

Synesthetic Art, an Imaginary Number?

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Abstract

Works that fuse the senses are often referred to as “synesthetic art.” Computers, because they offer the possibility of controlling and synchronizing different media and implementing highly abstract compositional structures across media, seem an ideal tool for synesthetic art. This essay argues that a structural approach to such an artform is inadequate, and that it must be grounded in its potential symbolic functions. Starting from a brief examination of synesthesia as a neurological phenomenon and a sketch of the origins and influence of Baudelaire’s poetics of synesthesia, this essay suggests points of departure for a poetics of multisensory composition.

Historical Origins

Though frequently cited as the precursor for modernist interest in multisensory art, perhaps because of Richard Wagner’s boast of founding the “art of the future,” the operatic *Gesamtkunstwerk* is but one instance of art composed for multiple senses. Within the Romantic and late Romantic periods a parallel and decidedly smaller scale of experimentation flourished within Western European poetry, from there influencing a wide range of other artforms. The correspondence of scents, colors, and sounds first evoked by Charles Baudelaire in his poem “Correspondances” (1855) became central to the Symbolist tradition not only in poetry but also in other arts. Arthur Rimbaud’s poem “Voyelles” (1873) explicitly links colors to vowel sounds, an association to which he alone claimed to possess the key, but which some scholars have seen as evidence of lexical synesthesia. Other poets veered away from the intensification of sensual imagery employed by Rimbaud, and like Stéphane Mallarmé sought to reinvent language by muting the quotidian meaning of words and composing from their halo of evocations a transcendent image haunted by its own immateriality. The mystical oeuvre of Scriabin¹ presents a musical counterpart to the Symbolist tradition. Unlike the Wagnerian tradition, which preserves the distancing mechanisms of stagecraft and spectacle, it also seeks to dissolve the boundaries between audience and artwork and views the confluence of sensory stimuli as a key to this rupture.

The ideals of sensory simultaneity, correspondence, and rupture of subjective distance recur in Western art, from the Cubists and Futurists on through the experiments of John Cage and Merce Cunningham, to the psychedelic art of the 1960s and current compositional theories of electronic multimedia. Cage’s contemporary Dick Higgins² coined the term “intermedia” to describe multisensory compositions where the compositional process crosses the boundaries between media or even fuses media, creating shared structures. Freed from its poetic matrix, synesthetic composition presents a suite of syntactical and practical difficulties. In non-verbal media, synesthetic languages must be constructed from recalcitrant materials with no inherent linguistic component.

To simply adopt the traditional languages of the component media results in theater, not in synesthesia. But is the experience of a synesthetic artform possible outside of poetry in the first place? And in poetry do we ourselves experience synesthesia or is it our language that experiences it for us?

The introduction of digital media might seem to simplify the situation. All media can now be described through mathematical abstraction, and a syntax of intermedia composition could be constructed in a programming language. Once we let computers handle the math and synchronize the performance, we may be able to reveal a spectrum of relations among the senses that we have long suspected but found hard to formulate. Or we may discover that like the square root of minus one, synesthetic art is an enduring and valuable concept, but imaginary nonetheless.

Synesthesia as a Neurological Phenomenon

First, it is essential to clarify what we mean by “synesthesia” and by “synesthetic art.” For the former term at least we can refer to a scientific definition. According to neurologist Richard Cytowic “Synesthesia (Greek, syn = together + aisthesis = perception) is the involuntary physical experience of a cross-modal association. That is, the stimulation of one sensory modality reliably causes a perception in one or more different senses.”³ Cytowic goes on to state: “Its phenomenology clearly distinguishes it from metaphor, literary tropes, sound symbolism, and deliberate artistic contrivances that sometimes employ the term ‘synesthesia’ to describe their multisensory joinings.” Synesthetic art is a deliberate contrivance, a product of an artistic aspiration, and we should not confuse it with the neurological phenomenon of synesthesia. Persons, not artworks, are synesthetic. Ultimately there is no such thing as synesthetic art—but that has not stopped anyone from trying to create it. We use the term “synesthetic art” rather than something more precise such as “cross-modal art” because the idea of correspondences among the senses and their fusion into a whole experience has fueled the imagination of so many artists.

