Soundings

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At the beginning of this century, sounds began to reverberate through the once silent and timeless world of the plastic arts. It was as if musical instruments, hushed for centuries behind the window of Renaissance art, suddenly stirred and resounded. How could it be otherwise? The melodies of Edison's phonograph, the roar of the automobile, the wireless wonder of Marconi, the smashing of the atom and Einstein's theory of relativity had ushered in a new age. Artists, always the first to perceive the essential changes in the world around us, set out to give form to the spirit of the new era. For some, the utopian possibilities of technology and the machine became a primary source of inspiration. For others, imbued with the idealism of the nineteenth-century Romantics and Symbolists, the dream of an integration of all the arts offered refuge and salvation from the looming edifice of science and technology. This dream emerged from its slumber beneath the rational materialism of the last century to shatter the Renaissance concept of art as a silent and timeless mirror of nature and to release an art that is an equivalent of reality, a separate realm.

Sound, gathered from the space around us by our skin and bones, as well as by our ears, is inextricably bound to both our perception and experience. Human thought is manifested in word and speech, while emotions such as joy and sadness are expressed in song and lament. The sound of sea, wind and rain never cease to renew our awe of nature. Ambient sound, or the sound that surrounds us, gives us a sense of our proper bodily location in space. Noise, random or unwanted sound, often alerts us to impending events and to danger or else merely jangles our nerves. By contrast, sound ordered by the human mind—and exceptionally by chance—is music, a celebrated human accomplishment. The absence of sound is silence, the unknown: inaudible voices have always been meta-
phors for the visions of mystics and for the revelations of an invisible world beyond our ken.

Sound, both heard and unheard, offered the first Modernists at the opening of the century a means to present their revolutionary ideas about the nature of the work of art, the artist and the spectator. During the nineteenth century, the views of the Renaissance were transformed by the Romantics and the Symbolists, who came to doubt the truth of pure sensory perception. For them, art was not a study of nature, as the Realists and Impressionists maintained. Rather, art was the creative power of the word, the Logos, out of which all things were made in the beginning: it was the power to create, borne out of inspired originality. In 1859, in The Mirror of Art, Charles Baudelaire, the last Romantic poet and the first Modernist, declared:

It is Imagination that first taught man the moral meaning of colour, of contour, of sound, and of scent. In the beginning of the world it created analogy and metaphor.¹

With Baudelaire the work of art shifted from the world of Renaissance illusion, the factual description of objective reality, to a new and third realm that mediated between the outer world of phenomena and the inner world of the spirit. Through the 'magical operation' of the imagination, in Baudelaire's view, artists became creators who could stir new responses in the beholder. Artists were no longer merely skillful delineators of the visible world, they were now the creators of, and guides to, a completely new realm. This mystical role of the artist was echoed by the Dadaist Hugo Ball in his diaries written between 1910 and 1921:

When we said Kandinsky and Picasso, we meant not painters, but priests; not craftsmen, but creators of new worlds and new paradises.²

In this new realm charted by Baudelaire and explored at the end of the nineteenth century by the Symbolist poets and painters, sound in all of its manifestations became a vehicle for the advanced artists of the day to cultivate new paradises. Through sound and music artists not only banished the old separation between the artist and the onlooker, they also broke down the old boundaries among the various forms of art. For some of these pioneers music became a metaphor for the ideal they sought and it led to abstraction in art; other artists and composers invented new sounds or took sounds from the everyday world as material from which they might forge their new realm. Sound, music, noise and even silence were temporal and therefore allowed the first Modernists to present the twentieth century's concept of time and space as a vital continuum in which the artist and the viewer and the subject and object of art were merged.

Temporal, immaterial and abstract, noble since antiquity, music held out to the first Modernists a paradigm of abstraction. Their yearning to mediate between the world of phenomena and the world of the spirit led them to music and to the creation of non-objective art in the twentieth century. To the ancient Greeks, painting and sculpture were respected skills, or craft, while music, with its power to reveal the hidden order of the cosmos and to affect the soul and actions of mankind, was an art of divine inspiration. Music owes this place of reverence to the sixth-century B.C. Greek philosopher and mathematician Pythagoras, who discovered a correspondence between musical intervals and arithmetical ratios. His system of seven modes was based on the seven known planets, whose vibration in their heavenly orbits caused, Pythagoras believed, the music of the spheres.

