apply-





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on a metal plate to which the sound vibrations of a violin string are communicated. The grains of sand will form themselves into a geometrical pattern which changes when the frequency (number of vibrations per second) of the sound is altered. Similarly, singers have been known to shatter an empty glass by producing a vocal sound vibrating at exactly the same frequency (or pitch) as that of the glass.

Sound is the basic means for the transmission of the magical will. Magical tones can be particularly powerful when associated with physical body movements, that is, with specific rites and magical dancing. In a ritualistic dance the characteristic movements of an animal, or (in more developed culture-wholes) the periodic motions of the planets around the sun, are imitated. Imitation is the simplest form of magical activity; one is believed to become what one imitates. Similarly, at a mental level, one is said to become what the mind images forth. Whenever an individual or collective will acts through a form whose constant repetition impels or even compels a person, consciously or not, to imitate this form, one can speak of magic.

Magic is not an archaic concept; it is the most often-used procedure at any period of the development of a society, Western society included. The main difference between archaic and modern magic is the level at which the magical will operates and the level of consciousness of the persons the will seeks to affect; secondary differences involve the types of sounds, Names, and repetitive movements (rituals) used to communicate the message which the will is beaming at the intended recipient. Fortunately, the will of modern magic workers is usually not well focused, and the intention behind it is too general to be sharply effective—except for highly ritualized brainwashing aimed at deliberately weakening the recipient's physiological and psychological ability to resist suggestion and retain his or her own identity (Name) and the particular function he or she is performing as an individual in society.

Primitive societies initially operate at the level of animism. During the animistic stage of culture (which is, strictly speaking, protoculture) human beings endow every repetitive natural activity with a quasi-personal character. These entities are relatively friendly or inimical. Human beings have to solicit their help or ward off their attacks by propitiating them. All human activities are magical in intent—including all biological functions that seem to assist or hinder the primordial



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cosmogonic myth of its own. Even if it is built by the intellectual, analytical mind as a seemingly logical construct made of carefully accumulated "facts," the astronomers' story of the Big Bang and the process it started is a myth. It organizes into a sequence of atomic and physical phenomena a number of interpreted data which are relevant *only* if one assumes—a very big assumption!—that the "laws of nature" have been always and everywhere what our limited observations make them appear to be. It is a myth that reveals the stage of mental development of Western civilization, just as older religious cosmogonies show the state of consciousness and feeling-responses to nature, life, and social process of earlier culture-wholes.

In *The Sacred and the Profane*, Mircea Eliade (a French-born anthropologist teaching in the United States) significantly develops the meaning of the sacred in primitive cultures.\* This sacred activity of the gods is essentially operative at the beginning of all cycles of existence, yet it never really ends because it occurs in a special time that is ever present. Whoever thinks in terms of historical time has to say that God acts *creatively* once and for all (uniquely) at the creation of the world, even if according to the Christian myth He also acted, also once and for all, *redeemingly* in the form of the Christ. In vitalistic cultures the seasonal cycle of vegetation is symbolized as the solar myth so often discussed by anthropologists of the last hundred years or so. This myth was enacted in the ancient Mysteries whose sacred character was still unquestioned during the great period of Athenian culture. Everything originally related to it was sacred, because it was imbued with the resonance of the gods' creative activity.

The sacred acts of a human being whose whole being is consecrated to the gods (or God) as a pure channel for their (or His) creative power are magical in their potentially transformative effects. But they are more than magical, because the human form and consciousness have, from the mythical point of view, been totally assumed by the divine power. God acts *through* the human being, and this activity is *now*, because God's activity is eternal. Thus it is not that this divine act is repeated every season and in every sacred ritual; it is the same act brought down (as it were) from the changeless realm of God into that of forever-changing events.

\*New York: Harcourt, Brace, 1959.



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existence this limiting factor might be a ratio 3:2 (producing the interval called a fifth), or 4:3 (the interval of fourth), or even 3:1 (a twelfth).

