

# Material Matters

By Oliver Schneller

*'True to nature, all the truth: that's art.'  
This hallowed notion is a threadbare fable.  
Infinite is nature's smallest part.  
They paint what happens to delight their heart.  
And what delights them? What to paint they're able!*  
—Nietzsche

I. I was born in 1966 in Cologne. My mother was a practicing music teacher until my arrival. As a result of my father's occupation in the diplomatic service, I spent my early childhood in Ireland, the Sudan, and Belgium. When I was twelve I started studying the classical guitar and switched to saxophone as a teenager. My interest in jazz improvisation grew during a five-year stay in Manila, Philippines, where I played saxophone and double bass in the International High School big band and school orchestra. I wrote my first musical score for the school's theater director, who needed incidental music for a staging of Brecht's *Caucasian Chalk Circle*.

During my studies of musicology, history, and political science at the University of Bonn, I began taking private lessons with the Bonn composer Friedhelm Aufenanger, a student of Jürg Bauer and Boguslav Schaeffer. I attended the Summer Courses for New Music in Darmstadt. In Kathmandu, Nepal, I worked for the Goethe Institute on a preservation project to save local musical traditions and took flute lessons with a Nepali Buddhist. After completing my Master's thesis (*Schönberg's and Debussy's 'Pelléas et Mélisande': A Comparative Study*) in Bonn, I attended New England Conservatory, in Boston, where I received my Master's degree in composition, studying with Lee Hyla and Pozzi Escot, and classical saxophone with Kenneth Radnofsky. Together with pianist Heather O'Donnell, I gave lecture recitals on Charles Ives and on the music of Jewish composers who had become victims of the Third Reich. In New York I initially pursued doctoral studies in composition with Thea Musgrave and John Corigliano at the CUNY Graduate Center before transferring to Columbia University to study with Tristan Murail. At summer festivals in Europe and the U.S., I studied with various composers, of whom I consider Iannis Xenakis, Helmut Lachenmann, George Benjamin, and Vinko Globokar to have had the most influence on my work.

II. *They paint what happens to delight their heart.  
And what delights them? What to paint they're able!*

Since 1994 the choices of the material in my compositions have been increasingly led by timbral considerations, and coming to the Columbia Computer Music Center in 1997 stimulated my interest in computer-assisted sound analysis. I made the mistake of turning my attention immediately to a rather complex area of spectral behavior: the human voice. The ambitious project I sought to realize in my composition for amplified string quartet and tape, *Joyce Paraphrases* (1997), was to break down speech sounds and rhythms into their most prominent building blocks and then “resynthesize” these components as musical material for the string quartet.

*Joyce Paraphrases* is the third in a series of compositions inspired by my readings of Joyce's *Finnegans Wake* (the first is *Finnagain Speaking*, for chamber ensemble; the second is *Variations on a Word*, for computer-generated tape). The material basis of the piece is the first 100-letter word from the *Wake*, as read by the Irish writer Patrick Healy:

BABABADALGHARAGHTAKAMMINARRONNKONNBRONNTON-  
NERRONNTUONNTHUNNTROVARRHOUNAWNSKAWN-  
TOOHOHOORDENENTHURNUK

This word, a sonorous composite of word particles from different languages, is primarily the onomatopoeic representation of a thunderous fall, the fall of man after the original sin, the fall of Lucifer, and of the mythical giant Finn McCoul, but, most important, of the colossal thunderfall that—according to the Viconian concept of time, which profoundly influenced Joyce—opens every new cycle of history and that holds the origins of language. The multilayered narrative of *Finnegans Wake* unfolds as a consequence of this fall-word. In Joyce's treatment of language, words—often neologisms in the form of respellings, or combinations of words from different languages—are carriers of more than one meaning. They form a layered network of connotative meanings, associations, and suggestions, somewhat like a palimpsest, in which previous layers still magically show through. It seems that the action never happens in one place only, but rather moves forward on several levels at once. The resultant synchronous (as opposed to diachronous) conception of narrative produces manifold constellations in which even contradicting situations can coexist—as if in a dream.