The Pythagoreans' mystical concept of the harmony of the spheres gave music a noble place in the Renaissance's universitas literarum, the reason for the pride of place assigned to musical instruments in the fifteenth century Gubbio Study. Leonardo da Vinci, the creative genius of his age, who invented speculative musical instruments, sought to elevate painting to the lofty position of music. In his Trattato della Pittura, written at the end of the Renaissance, he likened the harmony of proportion in painting to musical harmony. In so doing he restated the commonly held theory of the Renaissance that the plastic arts were frozen music. Leonardo, insistent on the divine quality of the painter's imagination, even claimed that painting was superior to music because the sequences in painting were not fleeting, but permanent—timeless images that could be contemplated indefinitely. The competition between music and the less noble plastic arts, which was prominent in the aesthetic discourses of the Renaissance, continued in the nineteenth century. In 1807 Goethe - poet, painter, and philosopher - observed that 'a recognized theory of painting, as it exists in music, is lacking.'³

Throughout the century, fired by the belief that reason could penetrate all natural phenomena, scientists sought, as Goethe antici-
pated, a mathematical foundation for colour like that of music. The practical needs of the growing textile industry, for example, led the French chemist Michel-Eugène Chevreul to the study of the laws of colour; his book, first published in 1839, was widely read by artists in the last decades of the century. Charles Blanc, in his book *The Grammar of the Art of Drawing* (1867), stated that 'colour which is controlled by fixed laws can be taught like music.' The mathematician Charles Henry also investigated the mathematical base for colour in *The Circle of Colour* (1888). On a more pragmatic level, inventors such as Bainbridge Bishop and Alexander Wallace Rimgale built wondrous mechanical colour organs to explore and demonstrate the relation between colour and music. Their inventions anticipated similar studies by Hirschfeld-Mack at the Bauhaus in the 1920s.

The correspondence between music and the plastic arts also figured in the speculations of the century's poets and philosophers whose thoughts ran counter to the empiricism of the age. It was the power of intuition to sense the mystery of the unknown, not the power of reason to make the mysterious known, that the German Romantic poet Novalis celebrated in 1801 when he wrote, 'Everything visible refers to the invisible / Everything audible to the inaudible.' Byron shared Novalis' belief in man's ability to perceive a metaphysical reality behind the physical reality and in the doctrine of the harmony of the spheres bequeathed by the Pythagoreans. "There's music in all things, if men had ears: Their earth is but an echo of the spheres." Arthur Schopenhauer's *The World As Will And Idea*, published in Leipzig in 1819 and translated into French in 1889, was an influential source of the growing conviction among Symbolist painters and poets that music was the key to vast expanses beyond rational comprehension:

The composer reveals the essence of the world and pronounces the most profound wisdom in the language that his reason cannot understand; he is like a mesmerized somnambulist who reveals secrets about things that he knows nothing about when he is awake.

That there was a correspondence between music and the visual arts was a common conviction among both artists and musicians in Germany, France, Italy and Russia during the first decades of this century. In his search for an art that satisfied the inner necessity that he felt within himself, Wassily Kandinsky found the transcendental
quality of music vastly attractive. For Kandinsky and Frantisek Kupka, the pioneers of abstraction, colour and non-objective forms in painting were analogous to music, to the inner sound that Kandinsky sensed but could not see in the world around him. About 1910 the Russian composer Alexander Scriabin conceived *Prometheus: A Poem of Fire*, a symphony with colour equivalents created by one of the new mechanical inventions of the age, the colour organ. Arnold Schoenberg, whose intellectual affinity with Kandinsky sparked a lifelong friendship, wrote in *The Blue Rider* almanac published in Munich in 1912:

Kandinsky and Oskar Kokoschka paint pictures in which the external object is hardly more to them than a stimulus to improvise in colour and form and to express themselves as only the composer expressed himself previously.8