Music is a myth in the sense that it is based on series of repetitive relationships, each series actually constituting a mystery drama not essentially different in nature from the solar myth. The hero in the solar myth has to pass through a series of tests, and these represent the working out of symbolic relationships with monsters, enemies, and elemental forces. Each tone in the archetypal grama can be interpreted as a particular phase in a sacred process of development of consciousness and power from one level to the next. The musical solar hero passes from one sphere to another. As he reaches the end of the transformation—the seventh step, the “leading tone,” the Initiation—he is able to hear the “music of the spheres,” to re-experience the succession of the challenging tests that nearly destroyed his being as what the Greek culture called a “harmony,” but which in terms of the European culture should be called a “soul melody.”

Music is a myth in which the actors are tones uttered by the creative-destructive, transformative-regenerative power of the One Life—the sacred Tone of cosmic being, which operates both macro-cosmically and microcosmically. The sacred tone differentiates into its basic qualities, each of which potentially assumes an archetypal form interpreted at the level of cultural psychism as a god or goddess. The number of these qualities varies, but the numbers three, five, seven, twelve, and twenty-two apparently have a fundamental meaning and sacred power. Music deals with the relationships among these qualities; the musical equivalent of the dynamic, evolving aspect of these relationships is melody. Tone-magic is primarily concerned with the quality of the tones themselves and with their inherent ability to communicate meaning. When the communication primarily conveys information, tone-magic becomes speech.

Speech is sacred when it conveys information given by the divine being who initiated the community's process of becoming a unified culture-whole by teaching its people how to work, think, and feel in tune with the rhythms of nature or, as in the Christ-myth, who revealed the existence of a superphysical “nature” in which the compulsive and aggressive character of life in the biosphere is replaced by harmonic cooperation and spiritual love. At a later than vitalistic stage of cultural development, speech is sacred when sacred texts are





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ity and actuality. The rule of number is the rule of potentiality. Ten units are potentially more powerful than one; nevertheless, most decisions are actually made by a very small minority of qualitatively more valuable, significant, and effectual individuals who are (in some ways) the spearhead of human evolution. Quantity comes to dominate when beings who were called upon to act in the name of a *particular quality of organization* are no longer able to perform their work of destiny—their dharma.

The great problem is how to define and recognize the process of being called upon. To define it in terms of biological heredity and social inheritance is only partially valid. What we call education should be the process whereby a human being becomes aware of what his or her society and culture needs, and of what his or her ability is to participate effectively in the satisfaction of those needs—thus of what he or she is called upon to do, his or her vocation. But a society ruled by quantitative values and measurements (tests and statistics) obscures the deep, intuitive, and qualitative feeling of individual vocation. In American Indian society, every adolescent child (at least every male child) went into the wilderness and fasted until he received his vision and was given his sacred Name. Western culture is one of visionless and nameless individuals who, as citizens, are only numbers in a variety of statistics.

Similarly Western music is a highly complex organization of notes which constitute a score—a musical work. All the notes in a score are interrelated, but the relationships are defined in terms of intervals—numerical ratios—not in terms of the quality and meaning of sounds which can be considered tones because they have an inherent quality and convey a message.

It is probably impossible to ascertain when the concept of number, exact measurements, and proportions entered and came to dominate the field of sacromagical incantations and ritualistic tone production. Traditionally it comes from Pythagoras during the sixth century B.C. But great as Pythagoras undoubtedly was, he can hardly be made entirely responsible for so important a development. He certainly had traveled widely, and he may have learned in the sanctuaries of Egypt and Chaldea much of what he taught to a small group of the Greek aristocracy. It is also said that he received much of his knowledge from the Orphic Mysteries, but where the Orphic tradition originated is uncertain. One may speculate that it came from beyond



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the worship of the child Krishna began long after the Buddha, when the old Hinduism regained its power. The mythical Orpheus was also said to play the lyre, probably as an accompaniment for sacromagical chants.