Synesthesia has been studied for at least some 300 years, but it is only with the advent of advanced medical imaging techniques that it has been possible to base research on more than subjective evidence. PET scans and other techniques have confirmed what synesthetes have long maintained: sensory stimulation of one area of the brain results for them in simultaneous stimulation of other areas of the brain corresponding to a different sense, apparent as increased blood flow to these areas. Control subjects do not display the same evidence of simultaneous stimuli, nor can they easily understand the synesthete’s description of hearing colors, tasting shapes, or experiencing other sensory blendings. The majority of cases of synesthesia involve “colored hearing,” sounds evoking colors. Also common are instances where language, both spoken and written, evokes a visual response triggered by words, or by consonants and vowels—several varieties of lexical synesthesia may be distinguished. There are also instances of shapes evoking sounds, or even of words corresponding to physical postures, in a rare

instance of lexical and kinesthetic linkage. Contrary to the Baudelairian poetics of scent, rarely do smell or taste trigger other senses.

Synesthesia presents certain clear diagnostic signs. Cytowic suggests five criteria⁴. (1) Synesthesia is involuntary. (2) Synesthetic perceptions are projected outside the body, appearing continuous with the space immediately surrounding the person, though distinct from it. (3) Synesthesia is durable and generic: specific fusions of the senses remain stable over time, and unlike poetic metaphor the qualities of synesthetic experience remain unelaborated. Synesthetes listening to music see colored blobs, spirals, clouds, or lattices (the constant elements of hallucinations), but not detailed pastoral landscapes. (4) Synesthesia is memorable: persons with synesthesia often display prodigious capabilities for memory, which can be directly linked to their synesthesia. These are the criteria on which all the literature on the subject seems to agree. Cytowic goes on to describe another characteristic: (5) In synesthesia experience rather than thought is primary, and further, synesthesia bears qualities of an emotional or even ecstatic experience in its unmistakable certitude, ineffability, passivity, and transience. Based on this reasoning, he asserts a radical primacy of emotion over reason, adducing synesthesia as evidence of a brain organized as a distributed system in which emotion is the organizing principle, and “reason is just the endless paperwork of the mind.”⁵

Other researchers are not so radical, yet there is a clear tendency in the field to suggest that we are all synesthetic but only a few people are directly aware of the holistic nature of perception. Simon Baron-Cohen suggests that up until about four months of age we perceive the world synesthetically, and only through neural and social development come to modularize sensory input.⁶ Synesthetes for one reason or another have not completely modularized their sensory pathways. Curiously enough, the majority of synesthetes are not impaired by their condition. Indeed, many of them report better than average memory because of their ability to associate more than one sense with an experience. In the extreme case of S., the subject of A.R. Luria’s *The Mind of a Mnemonist* who reported quadruple synesthesia⁷, memory made him a prodigy yet he had great difficulty understanding metaphorical language—to say that the reverberations of a tolling bell were *like* the scent of lilies dispersed on the wind could only confound a person for whom bells and lilies had other, indissoluble sensory associations.