Kandinsky’s writings and general interest in the relation between the plastic arts and music before the First World War was echoed in the work of the American artists and founders of Synchronism, Stanton Macdonald-Wright and Morgan Russell. The latter sought ‘painting capable of moving people to the degree music does.’9 Russell even envisioned a machine that would synchronize coloured light and sound. Sound also inspired Georgia O’Keeffe, who found that ‘music could be translated into something for the eye.’10 In Miro’s gouache from 1940, the song of the bird and the patter of rain are auditory images that coalesce into a melodious pictorial space that, like music, sweeps us into the realm of the imagination hailed by Baudelaire.

When the plastic arts were liberated from the portrayal of tangible reality – prerequisite to the discovery of abstract art – the traditional materials of painting and sculpture, such as oil paint, tempera, linen, clay and marble, gave way to whatever material artists needed to create their new fictive realm. With the Industrial Revolution and the birth of the machine in the nineteenth century, new technologies appeared to extend, and even replace, the natural materials that painters and sculptors had previously used to shape illusions of reality. Alexander Graham Bell was only one of the inventors who transformed the age; through his telephone, music and speech were miraculously transmitted between Boston and Providence in 1876. Soon after, Thomas Alva Edison produced a speaking phonograph that talked, whispered and sang. During the last decades of the century, Sears, in their mail-order catalogue, advertised lantern slides accompanied by recorded songs, and in Edison’s laboratory, William K.L. Dickson developed the Kinetophone to synchronize sound with moving pictures. The technologies and machines that were spawned in the nineteenth century – a source of both wonder and anxiety – produced a whole new class of man-made objects that supplied artists with a hitherto undreamt of array of materials. At the same time, the machine, held in contempt by Baudelaire and other idealists, created the modern world that compelled some artists to fashion a new realm from machine-made materials or to redeem traditional artistic materials by casting them in new form and imbuing them with new meaning.

For the Italian Futurists, united in the first decade of the twentieth century, noise and sound expressed the power and speed of the new age. In 1913 in his manifesto *The Art of Noises*, Futurist painter and musician Luigi Russolo proclaimed:

Ancient life was all silence. In the nineteenth century, with the invention of the machine, Noise was born. Today, Noise triumphs and reigns supreme over the sensibility of men.11

The Futurist painters, like Russolo and Gino Severini, employed the traditional medium of oil painting to make new images that suggested the sound and dynamic movement of the era. Russolo even invented musical instruments that imitated the noise of machines and presented his *Intonarumori*, or Noise Organs, in concert in Paris in 1914 and later in capitals across Europe. Other artists, led by Duchamp, took man-made objects and natural materials from the real world into art’s fictive realm. The composer Erik Satie turned airplane propellers, Morse-code tappers and typewriters into musical instruments for his score for *Parade*, a performance that outraged all Paris in 1917. Taking the lead from Duchamp and Satie, John Cage in 1952 composed 4’33", a piece in which the performer sits before a piano for four minutes and thirty-three seconds without sounding the keyboard. The music is our perception of silence and ultimately of non-silence – for sound is found everywhere, even in what we expect to be silence. Cage’s student David Tudor, with the members of Composer’s Inside Electronics, a group of visual artists and musicians, explores the resonant qualities of such found objects as oil drums and copper plumbing fixtures in *Rainforest IV*. With The Glass Orchestra, the eighteenth-century’s fascination with the
celestial tones of objects made from glass has been imaginatively renewed since the 1970s.

The desire to explore the fundamental physics of acoustics has also led the composers Takehisa Kosugi and Alvin Lucier to new materials. Sound waves quiver into visibility in sand, salt and sugar in Kosugi’s composition and thread before our very eyes in Lucier’s *Music on a Long Thin Wire* (1977). Lucier’s piece was suggested by experiments that he observed in an acoustics laboratory. On other occasions his music has been inspired by brain waves, conch shells and the nocturnal flight of bats. As music became more material, sculpture adopted musical qualities. Since the 1960s such sculptors as Baschet, Agam and Bertoia have explored the sonorous qualities of metals in their instrument-like sculptures that not only appeal to both the eye and the ear but were built to be touched and stroked like musical instruments.