The significance of the scale Pythagoras used was that it did not have a special connection with local and ritualistic events. The melodic sequence of tones could be intoned at any time and any place because it had a universal validity rather than a mythic and cultural character. It was based on not only universal but observable facts. Anyone who knew how could easily ascertain the accuracy of the sounds and their sequential relationships by measuring lengths of vibrating strings. Through this act of measuring, the formative processes of the realm of the cosmic mind—the mind of reason and harmony—could now be understood and unvaryingly applied to the needs of emerging individuals eager to free themselves from a collective existence.

When, through travel and commerce, local conditions lose much of their fundamental meaning and root power, the myths, cults, and sacred ceremonies of a culture are deprived of biopsychic efficacy. The power of reason gradually supersedes the magical foundations of the vitalistic age. This is a slow process to which only a "creative minority" (to use Arnold Toynbee's phrase) can effectively resonate. The new mental concepts take the form of theories, which may be officially taught, but the official teachings do not radically alter the general practice of the people. Confusion, therefore, results.

The Pythagorean scale is not a mode, for a mode is the product of special conditions belonging to the realm of culture and myth. The Pythagorean scale is an unconditioned, archetypal manifestation of cosmic principles. Number and proportions, as Pythagoras understood them, belong to the realm of archetype. In order to effectively operate in that realm man needs to develop a mind that has basically freed itself from bondage to biological energies and mythic-cultural specialization and exclusivism. When conceived by the archetypal mind, music can become, at least potentially, a universal, supercultural language.

The difference between scales and modes is basic though subtle and deals with the consciousness of music more than with the sounds and intervals the ear perceives. In archaic times when shamans and priests intoned magical incantations, the tone relationships (intervals) they used might have been almost indistinguishable from those of the



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became the harmonizing of discords in the partially individualized (thus relatively isolated) and psychically disturbed person.

The healing power Pythagoras used was that of Sound itself—sound used as a power of harmonization. To harmonize in the Greek sense was to deal with the unceasing process of change that is life itself, to make this change resonant with the rhythmic flow of universal change. The universe was not seen as a static whole, but rather—as Heraclitus emphasized—a dynamic process of rhythmic formation and transformation. Pythagoras presumably emphasized the formative aspects, while Heraclitus stressed the transformative phase, symbolized as fire.

The basic premise Pythagoras impressed upon the collective mind of preclassical Greece was that the process giving form to all things operates through number. The formative process operating through number was not, as Pythagoras formulated it, a magical or divine operation, but one based on ratio and, more abstractly, on reason. This operation could be understood by the human mind and applied in the simple act of measuring.

The dangerous and potentially negative aspect of such an approach to existence is that it tends to substitute quantitative concepts and practices for qualitative values. It also tends to stress the importance of matter and material bodies because these can be easily measured, while psycho-spiritual realities do not lend themselves to quantitative analysis. In music a transformation of sacromagical tones into abstract notes which are but the edges of intervals becomes likely once the tone producer becomes a quasi-mathematical theorist or technician haunted by accuracy and mechanical (that is, measurable) perfection. The Greek trinity of the Good, the True, and the Beautiful can take the form of ethics, science and esthetics; but if scientific knowledge is pursued in lonely splendor by technicians intent only on measuring everything regardless of human consequences, and the arts stress the concept of form regardless of content or meaning, ethics, as the development of interpersonal relationships on the basis of an all-encompassing harmony, tends to be either forgotten or sentimentalized by the paternalism of priests and moralists.

Then two basic concepts arise: knowledge for the sake of more knowledge (regardless of what its application will mean), and art for art's sake, which in the broadest sense of the term is formalism.





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begins that of the performer, who has to retranslate space into time and abstract notes into actual tones—or at least revealing or expressive sounds.

The spatialization of music into a written score is the logical outcome of the introduction of number and measurement into what was once the magical or sacred sounding forth of the qualities of living entities, elemental forces, and gods. But music could have been spatialized in a different manner from the process followed in Europe.

