Global Musical Possibilities: An Interview with Composer-Theorist Robert Cogan

Lawrence Shuster

Lawrence Shuster: *You have had the wonderful opportunity to study with some of the most prominent composition teachers of the twentieth century: Boulanger, Copland, Finney, Jarnach and Sessions, to name some. To what extent did your tutorials extend beyond the western art music mainstream?*

Robert Cogan: I wish to add one more teacher's name, Milton Babbitt. I know you are interested in my work in sonic analysis. Milton was the first person who led me to information I would then use in sonic analysis. But Roger Sessions was important, too, because his music was timbrally so vibrant, so seemingly inexplicable. To come to your basic question, none of them were interested in my short, but intense personal connection with jazz. As a topic it never arose, perhaps because I didn't pursue it sufficiently; it did not appear to be germane to their interests. Despite this difference of perspective, they were impressive teachers, of immense value to me, especially because of their differences. To go from Boulanger's dislike of Schoenberg to Sessions and Jarnach's great appreciation of him (they both knew him), as well as Babbitt's, was a unique experience.

Lawrence Shuster: *In what manner did your performance and composition experience in jazz and other vernacular traditions inform your activities in music composition on the one side, and theory and analysis on the other?*

Robert Cogan: When I completed my formal studies in the early 1960s and assumed a fully active life as a composer, theorist and teacher, I was astonished to realize that there existed no global music theory. This despite my own growing awareness that music, from early times, was a global phenomenon with a number of very diverse classical global musics. Music theory existed individually in different eras and cultures, but as a whole it was too incomplete, too incoherent. After World War II, Chomsky recognized the same thing about linguistics: there were grammars of separate languages, but no grammar of grammars. And Roman Jakobson realized a similar thing about linguistic phonology. But linguistics, at least, did have phonologies (theories of sound), something that music, strangely, then lacked. I felt these lacks and needed a more complete, coherent view, so I started on this perhaps pretentious task, trying to assemble a more global view of music. If I had thought about it a little more and realized how presumptuous it was, I might have been intimidated. But for me it was a necessity and I just plowed ahead, beginning the writing of *Sonic Design*, my first book. My wife, composer-theorist Pozzi Escot, joined me in that. Fifty years later I am still astonished that music theory, and especially its teaching, has not more actively taken up this challenge.

Lawrence Shuster: *In music academia today there exists is a longstanding polarity between the discipline of ethnomusicology with its emphasis on anthropological methods and models; and music theory whose approaches are often extensively concerned with the sound structure of a work and the internal mechanisms by which coherence and unity are achieved. All music consists of certain common denominators or what Boulez refers to as the "strategic variables of musical production" such as pitch, rhythm, meter, dynamics and articulations, registral space and timbre, and musical time. To what extent do you think such structural features as these can be studied and appreciated independently as universal features and processes devoid of extensive cultural and historical considerations?*

Robert Cogan: Many questions; let me start with the last. Recent work in neuroscience has established how individual everyone's experiences and responses are. Earlier there were assumptions about simple language responses that occurred in one or two parts of the brain for almost everyone in the same places and ways. Gradually the realization emerged that while some generalizations are possible, everyone also fires up their own brains, based on their earliest and continuing experiences (epigenesis). Cultures (and their theories) teach us how to hear, listen and understand, but we teach cultures what we are hearing and understanding, so that there is a constant interchange.

This has been very hard to deal with theoretically and in learning/teaching situations. To begin, there is the myth of "giving answers." From information theory and philosophy of science (Shannon, Popper) we might learn that our essential role as creative musicians and teachers is raising questions, raising awareness. My early experiences of jazz, and later of global musics, raised critical questions not only about tone color, but also about musical time and rhythm, about musical design—questions that have haunted and stimulated me in my whole subsequent musical life. I now understand why every section of *Sonic Design* begins with questions. I also came to understand that what was happening to me was also happening to the great musical world, including my students and many colleagues.

In planning *Sonic Design* I realized, like your quote from Boulez, that we required a new set of categories for both "telescopic" and "microscopic" musical features. I arrived at the categories "musical space" (linear, registral, fields), "musical language" (modal, tonal, symmetrical or serial), "musical time and rhythm" (pulsational/dimensional; metric, cyclic, serial, statistical, graphic), and "musical color" (vocal-verbal, instrumental, spectral). These are not meant as separate or exclusive domains. Registration is both a space and color factor. So too is spectrum (despite its largely being ignored in recent "contour" or "transformation" theories; what could be more essential than to recognize spectral contours and transformations?). *Sonic Design* defines "structure" as the interworking of the various distinct aspects, parameters.

And I surely in no way wish to rule out cultural or historical context; my point is to be inclusive rather than exclusive, to consider all the questions that might pertain to any given music. In *Sonic Design* every concept in the book was musically exemplified, from Machaut and Josquin to Carter and Cage; from Song dynasty China to Zuni Pueblo America. With

respect to the insider/outsider question I stand fully with the Russian thinker Bakhtin. He stressed the value of the outsider's fresh questions. Important is the question, not its origin or source. (Who or what is to decide "inside" or "outside"?)