Before the First World War, both painters and poets came to recognize that letters and words, freed from mere description by the Symbolist poets, were simultaneously visual images and aural signs. Words entered the plastic arts, and visual images joined poetry. Kandinsky, in his book *Sounds* (1912), used words to stir impressions in both the eyes and the ears. A few years later the poet Guillaume Apollinaire stretched the lines of type in *The Rain* into a gentle shower on a leaf of *Calligram*, while the violence of battle blasted into new typographical frontiers in the foldout pages of *Futurist Words in Liberty* written by F.T. Marinetti, the poet and flamboyant founder of Italian Futurism. Through fragments of words cut from newspapers, Braque added elements chosen from the tangible world to his painted fictions in order to evoke our auditory sensations and powers of association. The word alone as a pure abstraction, like a musical note, gave birth not only to Kandinsky’s poetry and to the mystical incantations of Hugo Ball but also to families of secret languages, in which the word lost its original meaning and assumed mutable interpretations in the fictive realm of artistic creation. The Russian Futurist poet Victor Khlebnikov in his invented language *ZAUM* reduced words until nothing was left but pure sound. Kurt Schwitters created a nonsensical language, which he named *MERZ*, and used it to fabricate sound poems, which were published by his Merzverlag in the twenties and thirties.

The transmission of Schwitters’ *Usonate* or *Archetypal Sounds* on German radio in 1932 carried his art to a wider audience and showed, as Marinetti and Bertolt Brecht had demonstrated in the same decade, that radio could be a medium for artists. Laszlo Moholy-Nagy used sound in quite another way. In 1922 he ordered works of art by telephone and thereby used the spoken language and modern technology to distance himself from the art object to point out that the artist’s conceptual process is more essential than the materials used to create art. Since Schwitters and Moholy-Nagy made their bold experiments, the development of the telephone, radio and recording industry has allowed sound to be extended or stored to hold the past moment in the present, like traditional painting and sculpture, or more aptly the camera’s image. These discoveries — along with talking films, which became a commercial success in the late 1920s, and television, which was mass-produced after the Second World War — expanded artists’ interest in the aesthetic as well as the political and social influence of the systems of mass-distribution and global communications. Since the 1960s many painters and sculptors — often working in collaboration with engineers under the auspices of the organization Experiments in Art and Technology — have made records, films, videotapes and multimedia works, such as the Pepsi Pavilion for Expo ’70, and frequently have used these technologies side by side with the more traditional materials of the plastic arts. In the sixties many artists also turned to the transitory medium of events and performances, which have a long genealogy in our century. The Dada performances of Hugo Ball at the Cabaret Voltaire in Zurich in 1916 and Gilbert and George, the British artists who transformed themselves into singing sculptures in the late sixties, are just two examples of the transformation of the artist’s own body and voice into the material — the object — of art.

The expansion of the materials of art to include sound, noise, music, silence and the spoken word — all invisible to the eye — satisfied the desire of artists to present the passage of time in the once timeless world of the visual arts. At the beginning of the fifth century B.C. Heraclitus saw the world in flux. In the transmission of the philosophy of the Greeks to the Renaissance, Heraclitus’ view was subsumed by a concept of time as a sequence of measurable points that could be arrested by the laws of Renaissance perspective and symbolized by an hourglass held captive in the illusory stillness of representation. This mechanistic notion of time was overturned at the end of the nineteenth century by the philosopher Henri Bergson, who echoed Heraclitus in his influential book of 1889 *Time and Free
Will. Bergson saw time as the ever changing process of duration and movement in which the past flowing into the present could not be truly discerned by either human consciousness or memory.