In order to understand what an alternative process would imply, it is necessary to realize that there are two ways of conceiving space: as an empty container in which separate and independent entities move and are related by electromagnetic and gravitational forces, or as fullness of being in which areas of various degrees of condensation, differentiation, and focalization occur which we perceive as distinct and seemingly separate entities. Euro-American culture has taken the first approach to space. It is to be hoped that a future culture will be able to take the second approach. It would not be a new way of thinking of space, for this was the way space was instinctively or intuitively pictured in the minds of the initiates of ancient times.

In those times when the feeling-concept was that the One Life entirely filled space, whatever lived in space was believed to be a particular differentiated aspect of this One Life. It was a condensation in space. Today we are beginning to think of matter as condensed energy, and interstellar and intergalactic space as an ocean of energy vibrating at incredibly rapid speed. The classical European Newtonian concept of empty space, or the metaphysical concept of space as an innate idea in the human mind—a primary mode of perception—is being superseded by a realization that space is in fact a plenum of originally undifferentiated energy-substance. Space, in that sense, is the ultimate reality—or rather, one of the two aspects thereof. The other aspect is motion, which implies time as the substratum of change, or (as some philosophers might say) the abstraction of the universal human experience of change.

The basic issue is, should we think of the motion of separate entities *in* space, or of rhythmic movements *of* space producing entities which, though they may appear to be separate, are in fact only differentiated areas of space and temporary condensations of energy? This may seem to be a highly metaphysical issue having very little to



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tration. This fulfillment is possible only within the "perfect form" in which the fullness of space is vibrating.

This perfect form is the supreme manifestation of the Beautiful. It reveals the True proportions of cosmic and human being; and the realization and contemplation of this perfect form impel human beings to relate to one another in terms of the harmony it reveals. This is the life of the Good—the life of plenitude and harmonious relationship, the life of divine love (agape) or, for the Greeks of the Pythagorean and Platonic eras, ideal friendship.

The next chapter will discuss the descending (or involutionary) and the ascending (or evolutionary) aspects of sound, and what I believe was Pythagoras's attempt to relate the two movements within a condensed septenary musical form, the so-called Pythagorean scale—an archetypal image of the "music of the spheres." But first I would like to stress that the concept of musical form can be given two meanings. One can speak of form *in* music, or the form *of* a particular musical work. Form *in* music refers to the quality of the organization and the consistency (in a sense the inner necessity) of the flow of sounds in time. The form *of* a musical work is an evolving cultural product related to the style of a particular period and the character of the culture's collective mind.

This collective cultural mind evolves. We can consider the classical period of a culture as its "flowering," in the sense that the most characteristic features of the culture achieve a formalistic and concrete solidity; but what is most characteristic is also the most particular and exclusivistic. Thus, for example, in the sixteenth and seventeenth centuries, musical works assumed the forms of the motet, the fugue, the suite, and eventually the sonata, which symbolize and exteriorize the particular character of the European culture in music. The fugue, the sonata form, and the symphony can be considered attempts to develop perfect form under the limitations and the specific character of the culture's collective mind and its basic *Weltanschauung*.

For the collective mind of Western civilization, form is a pattern of development projected upon the emptiness of space. It derives essentially from the centralized system of organization we call *tonality* and from the application of this system to musical notes whose abstract character makes constant transposition possible, but also precludes a vital flow of sonic energy between notes. Notes are related to one another only by mathematical pitch ratios. They operate in empty



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gong to a muscular act which was the exteriorization of a decision to produce the audible tone in order to communicate information or a state of consciousness. The physical sound is the repercussion in matter of the inaudible Sound (the current of will through the nerves), just as light and color are the reflections of solar rays striking the atmosphere or a material object.

The vocal and instrumental sounds we hear are only the resonance of matter, including the air molecules contained within the resonant cavities of the human body or an instrument. The audible sounds produced by this resonance *rise*. They rise symmetrically to the series of steps taken by the *descent* of the activity-producing Sound—the energy of the will or the emotions. We do not hear this Sound, but only the wave motion of the resonant material; and as the resonant material usually has a complex nature, what we hear is an equally complex set of vibrations. Nearly all the sounds we hear are combinations of vibrations. In acoustics these are called partials. One partial is normally dominant in the sounds produced by musical instruments and the human voice. We call this dominant vibration the fundamental; the hardly perceptible ones are called overtones or harmonics.