These literary characteristics opened up to me a world of musical implications, which came into consideration when I composed *Joyce Paraphrases*. The manipulation of the perception and recognition of musical objects, altered according to the experience of time; the tangential episodes in

between two points of recurrence; “satellite” motives accumulating *around* themes instead of originating from or leading to them; the dialectic of fragment and totality—all are musical reflections of the language of *Finnegans Wake*.

My idea of using a “sounding” of the 100-letter word as the basis of my piece led me to a reconsideration of the relationship between word and music. Sound analysis software enabled me to trace the spectra in each syllable of Healy’s voice reading the word, and to establish these “spectral chords” as the fundamental pitch material of the piece. Since the oral cavities in vowel production create largely harmonic spectra with a high rate of fluctuation in their evolution over time, I restricted myself to transcribing merely the average “static” spectrum that is found at the onset (attack) of each syllable: in the case of a vowel-onset, I selected the partials according to their perceptive weight, using the Terhardt algorithm; in the case of a consonant-onset, I used the resonant formant of the vowel immediately preceding this consonant as a filter to shape the dense frequency-field of the percussive plosives and fricatives (see fig. 1).

The four sections of the piece take the word from an initial unprocessed and complete statement to a gradual disintegration, which sinks deeper and deeper into the phonic levels of Healy’s voice. While the strings initially double and enhance the partials of the voice, soon a point is reached where their music bursts open the contained spectral shell of each (recorded) syllable, and the partials take on a contrapuntal life of their own (see fig. 2). Contours of an Irish ballad entitled “Finnegan’s Wake” lead to the final pulverization of all word particles. Out of these particles emerges a sequence of “spectral chords,” in which the sounds of the word are musically recomposed after their electronic decomposition.

Looking at the piece from a distance, I realize that I did not achieve what I had perhaps too ambitiously set out to do: create a music that was, in character but also in *Gestalt*, as agile and fluid as human speech. I had chosen to write for a string quartet, an ensemble renowned for its potential to fuse into one musical body, moving and breathing as a unified entity. While from a rhythmic point of view this project “came across” in a few spots, the main problem was in the mixture of instrumental sounds and speech sounds: the instruments would always be heard as a violin, a viola, or a cello, and no matter how much I had filtered the vocal sounds to try to make them fuse with the instrumental timbres, the mere presence of a recorded voice created two distinct—if not unrelated—levels of auditory information. In subsequent pieces, I turned to the analysis of less complex sound sources, although I plan to return to human speech. It seems that music and speech are so closely related that music arises out of speech (or speech out of music, if we want to follow the hypothesis of Julian Jaynes).



Figure 2: *Joyce Paraphrases*, p. 14.

130 0:12 --- NAR --- 0:16 --- RONNE --- 0:18.5 --- CHONNE --- 0:20 --- BRON --- 0:23.5 --- TONN ---

135 0:26 --- NE --- 0:28.5 --- RONNE --- 0:31.5 --- TON --- 0:34 --- TONNE --- 0:36 --- TONN --- 0:38 --- TONN --- OR --- 0:40 --- VA ---

The image displays two systems of musical notation for a piece titled "Joyce Paraphrases" on page 14. The first system, starting at measure 130, contains the lyrics "NAR RONNE CHONNE BRON TONN" with time markers at 0:12, 0:16, 0:18.5, 0:20, and 0:23.5. The second system, starting at measure 135, contains the lyrics "NE RONNE TON TONNE TONN TONN OR VA" with time markers at 0:26, 0:28.5, 0:31.5, 0:34, 0:36, 0:38, and 0:40. The music is written in a complex, multi-staff format, likely for a chamber ensemble or orchestra, featuring various rhythmic patterns, dynamics (p, mp, mf, f, sf, ff), and articulation marks. Large numbers (6, 4, 3, 4, 3, 4) are placed above the staves, possibly indicating fingerings or measure counts. The notation includes treble and bass clefs, key signatures, and various musical symbols such as slurs, accents, and dynamic markings.

It is again a question of reflection upon the material, and finding the parameters for its suitable disposition.

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We might not be able to step outside of time but we can alter our perception of it. I encountered an example of this at a certain moment at the Computer Music Center when after a twenty-minute calculation time the SGI machine produced a slowed-down, high-resolution version of a particle from my 100-letter word, the triphthong

... HOUNAW ...