Thus we might even be driven to conclude that synesthetic art depends on an audience that is decidedly *not* synesthetic in order to comprehend it. For the synesthete, the associations of stimuli are given a priori. There is no need for an embracing knowledge of why sensations should be associated or of what they may mean. The artist, on the contrary, employs synesthetic imagery precisely because meaning can be associated with it, and indeed because multiple meanings can be coupled and uncoupled depending on their context. Its origins are linguistic, not neurological—and yet part of the symbology of synesthetic art is precisely an ideal correspondence among sensations pointing to an ultimate “unity of the senses.” Whether this unity of the senses in any way derives from a neurological phenomenon is largely a moot point. Certainly Baudelaire and

others of his generation may have been influenced by drug-induced synesthesia, but their sense of its implications derives from their own cultural situation—their set and setting, as Timothy Leary would have said. The desire for transcendence may be projected upon the experience of sensory fusion because of its power as a symbol of reconciliation, of primordial consciousness, or of utopian plenitude, but the power inheres in the symbol, not in the experience. Indeed it is the very absence of the experience—and hence its potential as an ideal—which enables the poet to convince us that the desired reconciliation has already occurred, that “eternity has been rediscovered,” as Rimbaud expresses it, in the fusion of the sky and the sea⁸. In short, synesthesia, like any other sensory experience, is simply the working mode of perception of those who possess it, and carries no inherent cultural meaning. Similarly, musical rapture or religious ecstasy may be in some senses universal physiological experiences, but their interpretations could not be more variable across cultures. Language conditions how we ascribe meaning to experiences, even to those which may be pre-linguistic: let’s not even talk about meaning without language.

Anecdotal Evidence I: A Hymn to Anesthesia

During my earliest years my father was a Lutheran pastor to a small congregation in rural Ohio. Lutherans like to sing hymns, though usually not with the enthusiasm of Baptists. As I wrote this essay, the words of the hymn “Dear Lord and Father of Mankind” came to mind:

Breathe through the heat of our desire
Thy coolness and thy balm;
Let sense be dumb, let flesh retire;
Speak through the earthquake, wind, and fire,
O still small voice of calm!

My friend L. David Miller, a musical scholar, retired church organist and choir director, revealed to me that the author was none other than the American poet and abolitionist John Greenleaf Whittier and the poem from which this verse was taken, “The Brewing of Soma,” (1872) was a rejection of an intoxicating beverage and sensual ritual practiced by supposed “Hindu priests.”⁹ Whittier’s concept of true, Christian worship appears in the lines I have quoted; his Hindu priests are probably a veiled reference to the boisterous revivals and camp meetings of his time. What intrigued me was the suggestion that the silencing of the senses—anesthesia—and their fusion can both be used as symbols of transcendence. Moreover, the fusion of the senses implies wildness and rupture, while their pacification implies cohesion and understanding. Poetry embraces both extremes.

Baudelaire and the Poetics of Analogy

Baudelaire's sonnet *Correspondances* marks the point of departure for a poetics of analogy and correspondence that profoundly influenced his successors. From its initial image of Nature as a temple whose living pillars sometimes give forth a babble of words, as a forest of symbols which return a familiar glance, he evokes a shadowy and profound unity where "perfumes, colors, and sounds respond to each other." The sestet leaps from this transfiguration of nature directly to sensual images where memory rather than the "involuntary physical experience of a cross-modal associations" clearly seems to be the locus of correspondences:

There are perfumes cool as the skin of infants,
Sweet as oboes, green as prairies,
—And there are others, corrupted, rich and triumphant,

Possessed of an infinite expanse,
Like amber, musk, resin, or incense,
Which sing the transport of the spirit and the senses.¹⁰

We should not think from this sonnet that Baudelaire views nature as endowed with any redeeming spiritual power. In other poems ("Élévation," "Spleen II") he portrays nature as at best indifferent to human endeavors, as a "morbid miasma" that can only become charged with spirituality through an act of negation and will. Baudelaire rejects naturalism and the Romantic sensibility that idealizes it. He rejects formalism and *l'art pour l'art*, despite his debt to Théophile Gautier, to whom he dedicates *Les Fleurs de Mal*. He rejects the positivist belief in knowledge and progress, so much a part of the bourgeois life of his epoch. Above these sometimes contradictory negations he raises the ideal of an order of reality that will be manifested "simultaneously, according to mysterious correspondences, in the interior world and in the exterior world."¹¹