The concept of fundamentals and overtones is, however, not basic and natural (as musicians usually believe). Tone analysis is not instinctive. When the modern acoustician hears a trumpet and a violin produce the same note, say a middle C, he or she may think of the two sounds as combinations of the same dominant vibrations and the different overtones characteristic of trumpet tones and violin tones. The acoustician hears this way because he or she has been trained to do so. An untrained hearer will have a nonanalytical feeling-reaction to the sounds of the instruments, perhaps because the sounds are associated with pleasant or unpleasant past experiences. The difference between the two reactions is even more evident if we compare an Indian scout traveling through a dark forest ahead of his tribe to an acoustician studying the cries of animals in the safety of a zoo. The Indian scout listens for the tones of living beings to discover the nature and temperament of the animals producing them; the scientist applies his intellectual training to learn more about sounds as composite waves.

The sound waves the acoustician analyzes originate from the vibrations of material substances. Whether these are musical instruments or the parts of a body that produce vocal sounds, the material





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sion originally existed there, probably in the Orphic chants before Pythagoras. The Pythagorean meaning of the tetraktys is related to the mystic properties of number 4, even though it was also applied to the basic musical intervals—octave, fifth, fourth, and whole tone.

Pythagoras dealt primarily with the concepts of number and proportional form, that is, with the relationship between numbers and their visual manifestations as geometrical forms. He was not concerned with the timbre or quality of tones produced by material bodies, but rather with the development of the mind of reason—the archetypal mind dealing with number and form. Such a development had become historically imperative to help human beings overcome their involvement in the biopsychic realm of instincts, emotions, and collective cults, symbols, and myths personifying natural forces and cosmic processes. Pythagoras sought to *demythify* music. This reform attempted to substitute number and proportion for gods. In the process, however, it intellectualized and spatialized what may have still been the direct experience of the descending energy of Sound. If Pythagoras himself effectively used the power of Sound as a healing force, it was by providing adequate vocal and instrumental embodiment for its audible resonance in matter.

A music with descending progressions of tones indicates that the musicians are still at least subconsciously attuned to the flow of Sound. Their psyches are still open to the *direct* impact of its descending energy. Later, music loses this attunement; it deals instead with tones generated by the complex vocal organs and resonant cavities of the human body and, more and more, by musical instruments able to provide an even richer resonance to Sound. Musicians increasingly think in terms of measurable and exact relationships between tones—that is, in terms of intervals.

In music, any series of sounds (melody, for example) can be considered from two different points of view: as a sequence of separate *sounds* of varying pitches, or as a series of either ascending or descending *intervals* (a second, a third, a fifth, and so on). An interval is defined by the mathematical ratio between the frequencies of two tones.

When musicians or acousticians speak of the harmonic series of fundamental and overtones, they can refer either to the individual notes of the series (for example,  $C^1$ ,  $C^2$ ,  $G^2$ ,  $C^3$ ,  $E^3$ ,  $G^3$ ,  $B^{b3}$ ,  $C^4$ ), or to the intervals between them, that is, an octave ( $C^1$  to  $C^2$ ), a fifth ( $C^2$  to  $G^2$ ), a fourth ( $G^2$  to  $C^3$ ), a major third ( $C^3$  to  $E^3$ ), a minor



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this chapter. Comparisons between other series of intervals may or may not be significant.

An arithmetic series refers to the transmission of *power* which, released from a creative source, becomes differentiated. For instance, in the government or a large corporation the power wielded by the top executive descends through several levels of authority before it reaches the realm of concrete, material results. In music, this level is the actual vibration of a resonant instrument or voice. On the other hand, a geometrical series refers to *consciousness*, because consciousness is implied in or is the product of the relationship between a self and an other. Consciousness develops through the progressive complexification of relationships. It expands by including an ever greater number of differentiated relations—in music, an increasing number of different intervals.