The plain succession of syllables had turned into a dramatically transforming soundscape, with rich and sonorous color changes in the vowel slides.

I made use of a similar, if simpler, process in my recent piece *Phantom Islands*, for fourteen instruments and electronics. In one particular passage the instrumental lines trace the evolution and expiration of partials heard in a slowed-down decay of a Bösendorfer piano's A (three octaves below middle C) struck *fortissimo*. It is like looking at a spectrum with a special microscope that not only magnifies space but also time. During the performance of this piece, the computer plays back a resynthesis of the piano's slowed-down A while the instruments trace particular fields of partials, "highlighting" them as if a spotlight were moving through the strata of the spectrum (see fig. 3).

*Phantom Islands* is a kind of double concerto for an ensemble of instruments and electronics in which the real instruments concertize with their virtual electronic counterparts. Each instrument in the ensemble successively confronts its electronic mirror image, reflected, however, with a degree of distortion that is analogous to the effect of a concave or convex mirror. Hence, a phantom sound might be an electronically magnified or highly compressed acoustic reflection of its source instrument. The encounters take place in various forms that are determined primarily by timbral considerations and enhanced by sections of tempered tuning that contrast with others that use quarter- and microtones. Each encounter gradually coagulates to form some type of firm, tangible clustering of musical events and figurations—a static "island"—that subsequently vanishes as quickly as it had appeared, within the "sea" of continuous transition that defines the overall structure of the piece.

Events that are initially perceived as separate from each other, but then gradually accumulate to become a unified, static entity—this process appears in varied forms in many of my pieces and might go back to an experience that I had in the Cathedral of Cologne. As had happened to me before in this vast space, my perception of time was transformed. After a

Figure 3: *Phantom Islands*, mm. 20–32.

This musical score page, labeled Figure 3, covers measures 20 to 32 of the piece *Phantom Islands*. The score is arranged in a standard orchestral layout with multiple staves. At the top left, a circled number '20' indicates the starting measure. A box labeled 'A' is positioned above the first staff, marking the beginning of a section. The instruments included are Flute 1 (Fl. 1), Flute 2 (Fl. 2), Clarinet 1 (Cl. 1), Clarinet 2 (Cl. 2), Clarinet 3 (Cl. 3), Trumpet (Trp.), Horn (Hrn.), Trombone (Tbn.), Tuba (Tub.), Euphonium (Euph.), Bass Drum (B. Dr.), Snare Drum (Sn. Dr.), and Violoncello (Vcl.). The score features a variety of dynamic markings such as *ff*, *mf*, *pp*, *f*, *p*, and *mp*. Performance instructions like *rit.*, *rit. mod.*, *rit. cresc.*, and *rit. dim.* are used throughout. A specific instruction for the Clarinet 3 part reads "[B♭ Clar.]". The bottom section of the score includes parts for Violin I (Vln. I), Violin II (Vln. II), and Viola (Vla.), with some measures marked with an 'X' and *ff*. The page concludes with a circled number '32' at the top of the final measure.

Figure 3 (cont.)

This musical score, labeled Figure 3 (cont.), is a complex orchestral and chamber arrangement. It features multiple staves for various instruments, including woodwinds, strings, and chamber instruments. The score is divided into two main sections, marked with circled numbers 13 and 14. The instruments listed on the left include Flute 1, Flute 2, Clarinet 1, Clarinet 2, Flute 3, Flute 4, Bassoon, Bassoon 2, Trumpet 1, Trumpet 2, Trumpet 3, Trombone 1, Trombone 2, Trombone 3, Tuba, Euphonium, Double Bass, Violin 1, Violin 2, Viola, Violoncello, and Double Bass. The score includes dynamic markings such as *mf*, *mp*, *p*, *f*, *pp*, and *ppp*, as well as performance instructions like *ritardando*, *all. mod. viv.*, and *rit.*. The notation includes various musical symbols such as slurs, ties, and articulation marks. A copyright symbol (©) is visible in the lower right corner of the score.