Baudelaire makes early reference to correspondences in his critical essay "On Color" in *The Salon of 1846*. Color is allied to music: "In color are to be found harmony, melody, and counterpoint." Moreover he imagines a scale of analogies linking color to feeling, and quotes E.T.A. Hoffman: "It is not only in dreams, or in that mild delirium which precedes sleep, but it is even awakened when I hear music—that perception of an analogy and an intimate connection between colors, sounds and perfumes. It seems to me that all these things were created by one and the same ray of light, and that their combination must result in a wonderful concert of harmony."¹²

In his essay on the Universal Exposition of 1855 he elucidates the state of mind in which correspondences may be perceived. He condemns blind insistence on an aesthetic system as a loss of the agility to run "up and down the immense keyboard of universal correspondences."¹³ (This is his first use of the word in its full meaning.) Rejecting any systematization of beauty he privileges *feeling* as the final arbiter, and subsequently asserts his doctrine of *le beau bizarre*, the grotesque as an essential aspect of Beauty. The essay concludes with a comparison of Ingres and Delacroix, including lines from the then-unpublished poem "Les Phares" (The Beacons), where images of an intensified and

transformed landscape or a strange musical fanfare are set in apposition to the name of Delacroix. The essay closes with a reference to Edgar Allen Poe, to those “feast-days of the brain” when “sounds chime like music, when color speaks, when scents tell of whole worlds of ideas,” a state of mind Baudelaire finds in Delacroix’s ability to “think with color.”

For Baudelaire, whose role as an art critic is of equal stature with his role as a poet, the locus of the transformation of exterior and interior life may be painting as easily as it may be poetry, and he speaks of both in terms of their musicality. While he admires Wagner as an innovator, he never embraces the Wagnerian notion of a new artform which will bind together all others. His concern is not with the formal means of producing a synesthetic work, but with the problematic nature of poetic language, which serves as both the alchemical catalyst for the union of interior and exterior worlds and as a symbol of that union, which perhaps can only be achieved allegorically. The question, probably unanswerable, as to whether “the mystique of the poet consists in poetic magic itself, or in that same poetic magic operating as a symbol which goes beyond it”¹⁴ impels poets in the generations subsequent to Baudelaire to experiment in both directions, with an exacerbated sensuality or with an hermetic elevation of language.

Thus we have Rimbaud, in the famous letter *du voyant* (visionary)¹⁵ declaring that the poet must be a seer by means of a long and calculated disruption of the senses (*dérèglement de tous les sens*), a Promethean figure who will forge a language where soul speaks to soul, gathering together scents, sounds, and colors. In Baudelaire he discerns the first visionary, “king of the poets, a true god,” who nevertheless failed to create new forms adequate to his vision. The disruption of the senses must also be a disruption of language, and must compel the subsequent reinvention of both self and language. Particularly in the prose poems in *Illuminations* Rimbaud achieves a complex merging of multi-sensory imagery within an inner landscape where hallucinatory architectures of desire collide with impressionistic vignettes of nature. In “Voyelles” and “Alchimie du Verbe” he makes the synesthetic project explicit:

“I invented the color of vowels! A black, E white, I red, O blue, U green. I determined the form and movement of each consonant, and with instinctive rhythms I flattered myself with having invented a poetic diction (*verbe*) accessible, one day or another, to all the senses. I kept the translation to myself.”¹⁶