Thus, in the pattern of a harmonic series of fundamental and overtones, the relation between two successive harmonics—the *interval* between them—diminishes in scope; the ratios 2:1, 3:2, 4:3, 5:4, and so forth, become increasingly smaller. On the other hand, if we focus on the geometric series of *octaves* starting with the fundamental, we see that each successive octave contains more overtones than the preceding one. Thus, while the number of overtones increases per octave, the intervals between the overtones become smaller (see table 1). Before the eighth octave is reached the intervals between successive overtones become so small that the human ear can no longer distinguish them clearly; the harmonic series becomes a rising continuum of sonic vibrations.

The first octave contains no intermediary harmonics; the second contains one; the third, three; the fourth, seven; the fifth (16 to 32), fifteen; the sixth (32 to 64), thirty-one; the seventh (64 to 128), sixty-three. The last interval within the seventh octave is the expression of the ratio 128:127; it is so small an interval that the ear cannot distinguish it from the following interval, 129:128. The last interval of the fifth octave (the ratio 32:31) was used in Greece as the characteristic enharmonic interval. It was slightly larger than a quarter tone in the modern Western scale. The Pythagorean comma—the difference between the musical space of seven octaves and twelve fifths—is about one-eighth of a tone.

An octave divided into equal intervals approximately the size of a comma would contain forty-eight eighth tones. No instrument, except



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quasi-infinite multiplicity of entities active in the universe. Religions speak of God's desire to create, of the primordial Eros that moves the One to produce out of its unity a second, perhaps a mirror, image. Hindu metaphysics interprets such a process of doubling or replication as the great illusion, the essential Maya, root of all existence. The harmonic series of fundamental and overtones provides a very significant and experienceable realization of the relation between pure unity (the One) and duality (the second) by referring to the unique and mysterious character of the octave in music.

The remarkable fact is that two sounds an octave apart are given the same name, even though one of their frequencies is twice that of the other. They have for our ears an identical nature. They are the same *note*, even though they are obviously not the same *sound*. Are we *conditioned* by our culture to feel that two sounds at an octave interval are the same note, or is the feeling of their identity *innate*—that is, rooted in an intuitive grasp of the nature of a metaphysical-spiritual process, which is none other than the basic process of cosmic existence and the primary manifestation of what we call life?

Although the harmonic series of fundamental and overtones is an arithmetic series, and the archetype of all such series is the series of whole numbers created by the endless addition of number one to itself, the term *addition* may be misleading. Philosophically the series refers to the self-reproduction, self-multiplication, or self-replication of the One. All numbers are born out of number one. The birth process begins with the characteristic act of self-duplication. Duality emerges out of unity: the One produces the Other, which is identical to itself—a mirror image (as it were)—yet itself in a new role. This duplication process can be repeated; its repetition produces a geometrical series: two, when duplicated, produces four, which when duplicated produces eight; the eight duplicates into the sixteen, and so on.

This series might be considered a repeated process of reflection, giving rise to a series of mirror images. But sonically the series produces octave-sounds. They are not merely reflections of one another, for each one is the source of series of overtones, and each new octave of the harmonic series contains more overtones than the preceding one. Each new octave symbolizes a level of being one more step removed from the original unity—sonically the fundamental, philosophically the One.





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the desire for exteriorization of the One operating as *will*, the first manifestation of cosmic motion.

### THE SECOND OCTAVE

The second octave begins with number two. If we think of the harmonic series as a *descending* current of creative energy radiating from God, the second octave represents the first realm of manifestation of the principles according to which the cosmos will be built. In the first octave, duality was implicit; in the second octave it is explicit. The first octave is the noumenon of space as a field of potential activity. The potentiality is there because of the desire of the One for a second; but this second is a mirror image of the One. The One and the second are identical. We can hardly speak of a relationship, because identity is not really relatedness. Yet there is an implied difference between One and two. Two is One charged with the power to be the source of an immensely varied progeny. This power is Sound, Nada Brahman. This power has a dual nature, and the second octave is divided by number three into two unequal intervals, a fifth (the ratio 3:2) and a fourth (the ratio 4:3).\*