period of quiet sitting, the sounds of the hundreds of people that pass through this cathedral seemed to gather, cluster, and merge to form a static block of sound in which details became recursive, and hence ceased to be discernible as such. The entire cathedral strives skywards—the windows, columns, triptychs in the side-chapels, the statues. Even the altar has its own roof that points toward the firmament. No horizontal plane is left undisturbed, everything is pulled upwards, all lines converge in the center stone above the altar, the highest point of the church interior. It seems that one dimension of space becomes absolute—the vertical continuity of the cathedral. As my eyes followed the lines of the columns, upward to their resolution in the cross-arches of the ceiling, the periodicity of the sounds around me lost its measuring-function. It became unclear whether ten seconds or ten minutes had passed between two acoustic events. With my mind fixated on nothing but the vertical dimension of space and the continuum of sound, I briefly felt as if I had left the confines of Euclidean space and had entered the realm of sound space.

I have often thought of the implications of this experience and of how to let it influence the architecture of my music. One simple example can be found in the use of canonic lines at the opening of my piece *Aqua Vit* (1998), for eight instruments. Each of the four voices (piccolo, oboe, E♭-clarinet, violin) enters with the same melodic configuration, displaced by two or three beats. Through the frequent repetition of the “axis pitch” C♯ the overall result is not heard as a canon but rather as a continuous series of pulsations that periodically travel through the four strata. The individuality, the detail of each line is gradually absorbed into a compound of impulses. Further down, this is transformed into a static yet internally fluctuating cluster, echoing each added pitch within itself and changing color with each reflection (see fig. 4).

Another example shows a static, repeated element contrasted with various “events” that accumulate around it and thus persistently change its context. The passage is from my *Trio* (1998), for accordion, cello, and prepared piano. Again, as in the previous example, an “axis pitch”—an F♯—is in the foreground as a type of ostinato, constantly passed around from voice to voice (see fig. 5). The sporadic events are eventually revealed as having been precursors of the moment of stasis: harmonically speaking, they are related to the spectrum of the lowest D on the accordion (D1), which enters with its lower partials doubled by the piano and the cello in m. 67 (see fig. 6).

### III. *Infinite is nature's smallest part.*

The Hegelian notion of progressive aesthetic material determined and shaped by advancing history first attracted me during my studies at the

Figure 4: *Aqua Vit*, mm. 5–8.

5

Fl.

Ob.

Clar.

Perc.

Perc.

Vln.

Vcl.

Obs.

The musical score for Figure 4, mm. 5–8 of *Aqua Vit*, is presented in a standard orchestral layout. The score is divided into seven systems, each corresponding to a different instrument or section. The first system includes a rehearsal mark '5' in a box. The instruments are: Flute (Fl.), Oboe (Ob.), Clarinet (Clar.), Percussion (Perc.), Percussion (Perc.), Violin (Vln.), Viola (Vcl.), and Double Bass (Obs.). The Flute, Oboe, and Clarinet parts feature complex rhythmic patterns with many sixteenth and thirty-second notes, often beamed together. The Percussion parts are marked with a piano (*p*) dynamic and feature sustained, rhythmic patterns. The Violin and Viola parts also have complex rhythmic figures. The Double Bass part is mostly silent, with only a few notes visible in the later measures. The score is written in a key signature of one sharp (F#) and a common time signature (C).

Figure 5: Trio, mm. 36–46.

Handwritten musical score for Trio, mm. 36–46. The score is written for Violin I (Vcl.), Violin II (Vcl.), and Piano (P<sup>no</sup>).

**Violin I (Vcl.):** The staff begins with a circled measure number 36. The music features a melodic line with triplets and dynamic markings: *f*, *pp*, *f*, *pp*, *f* *sub p*, *mf* *ff*, and *ppp*. Performance instructions include *(bisciol)*, *senza*, *molto vibr.*, *col legno*, *ord.*, *(ord.)*, and *col ped.*

**Violin II (Vcl.):** The staff begins with a circled measure number 36. The music features a melodic line with triplets and dynamic markings: *f*, *ppp*, *ff*, *f*, *mf*, *ff*, and *n*. Performance instructions include *senza*, *molto vibr.*, *col legno*, *ord.*, *(ord.)*, and *col ped.*

**Piano (P<sup>no</sup>):** The staff begins with a circled measure number 36. The music features a complex texture with triplets and dynamic markings: *ff*, *f*, *pp*, *mp*, and *pp*. Performance instructions include *no Ped.*, *pedal snap: after attack quickly release pedal and depress again immediately, let harmonics ring.*, and *Ped.*

Figure 5 (cont.)