In the twentieth century the use of sound allowed visual artists to express duration in Bergson's sense. Sound, both implied and actual, became inseparable from the realization that the viewer's perception of a work of art transpires in time which, as John Cage has observed, 'is what we and sound happen in.' The artist's gestures and their moments of thought also unfold in time. In Man Ray's Indestructible Object (1923), re-made in 1958, the sound of the metronome recalls the artist's process: the eye is the viewer in absentia, who watches the artist working in the solitude of his studio. Sound is used for a similar purpose in Robert Morris' Box with the Sound of Its Own Making of 1961 and in the series of paintings with accompanying records that Roman Opalka began in 1965. Howard Jones whose sonic wall relief from the sixties responds to human activity, considers that 'light and sound, like life and thought, are actively involved with time, change and interval.' Time and change were also the substance of the ephemeral mixed-media events that George Brecht, Dick Higgins, Alison Knowles and other Fluxus artists staged on both sides of the Atlantic in the early sixties. Like the concurrent and often overlapping Happenings of the Pop artists, these audio-visual actions exist today only by recollection or in such announcements as George Maciunas’ 1964 poster for the Perpetual Fluxus Festival. The Fluxus artists' choice of the word 'perpetual' may seem contradictory but, in fact, it signified that time and change, rather than static permanence, are the material of life and, therefore, of art. Perpetual change is also at the heart of Jean Tinguely's Tokyo Gal (1963). In this flirtatious assemblage of found objects and old radio parts, sound — inseparable from movement — expresses Tinguely's belief that:

everything changes, everything is modified without cessation; all attempts to catch life in its flight and to want to imprison it in a work of art, sculpture or painting, appear to me a travesty on the intensity of life!  

Just as sound and music offered visual artists a means to present the invisible but unending phenomena of time, it also allowed artists to describe time's equally invisible correspondent, space. The science of acoustics, which was well known to the theatre builders of
ancient Greece and important to the architects of the Renaissance, was established in 1877 by the British physicist Lord Rayleigh. The ancients' view of space as a unified dimension of the world—an emptiness in which all bodies have a place—continued in the Renaissance and provided a foundation for perspective, allowing artists to create an illusion of spatial depth that mirrored, yet was separate from, the space in which we stand. This construct of space upon which the plastic arts were formulated in the Renaissance collapsed at the end of the nineteenth century. With the introduction of non-Euclidean geometry and with Einstein's theory of relativity, the static view of objects in space was replaced by the dynamic view that, in fact, objects, movement and space but formed an indissoluble union in the space-time continuum, in which all acoustical phenomena, as well as all human experiences, transpire.

Around 1910 in Munich, Paris, Berlin, Milan and Moscow, the Abstractionists, Cubists and Futurists abandoned the centralized perspective that, along with the frame and the pedestal, set the viewer distinctly apart in Renaissance painting and sculpture. The Cubist painter Braque, for example, dissected the forms of the violin—albeit an image of a violin compressed irrevocably on a two-dimensional surface—to suggest the melodic sounds pulsating in time and in the air around it. By so doing, Braque played upon and entwined our sense of sight and hearing and thereby extended our range of visual perception which embraces 180 degrees of an imagined circle to 360 degrees, for our ears perceive what is above, below and all around us in space.

In the last two decades, artists have used actual sound to investigate our experience of space itself. Bernhard Leininger, trained as an architect and urban planner, considers sound and its movement, rhythm and intensity as events in time. In his room-like environments from the seventies, Leininger has created new perceptions of space with intersecting invisible lines of transmitted sound. Max Neuhaus, who abandoned a career as a virtuoso percussionist in 1967, has made more than a dozen sound installations in such unexpected locations as Times Square, where he amplified a ventilation chamber of the subway to create a volume of activated space at street level. While invisible—and not generally identified as a work of art—Neuhaus' environmental piece may be perceived aurally by attentive passers-by. Bruce Nauman, by contrast, warps our habitual way of hearing and its capacity to inform our sense of proper physical location in space by removing or reflecting the ambient sound along his thirty-foot wall constructed from acoustical insulation. When we walk past Nauman's wall, the presence of ambient sound in one ear and its absence from the other alters our customary sense of balance. For Liz Phillips 'air is a material.' With an archway of delicate copper tubing and a bronze screen that receive and project electronically controlled sounds, somewhat like a Theremin or proto-synthesizer, Phillips creates what she calls capacitance fields that make the space sensitive to our actions, weight and density and allow us to mold and shape sound as if it were plaster or clay that a magician had removed from our sight, but not from our touch. The singing bridge of Doug Hollis gathers the wind to make 'spaces to be discovered by the ears.'