We can state this another way: love as a subjective desire is unitary; creative power is bipolar and operates through the interplay of two principles, expansion and contraction. The interval of fifth is expansive; the fourth is contractive since it has to balance and counteract the centrifugal power of the fifth in order that number four may be the exact duplication of number two. Such an exact process of duplication reflects the pre-cosmic, primordial love of the One for the second—producing a geometric series of octaves. Each new octave-sound begins a new level of cosmic manifestation, thus giving birth to a new rhythm of activity and consciousness.

As a centrifugal power the fifth represents the will to self-exteriorization, the power to make what is potential actual, and what is implicit explicit—thus the cosmogonic, creative mind. The fifth symbolizes electricity; the fourth, magnetism. The second octave, which contains both a fifth and a fourth, is a realm in which electromagnetism is the primordial mode of motion. At a lower and

\*These terms, fifth and fourth, are unfortunate and may be confusing. They originated in the fact that in our ascending diatonic scale (C, D, E, F, G, A, B) the F which ends the interval of a fourth (C to F) is the fourth note. G is the fifth note, and thus the interval C to G is called a fifth.



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In the European Middle Ages it was called the devil in music, being considered highly dissonant. In Franz Liszt's *Sonata after a Lecture of Dante* (1839) it is sounded repeatedly in its descending aspect which, in the descending harmonic series, should rather be noted C to G flat. The interval presumably symbolized in the composer's mind the descent into hell. Since Liszt's time the interval has been used often because of the dramatic feeling it conveys.

The last overtone of the fourth octave is harmonic fifteen; the fifteenth tarot card represents the devil, but this is what occultists call a blind, a symbol hiding a secret. Satan is an anagram for Sanat Kumara, who in the esoteric philosophy of India is the promethean being who gave mankind the fire of self-conscious and independent, individual selfhood. This gift (number fifteen) leads in the ascending harmonic series to the realm of the fifth octave.

#### THE FIFTH, SIXTH, AND SEVENTH OCTAVES

Number five (and the five-pointed star) is the hieratic symbol of *individualized* man. The fifth octave starts with number sixteen, which is two raised to the fourth power ( $2^4$  or  $2 \times 2 \times 2 \times 2$ ). From the point of view of the descent of spirit-radiated energy into material conditions, this level marks the full incorporation of the mother force, number two. It is the level of existence in physical bodies, spirit involved in material organization. From the point of view of the ascending evolution of the resonance of matter—that is, of the capacity to act in response to the impact of the image-making faculty and the will—the fifth octave marks the first stage of the process of individualization. It is the stage at which culture wholes are formed; their mental-emotional fields provide *collective* models as foundations upon which temples for the celebration of the individualized power and consciousness of man can rise.

What then happens to the individual? And what is the quality of his or her individual acts? The questions are symbolically asked by number fifteen. The transition between fifteen and sixteen has conditioned the answer, which leads either to the divine mother (the eternal feminine that draws one on to one's individual stature) or to the dark mother (who binds one to the realm of passion and the sins of pride and ambition).

In the first instance the spiritually individualized person reaches the level of the sixth octave, which begins with number thirty-two,



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incarnated out of supreme compassion for all living beings. The great bells of Christian cathedrals which called the people to prayer—to communion with divine love—were also manifestations of this root reality of mind pervaded with love.

The beautiful Baha'i temple near Chicago is shaped like a huge, nine-sided bell calling the faithful to the birth of a new age. It is to be an age of power, whose generally misunderstood astrological symbol, Aquarius, symbolizes the descent of a cosmic power released by the mind—if this mind is attuned to the Buddha mind and Christ love. The number of this coming age is nine. Number nine is the second power of three. It is the second term in a geometric series of whole numbers based not on duplication, but on triplication, thus 1, 3, 9, 27, 81, 243, and so forth—a series of intervals of twelfths ( $C^1$ ,  $G^2$ ,  $D^3$ ,  $A^4$ , and so forth).\*

The interval C to G reduced to the octave is the fifth; the interval C to D is the whole tone. The following chapter discusses how they formed the foundation of the Pythagorean scale and what the seven-note (diatonic) scale means philosophically and cosmogonically.