Speculating as to whether the man who wrote this was a synesthete is about as useful as pondering whether El Greco suffered from astigmatism. Whether Rimbaud heard colors or not, the correspondences of the colors and vowels are personal and ultimately arbitrary. No universal keyboard of correspondences emerges because none exists—but this has never stopped artists from creating their arbitrary but meaningful works. Scriabin’s symphonic poem *Prometheus* added a light organ to the orchestra to project changing colors, interpreting his own experience as a synesthete. Later he and Rimsky-Korsakov would argue about the precise colors that should correspond to each musical tone. His

incomplete *Mysterium* anticipated adding dancers and swirling incense to the performance, enveloping the audience in smoke and transporting them to an altered state of mind (an enduringly popular concept). Particularly in the early days of abstraction, visual artists adopted the language of music to explain their orchestrations of color and shape. Wasily Kandinsky, who was directly influenced by Scriabin, and Paul Klee both developed a critical language based on music to describe their experimentation and to communicate a new approach to visual art.¹⁷ Like imaginary numbers in mathematics, the non-existence of synesthetic art in no way has impaired its usefulness as a concept or its power as a creative paradigm.

Anecdotal Evidence II: Synchronized Carnations

One summer afternoon, soon after the birth of my son, I sat sipping a beer and reading a book in the bar of the Paseo de Gracia station of the Barcelona subway system. The air-conditioner carved a cool channel through the heat and a radio warbled on the shelf behind the bar. Passing the time, I stepped from word to word in my book. The radio spilled out a popular song, which flowed between my stepping stones. At some imprecise yet singular moment the text and the song coincided on a single word, *claveles*, carnations. I held onto the moment, astonished, as if the world had suddenly tipped its hand to me.

Towards a Poetics of Multi-sensory Art

The remarkable thing is not that “synesthetic art” turns out to be a chimera, but that it is such a compelling and useful chimera for the production of art. Along with altered perceptions of time (synchronia), and sensory deprivation (anesthesia), it presents powerful symbolic constellations that may also point to neurological states. Quite possibly these states are significant as symbols precisely because they also exist, for some people at least, as experiences. Scientific evidence suggests that we perceive time differently in the two hemispheres of the brain. Sensory deprivation (anesthesia) carries a similar freight—how often is religious rapture expressed in terms of being struck senseless, even in the familiar hymns of Protestantism (a hotbed of normality). Indeed sensory deprivation can trigger hallucinatory states, including synesthesia. In creating a multi-sensory art, these are the underlying symbolic and possibly physiological qualities we can bring into play. Walter Benjamin, in his essay “On Some Motifs in Baudelaire,” asserts that “the important thing is that the *correspondances* record a concept of experience which includes ritual elements.” Baudelaire’s *correspondances* point to “an experience which seeks to establish itself in a crisis-proof form,” they are “the data of remembrance—not historical data, but data of prehistory.”¹⁸ To expand on Benjamin’s assertion: through ritual we momentarily unite the various senses and invoke memory, both personal and collective. The multiplicity of sensory stimuli surrounds an unstated meaning central to the experience of ritual. Ritual is the one social experience

where we may collectively approach the non-linguistic mind, upon which language floats like a tangled sargasso on the ocean. William Blake's aphorism, "the heart sees more than the mind knows," could be the central tenet of ritual, if we understand ritual as the scaffolding by means of which we construct the architecture of memory.

To some degree non-verbal media can, like poetry, take advantage of cultural and linguistic knowledge. Gaston Bachelard, in his investigations of the history of scientific thought also sheds light on the sources of poetic insight. He suggests that the history of pre-scientific thought is embedded in language, and that what is now absurd as science becomes insightful as poetry: "In our lives we have broken the direct contact with primary etymologies. But prehistoric consciousness, and *a fortiori* the unconscious, does not detach the word from the object."¹⁹ While all our other media are conditioned more or less by language, they cannot mold it directly as poetry does. Other means of composition may be found in various hermetic disciplines. Thus the Pythagorean tradition of musical proportions becomes part of the architecture of Vesalius, thereby protecting buildings from earthquakes (as the master averred), or serves Robert Fludd (1574-1637), the English Renaissance scholar and occultist, to establish an entire cosmology.²⁰ Other cultures than our own have built their own systems, from the golden bell which served Chinese dynasties as both the fundamental musical tone and, inverted, as the basic measure of grain, to the intricate cosmology of the Dogon of Africa.²¹ Some languages—notably the Australoasian family—have parts of speech known as "expressives," many of which join descriptive words cross-modally.²² Synesthesia appears to be fundamental cultural and linguistic entity, whose expressions go far beyond sensory experience into the structures of collective memory and social cohesion.