Handwritten musical score for Figure 5 (cont.), featuring Cello (C.), Violin (Vl.), and Piano (Pd.).

**Cello (C.):** Measures 15-20. Starts with a circled measure number 15. Dynamics include *pppp*, *fp*, and *p*. A circled measure number 3 is above the final measure.

**Violin (Vl.):** Measures 15-20. Starts with a circled measure number 15. Includes performance instructions: *molto ritto*, *mut.*, *sim*, *pizz.*, and *practice mute on*. Dynamics include *n*, *ppp*, and *f*. A circled measure number 3 is above the final measure.

**Piano (Pd.):** Measures 15-20. Starts with a circled measure number 15. Includes performance instructions: *re. effect*, *impartidly*, and *uc.* (unaccompanied). Dynamics include *f*, *p*, *sfz*, *mp*, and *f*. A circled measure number 3 is above the final measure.



University of Bonn. Reading Adorno's works, in particular his *Philosophy of Modern Music*, confronted me with the idea of an objectifiable material that, aesthetically and philosophically, lies in the current of social conditions. Suspended in the dialectic of construction and expression, this material is supposed to manifest itself as the "integral law of structure," which must be obeyed if "objective consequence" (*Sachlichkeit*) is to be achieved in musical composition. It is fair to say that the legacy of Adorno and much of the Frankfurt School is still influential in the German discourse of New Music, and lives on in various mutations (e.g., the work of Heinz-Klaus Metzger, Mathias Spahlinger, or Helmut Lachenmann).

Today I see many things differently, but I still have respect for the stringency of thought and the many perceptive analyses that observers like Adorno, Walter Benjamin, and Siegfried Krakauer expressed at a very early point. Many of their observations correspond to my own perceptions of music and society, although I do not believe anymore in a singular progressive "tendency," "level," or "disposition" of the historical material in the present, a material that, as such, exists outside of the composer's mind. The enormous influx of non-Western music and the course of advancements in technology have diversified this perhaps formerly more localizable and centered aesthetic force. Yet, given this dazzling variety, it might still be productive to contemplate the notion of a collective material. Since "the essence of a musical work is at once its genesis, its organization, and the way it is perceived" (J.-J. Nattiez), a composer should be acutely aware of the connotations that many harmonic, melodic, and rhythmic configurations carry as a result of constant association with a particular stylistic source. Certain harmonic progressions or recurrent rhythms can immediately and powerfully evoke highly formulaic types of music such as certain forms of Classical or Romantic music, pop, New Age, or jazz. In other words, in spite of the current diversity, there is a kind of musical *lingua franca* of musical configurations that are carriers of conventional, culturally encoded meanings. During the genesis of a new musical work these configurations can come into play (i.e., they could significantly determine the formal organization and, eventually, the perception of the work). For the composer, having a broad knowledge of the cultural imprints that these musical configurations might carry is the basis of this kind of deliberate reflection upon the material.

In this sense, music—composed as it is in an age of its unprecedented availability—is not epistemologically weak at all. It is utopian to assume that the average open-minded listener will be able to distance him- or herself from referential implications when hearing them at work in a new piece, and will instead merely follow the unfolding of its unique structure. Luigi Nono, for instance, saw himself writing for a listener who was not

only open-minded and curious but also ready to “renew” his hearing with every piece. But as much as this would be desirable it is indeed utopian since it ignores two common tendencies in the perception of new music that are detrimental to unbiased listening. Their extremes are what I would call taxonomic listening, in which music is merely broken down into—and accepted as—a more-or-less continuous sequence of familiar templates, perhaps occasionally mediated by passages of category “unknown”; and atrophied listening, in which the ear has become largely indifferent to musical sound *per se*, perhaps due to the ceaseless and casual inundation of musical information that is a basic feature of an omnipresent commercial culture.