\*This can be called the avataric series, symbolically the *direct* series of manifestations of the One (see the footnote on page 67).





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one of the seven basic qualities of response to the creative power.\* There are seven Fundamentals, because the transmission of the power operates in seven ways. The seven rays said to emanate from the creative source are really currents of Sound.

Primitive cultures identified the seven Fundamentals with (or symbolized them by) animal cries, because archaic peoples regarded self-induced motion as the demonstration of spiritual power, and animals can displace their bodies in space while plants and masses of matter such as rocks cannot. But while each animal species could utter only one tone quality, one Fundamental, human beings could vocalize all seven Fundamentals. These, in time, became the vowels of human speech. Speech was originally magical and sacred because through it man could resonate fully to the entire transmitting stream of creative Sound. Within the field of physical activity, he could act as God (or as all the creative gods) acted at the moment of creation; and this moment, though reflected in what human beings experienced as cyclic time, was felt to be a perpetual 'now'—a time always present because without a conditioning past.

When we considered the grama as the basis of the music of ancient India, we referred to the way in which inspired musicians *felt* that the seven aspects of the creative power and the seven currents of Sound were related. The grama was (and in principle remains) the pattern of interrelationship linking the seven Fundamentals of tone in cyclic time. The Fundamentals do not refer to what the ear and especially technological instruments detect as overtones. They are seven basic manifestations of the One Life of the universe—seven types of resonance and tone-quality. Each Fundamental can then be considered the origin of its own harmonic series of overtones.

Each of these series differs according to *the distribution of the energy of the material resonance* in specific areas of resonance (formants), yet they all follow a single pattern, the harmonic series. All modes of material resonance *have to* follow such an arithemetic progression, because the resonance of matter reflects the essential oneness of the creative power and unfolds symmetrically. In resonating to the power, the material instrument (and the human or animal body) does so *as a whole*.

The harmonic series of ascending overtones represents the self-multiplication or differentiation of the wholeness of the resonant

\*I capitalize the term to distinguish it from the fundamental of a series of overtones.



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Rudhyar's work concerning a life with a deeper and higher consciousness of sounds is a must for all music lovers. As a composer, musicologist, and famed astrologer, he describes, explains, and truly conveys the magical quality of tone. This work is not only for those interested in the esoteric; rather it is for everyone who is open in heart and mind. I deeply admire this venerable father of higher, "new age" concepts. Please do take the time to read this great work.

—Peter Michael Hamel  
Composer, musician, and author of  
*Through Music to the Self*

Dane Rudhyar, along with his friends Edgar Varese and Henry Cowell, is a veteran of the twentieth-century music revolution's turn away from the overriding dominance of the European tradition. This profound and exceptionally provocative volume offers insight into the cultural context of new music today, including the repetitive/minimal works of Reich, Riley and Glass.

— Charles Amirkhanian  
Composer, Music Dir./KPFA Berkeley

AT A TIME WHEN music surrounds us everywhere—and is often mundane and mindless—this book reminds us of the mystery of sound and how sound can transform consciousness. Rudhyar presents a panoramic survey of the development of music, from its ancient magical beginnings to today's most sophisticated electronic avant-garde. He shows how the avant-garde trend is an attempt to cast off the formalities of the Western classical tradition and return to the simple and sacred meaning of sound. Drawing on his seventy years of experience, he reveals an understanding of the development of music that is inseparable from an understanding of the evolution of the human mind. Rudhyar shows how the creation of music can be more than a synthesis of East and West—evolving toward a truly inspiring and new "music of the spheres."

Dane Rudhyar is well known as a composer, philosopher, poet, painter, and aesthetic theoretician, in addition to his fame as an astrologer.

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