If sound, music and noise offered visual artists a means to represent the continuum of space-time, it extended artists' ability to elicit new responses from the once passive onlooker. The spectator had not always been separated from the work of art and its creator. In archaic Greek rituals the audience and performers were originally a chorus in the transformation of daily life into the heightened form of art with poetry, song, images and movement. The spirit of rational inquiry reached its height, however, during the age of Pericles, when Aeschylus, Euripides and Sophocles codified rituals into dramatic presentations that unfolded on a stage that separated actors from spectators. During the Renaissance and into the nineteenth century the separation among the performing arts elaborated into opera, ballet and theatre. The composer Richard Wagner, however, reunited music, dance and narrative in spectacular operas that were conceived to envelop the spectator in a flood of sensory and emotional experiences. The total fusion of all artistic media, which Wagner called Gesamtkunstwerk, was akin to the longings of Baudelaire and the Symbolist poets and painters, who became the composer's ardent champions. At the same time that artists were seeking synaesthesia, or a new unity of all the arts, Hermann von Helmoltz was examining interconnections among natural phenomena. Von Helmoltz, a giant of nineteenth-century scientific thought, published his lifelong study of acoustics, optics and human perception at the end of his life in The Origin and Correct Interpretation of Our Sense Impressions (1894), in which he established that our physical sensations are inseparable from our unconscious mental processes of memory and association.
In the first decades of the twentieth century synaesthesia motivated Kandinsky and Franz Marc in their influential almanac of 1912 called *The Blue Rider*. As Kandinsky later explained, they wanted their yearbook "to eliminate old narrow ideas and tear down the walls between the arts, and ... to demonstrate eventually that the question of art is not a question of form but of artistic content." The Cubist painters sought, as did Kandinsky, to create not an illusion of reality, but our vibrant experience of it through artistic forms that encompass all the senses; the form of Picasso’s violin, for example, actually reflects the way we see. Similarly, Gino Severini has surrounded us with the suggested movement and sound that fill the environment of the machine age in *Festival at Montmartre* (1913). Severini’s picture reflects the statement that appeared in the Futurists’ exhibition catalogue (1912):

> With the desire to intensify the aesthetic emotions by blending, so to speak, the painted canvas with the soul of the spectator, we have declared that the latter ‘must in the future be placed in the centre of the picture.’

In Marcel Duchamp’s ready-made *With Hidden Noise* (1916), we are invited to wonder what exactly is concealed within the ball of twine. Our speculations complete the cycle of exchange that Duchamp created. Duchamp’s ideas were carried on by John Cage, who has been a seminal force in all the arts since 1945. Cage, a student of Arnold Schoenberg, found sound in silence and music in the pedestrian noise of the workaday world. In 33 1/3 (1969) Cage made an environment of record players and randomly selected LPs. The viewer chooses and plays the records and thereby completes Cage’s gently tongue-in-cheek, participatory work. Robert Rauschenberg, who studied with Cage in the early fifties at Black Mountain College in North Carolina, believed that art is a mediator between illusion and life and ‘is a means to function thoroughly and passionately in a world that has a lot more to it than paint.’ In *Music Box* (1953) Rauschenberg uses three pebbles as percussive elements to tantalize our sense of hearing, touch and play, whereas in *Dry Cell* (1963), a collaborative work with engineer Billy Klüver, our shouts and claps elicit a response from the once-silent art object. Nam June Paik, also a student of Cage and a central figure in Fluxus, has created a number of works that are neither totally visual nor totally musical, but belong to the hybrid category intermedia. In *Participation TV*
object that began to resonate in a third realm beyond the worlds of illusion and reality. Sound announced that human experience, ever changing in time and space – the substance of life itself – had become both the subject and object of art.

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Notes