For me, the act of composition provides an opportunity to break through the walls of both taxonomic and atrophied listening. The composer’s subjective relationship to the object of choice (which is a big deal in modern aesthetics) should be defined by the avoidance of clichés. The more a new work shows the avoidance of preencoded musical configurations and compositional strategy, the more I perceive this work as having a life of its own. I often feel that the frequent use of familiar configurations in contemporary composition has the effect of affirmation, if not acclamation, of something that hardly needs it since it is already present in our listening conscience anyway. This is not an intellectual but an instinctive response. As a listener I feel unsatisfied because I have too many *déjà vu* experiences, and as a listening composer I feel unsatisfied with the apparent lack of reflection upon the lingua franca of the musical material, which in many cases merely displays the composer’s self-indulgence and lack of originality.

The view frequently inscribed in the postmodern perspective—that one simply can’t suspend one’s own personal preferences in the act of composition—seems to me to be too often an excuse for giving up the arduous quest for originality. Eclecticism and the use of the tried and true is easier and more predictable in its effect than the “risky” business of creating new musical structures. But music can be *too* easy on the ears! A composer should be self-critical and cautious when considering the connotations of his musical material. Doing what makes merely the composer feel good rarely gives much enjoyment to others in producing work of common interest; and while music without emotions is barren, music that is made only by emotion and careless choice, and without a critical distancing from the subjective and a careful scanning of the predisposed aspects within the musical material, is often likely to be somewhat unsatisfying. To state it in the extreme: In the reflection upon the musical material, “What I know is more important than what I feel” (Martha Nussbaum).

Today, reflection upon the material can and must go beyond the lingua franca of culturally encoded musical cliché. Ideally, musical experience

should constantly be checked for spots where formulas of listening are applied and structures of perception have hardened or become passive. The reflection should be extended to include the anatomy and properties of sound itself. When considering how many of our listening habits are based on recognizing various formulaic structures or compound objects, it becomes clear that we are dealing with preformed categories of sound perception that are based either on our modes of acoustic orientation, on the characteristics of speech production and language mechanisms, or on cultural practices. There are niches, cracks, and seams to be found in the known sounds and sound organizations. Here I perceive the space for new music to flow. In his *Traité des objets musicaux*, Pierre Schaeffer discusses a variant of listening—"reduced hearing"—in which the ear is trained to "hear out" and isolate the properties of each sound and the most prominent of its constituting elements. Since this, however, is not always practicably achievable with our plain ears, the use of computers in isolating (for instance) the partials of a given spectrum and making them sequentially or selectively audible presents a new dimension of listening, through the increase of the "resolution" of a given sound and the possibility of analyzing and manipulating its discrete components.

I believe one of serialism's problems was its relative indifference to the character of intervals, harmony, and harmonic progression. This indifference is contrary to the idea of being sensitive to the properties of sound itself. At times during the process of composition, there is a moment where a piece begins to develop a life of its own. The selected material is not just "there" anymore; the pitches and rhythms seem to reveal tendencies of their own. At a certain moment, they "push back," as Morton Feldman once said, and resist being merely projected onto the grid of an abstractly preconceived, precompositional model, plan, or system.

As striking as this moment feels—if it happens—it is important to keep control of the compositional process since it is easy to mistake such tendencies with the residue of hidden but persistent conventions. The decisions a composer makes at this point are perhaps the most important. They will usually carry more responsibility for the outcome of the piece than those made during the precompositional phase or the large-scale conception of the piece.

The deliberate avoidance of predisposed musical material—at least as much as possible—through composition based on the properties of sound itself might encourage the mode of listening suggested in the following passage:

I would ask [Albertine] to give me a little music. I remained in bed, and she would go and sit down at the end of the room before the



pianola, between the two bookcases. She chose pieces which were either quite new or which she had played to me only once or twice, for, beginning to know me better, she was aware that I liked to fix my thoughts only upon what was still obscure to me, and to be able, in the course of these successive renderings, thanks to the increasing but, alas, distorting and alien light of my intellect, to link one with another the fragmentary and interrupted lines of the structure which at first had been hidden in the mist. She knew and, I think, understood the joy that my mind derived, at these first hearings, from the task of modelling a still shapeless nebula.

—Marcel Proust, *Remembrance of Things Past*, vol. 3: *The Captive*  
(trans. by Moncrieff, Kilmartin, and Mayor, 1981, p. 260)