Yet outside the realm of poetry, theater, or the opera we are limited in our ability to conjure with symbols. Particularly in the wake of Modernism, with its insistence that the plastic arts free themselves of "literary" detritus, artistic practice has pushed us towards a high degree of abstraction. Abstract painting arose in part as the plastic arts sought to imitate musical art, but the physical parameters of visual and auditory media provide us with no clear system of correspondences. This suggests that correspondences among media are arbitrary, conditioned only by our fuzzy cultural practices and psychological preferences. Digital technology provides us with the capability of synthesizing and synchronizing events in diverse media, but it completely bypasses the problem of symbolic representations. Computer technology requires a high degree of formalization, data structures and algorithms, which seem contrary to the nature of a synesthetic art that functions symbolically.

Stephen Holtzman, in his book *Digital Mantras*²³ tackles the question of how cross-modal structure could function symbolically within digital media. In Holtzman's view "deep structures" are inherently cross-modal, in the sense that they can emerge in many different manifestations and in different media. His examples of deep structures range from mathematics to linguistics to neurology, disciplines where structuralism emerged as a method of analysis. He argues that computers make it possible, for the first time, to use these deep structures to

build cross-modal works of art from the smallest perceptible element up. Viewed as an individual artist's manifesto his approach makes sense. We can build compositional structures within a variety of formal systems, elaborate them in various media, and build from this a whole that functions symbolically and emotionally. The perception of structure in cross-modal composition is more problematic. Like scientific investigation it depends on the accumulation of observations over time producing insight. And what of the symbolic power of deep structures? Unless we are prepared to argue that they possess a reality akin to Platonic archetypes, their acceptance as symbols is subject to the vagaries of culture and interpretation, as in any other art form. In that sense, an operatic *Gesamtkunstwerk* approach, with media arbitrarily juxtaposed within a culturally-determined frame that asserts their symbolic fusion, is every bit as valid an approach to synesthetic art as is a formalist approach. If a formalist approach is justified at all, it must operate as a symbolic event, not as prolongation of a method of inquiry.

In fact, there is no contradiction between a formalist approach and the apprehension of the result of that approach as a symbolic event. Magical behavior, in which we may include art, appears "as the response to a situation which is revealed to the mind through emotional manifestations, but whose essence is intellectual."²⁴ Ritual supposes structure, and so does art. In synesthetic art we may not be able to establish lasting or universal correspondences, but we can create structures that work in multiple media, upon multiple senses, and point to a variety of cultural and historical antecedents for their interpretation. Digital technology gives us control over the whole range of compositional granularity. The arbitrary character of correspondences simply provides us with the opportunity to use aleatoric juxtaposition, partial mappings and associations, parallel coupling and complementarity freely as a metalanguage of cross-modal composition, a counterpoint of rupture and cohesion.

While a formal elaboration of such a metalanguage would require at least another essay, its central tenet must be the realization that we are tied neither to deep structures nor to arbitrarily determined symbolic codes, but free to play with the whole range between them. The absence of established iconographies and symbolic contexts for digital rituals compels us to experiment and create new contexts and iconographies where memory can produce insight over time. In the end, we have simply arrived at casting our initial question about poetic insight in a new mold: does the mystique of digital multimedia consist in digital magic itself, or in that same magic operating as a symbol which goes beyond it?

Bibliography

Bachelard, Gaston. *La Psychanalyse du Feu*. Paris: Gallimard, 1938. See also Bachelard's analyses of the other three of the four elements of antiquity in *L'eau et les rêves*, *L'air et les songes*, and *La terre et les reveries de la volonté*.