Lawrence Shuster: *The seminal music theory journal* Sonus *published by you and Pozzi Escot was revolutionary in numerous ways: published independently; not affiliated with a particular society or institution; and dedicated to the exploration of global musical possibilities. What factors led to the formation of* Sonus *and development of its unique global perspective? What reactions were encountered from the music community at large? How have the perspectives and outlooks of* Sonus *changed over time in response to changing currents and trends in the academic music mainstream?*

Robert Cogan: Again, many questions. *Sonus* was one consequence of *Sonic Design*. Going back 40 or 50 years, there were all of these musical domains, cultural or "technical," that were not being addressed. Then there came attempts to fill in the gaps: early music, ethnomusicology, new music, electronic music, each domain with one or more journals. Valuable; but on the other hand, each one increased the fragmentation. Each created a situation where the different domains related less and less to each other. Indeed, their separateness became an ideology: our domain must be addressed in this way, uncontaminated by that domain.

I spoke at a conference that tried to bring together the various musical-thought domains. I tried to discuss analysis of some sonic issues in a Tibetan chant, a Mozart aria, and a movement by Boulez. A distinguished scholar of Tibetan music rose to warn any ethnomusicologist present about the danger of music theory (me) encroaching on their domain. He was not disputing the spectral facts or ideas; he was defending the territory. A musicologist then did the same for Mozart. The territorial danger they expressed was directly opposed to the danger of noncommunicating isolation that I felt. Where to publish such a bomb?

Sonus took as its mission open conversation between the separated musical domains. No one questions the value of specialization; but specialization is not a perfect, complete, exclusive value. As whole people, we cannot fragment ourselves in such a way. Neuroscience has now recognized that the separate human brain neurons and neuronal regions function as part of a comprehensive structure now recognized as the "connectome."

Sonus has tried to be a "connectome," not only for the separate domains of music, but also for music and the other domains of artistic, intellectual, cultural life. At the same time it has tried to maintain its character as a "little magazine," of the kind that flourished in literature in the middle of the last century. It depends on ideas, not on an academic institution or specialized society.

Lawrence Shuster: *How would you characterize the initial reception of* Sonus *within the music theoretical and musicological community?*

Robert Cogan: The reach of *Sonus* is globally very wide: to almost every inhabited country and continent. It has devoted single issues to particular musics: of Russia, China, Ireland, France, America. It has maintained itself for thirty-five years. Within its limits it tries not to dictate or restrict format, language, topic, or approach. The philosopher Foucault has made the world aware of "power." Music and culture, like other fields, have their power centers: academic or performance domains, media, foundations, governments (in some cases). But I find it hard to connect what has happened in music—the utter transformation of musical sound deriving from early music, new music, global music and musical technology—with the intention of any particular power center. If anything, such transformations have largely occurred despite the power centers, except for the power of active creative individuals.

Whether in *Sonus* or elsewhere we try to maintain open, independent individual space, a vital necessity for creative arts. We know of no reliable way of measuring our reception or effect. While there is very much to lament about the past fifty years, there is also a great deal to celebrate, including the growing awareness of global musics and the growing ability to penetrate (both technically and humanly) its workings. As in cosmology and neuroscience, we have exploded into vast new times, spaces and possibilities. We personally hope that in our activities (composing, thinking, writing, teaching, publishing, speaking) we can continue as an active positive force.

Lawrence Shuster: *Your pioneering work regarding tone color has innovated new dimensions in music theory and analysis providing important tools in which to examine timbral surfaces and other features of sonic design. Given the thirty or so years since your initial explorations technological advancements have now made required technologies easily available and widespread. More people are using these analytical tools and spectrographs are becoming increasingly widespread not only in the music theory community but also in recent musicological and ethnomusicological research. Do you think we are also observing a corresponding expansion of theory that accompanies these increased analytical applications? What is missing in terms of a general formulation of tone color?*

Robert Cogan: A bit of personal history. As part of the reconception of music theory we attempted in *Sonic Design*, it became obvious that it was the sonic that was missing. It was also clear that linguistics as well as several sciences and technologies were making progress with the sonic puzzles. Being in such a scientific/technological center as Boston, I tried to enlist potential helpers. But I lacked success in that, so I resorted to my usual fall-back method, plowing ahead. To inform myself I read several years of Acoustical Society of America journals and other sources. It was clear that we needed sonic "weather maps," analysis of sonic/spectral change happening over long time spans. Without any existing analytic technology to do that, I created for *Sonic Design* hypothetical long-span spectral analyses. (Some colleagues regarded them as pure fantasy, others as uninteresting.) One day in 1980 I

received a phone call from a physicist (Dr. Dale Teaney) at IBM Research near NYC; he said that for voice recognition purposes they were creating a technology that could do what I proposed. Then, for almost two years we had IBM's experimental technology in a disused basement space at New England Conservatory, where I taught. There we created the first long time-span musical spectrographs I ever saw, which began unlocking the sonic puzzles. Throughout the world others began creating and using similar technological/conceptual approaches. Sound in "the art of sound" could begin to be understood. In 1984 Harvard University Press published my book *New Images of Musical Sound*, based on the IBM spectrographs, which happily confirmed the speculations in Sonic Design. Several years later the new book was given the Society for Music Theory outstanding publication award.