Baudelaire, Charles. *The Mirror of Art: Critical Studies by Baudelaire* trans. and ed. Jonathon Mayne. Garden City, New York: Doubleday and Co., 1956.

—. *Les Fleurs de Mal et autre poèmes*. Preface by Henri Lemaitre (Paris: Garnier-Flammarion, 1964).

Bersani, Leo. *A Future for Astyanax: Character and Desire in Literature*. Boston: Little, Brown, 1976. Cf. "Rimbaud's Simplicity."

—. *The Death of Stéphane Mallarmé*. Cambridge, UK: Cambridge University Press, 1982.

Bowie, Malcolm. *Mallarmé and the Art of Being Difficult*. Cambridge, UK: Cambridge University Press, 1978.

Cytowic, Richard. *The Man Who Tasted Shapes*. New York: G.P. Putnam's Sons, 1993. A nontechnical discussion of synesthesia by a noted neurologist.

Griaule, Marcel. *Dieu d'eau: entretiens avec Ogotemméli* Paris: Fayard, 1975. A classic anthropological work on the Dogon cosmology, which greatly influenced the Surrealists. Originally published in 1948, on Griaule's return from his second visit to the Dogon, separated from his first visit by the Second World War.

Lemaitre, Henri. *La poésie depuis Baudelaire*. New York: McGraw-Hill-Armand Colin, 1965. An insightful historical text and poetic anthology of the Symbolist movement.

Lévi-Strauss, Claude. *Structural Anthropology*. Translated by Claire Jacobsen and Brooke Grundfest Schoepf. Garden City, N.Y.: Doubleday, 1967.

Luria, A.R. *The Mind of a Mnemonist*. Translated by Lynn Solotaroff. New York: Basic Books, 1968.

Miller, Henry. *The Time of the Assassins* (New York, New Directions, 1946). A literary appreciation of Rimbaud by a latter-day rebel.

Rimbaud, Arthur. *Poésies complètes*. Paris: Gallimard, 1960.

Rothenberg, Jerome, ed. *Technicians of the Sacred*. 2nd ed. Berkeley: University of California Press, 1985. Anthology of traditional poetry from Africa, America, Asia, Oceania, and Europe. Especially notable is the expanded view of ritual in Rothenberg's introductory essay.

Rothenberg, Jerome, and Rothenberg, Diane, eds. *Symposium of the Whole*. Berkeley: University of California Press, 1983. Anthology of texts offered as "a range of discourse towards an ethnopoetics," companion volume to *Technicians of the Sacred*.

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- ¹ Scriabin's symphonic poem *Prometheus* (1910) calls for colors to be projected on a screen during performance. His unfinished work *Mysterium* was to include chorus, dancers, color keyboard, olfactory keyboard, audience participation and bells suspended from zeppelins.
- ² Cf. www.fluxus.org/higgins/ for links to on-line information on Dick Higgins, and colophon.com/umbrella/higgins_21.3_4.html for an on-line tribute to Dick Higgins (1938-1998).
- ³ Richard Cytowic, "Synesthesia: Phenomenology And Neuropsychology," *Psyche* Vol. 2, psyche.cs.monash.edu.au/, filename: [psyches-95-2-10-syn-phenomenology-1-cytowic.html](http://psyche.cs.monash.edu.au/psyches/psyches-95-2-10-syn-phenomenology-1-cytowic.html), abstract (1995).
- ⁴ Cytowic [3], section 4
- ⁵ Cytowic [3], section 9.4. Cf. the "Symposium on Synaesthesia" in *Psyche*, Vol 2 (psyche.cs.monash.edu.au) for discussions of Cytowic's theories of synesthesia by Korb, daCosta, et al.
- ⁶ Simon Baron-Cohen, "Is There a Normal Phase of Synaesthesia in Development?," *Psyche* Vol. 2, (psyche.cs.monash.edu.au/, filename: [psyches-96-2-27-syn-development-baron-cohen.html](http://psyche.cs.monash.edu.au/psyches/psyches-96-2-27-syn-development-baron-cohen.html), June 1996).
- ⁷ A.R. Luria, *The Mind of a Mnemonist*, trans. Lynn Solotaroff (New York: Basic Books, 1968) pp. 21-38.
- ⁸ Arthur Rimbaud, "L'Eternité," in the *Album Zutique* (Paris: Éditions Gallimard, 1960) p. 96.
- ⁹ John Greenleaf Whittier, "The Brewing of Soma," in *The Poetical Works of John Greenleaf Whittier* (Boston: Houghton Mifflin, 1886) p. 458.
- ¹⁰ Charles Baudelaire, "Correspondances," in *Les fleurs du mal et autres poèmes* (Paris: Garnier-Flammarion, 1964) p. 39. Translation by the author.
- ¹¹ Henri Lemaître, *La Poésie depuis Baudelaire* (New York: McGraw-Hill – Armand Colin, 1965) p. 25.
- ¹² Charles Baudelaire, "On Color" from "The Salon of 1846," *The Mirror of Art: Critical Studies by Baudelaire*, trans. Jonathon Mayne (Garden City, New York: Doubleday & Co., 1956) pp. 45-50. Baudelaire's review of the Salon was originally published as a booklet on May 13, 1846, and posthumously compiled into the volume *Curiosités Esthétiques* in his complete works (Paris, Calman Lévy, 1885). Cf pp. 81-198 for the entire "Salon," pp. 87-94 for the section "De la couleur."
- ¹³ Baudelaire, "The Exposition Universelle," [10] page 195. Cf. page 215 of *Curiosités Esthétiques* in the Lévy edition.
- ¹⁴ Lemaître [9], p. 28
- ¹⁵ Rimbaud to Paul Demeny, 15 May 1871, [8], pp. 219-221.
- ¹⁶ Rimbaud, "Alchimie du Verbe" from *Une Saison en Enfer* [8], p. 120, author's translation.
- ¹⁷ Wassily Kandinsky, *Point and Line to Plane*, trans. Howard Dearstyne and Hilla Rebay, (New York: Dover Publications, 1979); Paul Klee, *Pedagogical Sketchbook*, (New York: Praeger, 1969). References to cross-modal composition abound the writings of both artists, but these works are particularly valuable for their analytical approach.
- ¹⁸ Walter Benjamin, *Illuminations*, ed. and with an introduction by Hannah Arendt, trans. by Harry Zohn (New York : Schocken Books, 1969), p. 181.
- ¹⁹ Gaston Bachelard, *La Psychanalyse du Feu* (Paris, Editions Gallimard, 1938) page 99
- ²⁰ Robert Fludd, *Robert Fludd and his Philosophicall key : being a transcription of the manuscript at Trinity College, Cambridge*, introd. by Allen G. Debus. (New York: Science History Publications, 1979)
- ²¹ Marcel Griaule, *Dieu d'eau: entretiens avec Ogotemméli* (Paris: Fayard, 1975).
- ²² Cf. Encyclopedia Britannica On Line (www.eb.com:180/bol/search?default_type=standard&query=Austroasiatic+AND+languages&DBase=Articles&Search.x=41&Search.y=6)
- ²³ Stephen R. Holtzman, *Digital Mantras* (Cambridge, Massachusetts: The MIT Press, 1994)
- ²⁴ Claude Lévi-Strauss, "The Sorcerer and His Magic," *Structural Anthropology* (Garden City, New York, Doubleday and Co., 1967) page 178. Lévi-Strauss, in *Tristes Tropiques* (cited in Rothenberg and Rothenberg, *Symposium of the Whole*, p. 57, see bibliography) also

comments on Rimbaud's *Voyelles*, reading into it not synesthetic experience but a foreshadowing of the cultural correspondences brought to light by structural anthropology.