Of course, these analyses were most valuable for the many questions they raised and the answers they began to suggest. Such analysis has now spread throughout the world, but still has so far only scratched the sonic surface. But while I used to bring such analyses to my students, now they bring theirs to me! However, as with fMRI technology in neuroscience, a new issue has emerged. As always, a question must precede an answer. The neuroscientist Elkhonon Goldberg is among many in that field who recognize the dangers of technology flooding a field which has not yet clearly formulated its questions. We cannot, in music, let the technological flood and its trivia drown out the crucial artistic questions, which ultimately involve human choices and values. Again it is a question of invention and connection.

Lawrence Shuster: *Have there been any theoretical developments on timbre that you have witnessed the last twenty years? An important descriptive tool employed in your text* New Images of Musical Sound *adapted the binary oppositions or "features" characteristic of Roman Jakobson's research in phonology to the interpretation of musical spectra. Instantiations of various oppositions comprise feature complexes or vectors and the succession of these complexes you consider descriptive of spectral morphology. I always found this to be a particularly powerful tool employed in your analytical method but in later research you seemed to have moved away from this more approach. Why?*

Robert Cogan: The simple answer is the recognition that sound, tone color, timbre (what you will) is an essential musical parameter. Without that recognition, musical understanding and analysis, are simply incomplete at the most basic level. We need many more examples and models of "how to do it." Still, without over-stressing the negative, we have examples of how not to do it. To me it is mysterious how the recent proposals in music theory I've already mentioned (contour and transformation theory) can appear without reference to the spectral realm. It's like talking about the cosmos without Hubble, or the brain without neural imaging.

Oddly, the domain that has made the most active use of spectral color information is one most often regarded as atheoretical: singing. Probably because of its basic link to language and linguistics, it has cultivated such an awareness. Again, because language is global, there exist

analyses of Chinese, as opposed to European, singing, or bel canto opposed to amplified popular singing. In contrast, instrumental music has remained essentially unaware, if not hostile, to such considerations. (The Vienna Philharmonic is an important exception; to preserve its "sound," its wind players must use the orchestra's collection of instruments, which undergo ongoing spectral analysis to maintain their "sound.") Still, the conceptual basis for these analyses has not been articulated, or (in the case of singing) seem limited and quite suspect.

As the spectral and other features of languages became visible and known, Roman Jakobson raised the question of their meaning: how does one understand all the emerging features of linguistic phonology as a theory of sound? His answer was to posit "distinctive features" and their grouping into opposing binary pairs. Again, it is the question that is most crucial; Jakobson's ideas of distinctive features and opposing pairs raised crucial questions for language sounds, and by implication for musical sounds.

As the vast panorama of spectral features and equally vast panorama of global musics were becoming apparent to me, the question of the sense of all this became overwhelming. It occurred to me to use Jakobson and linguistics as a model. I found that I could distinguish 26 timbral-coloristic features that could be grouped into 13 oppositional pairings: qualities of spectral placement, breadth, constancy, attack, dynamics, waverings bends, etc. This may seem limited and primitive; but beginning with 26 qualities one could build thousands of different profiles and successions. Remember that this was a way of raising questions, making comparisons, testing usefulness. Still, not just you, but early reviewers and readers of *New Images* found the Tables of Oppositions analyses stimulating and revealing, as I have.

It seems unlikely that there is ever a perfect theory. In tonal music it took 200 years to get from Rameau and Fux to Schenker (improved, but still incomplete, imperfect), dealing with a relatively restricted period and culture of music, and a relatively limited perspective. In sonic theory we aim for ideas and methods that might begin to illuminate all music, from an enlarged perspective. "How long, how long…?" As you have observed, I have not published later formal oppositional analyses. But their perspective has influenced all my later compositional/theoretical thinking and writing. Everyone who thinks of following this path should know some of the practical difficulties that remain. We now have increasingly revealing colored spectrographs, coloring that reflects relative loudnesses; but the printing and publication of such detailed large, changing colored images is demanding, not to mention combining them with analytical text and notated music. In principle recent technology might be invoked to solve the presentation problems. But in a world where commercially viable music and print publication are already endangered, who is there to support and execute such an undertaking?

It has been remarkably stimulating, challenging to be part of the exploration of this newly revealed musical cosmos, as vast in its way as the astronomical cosmos that has opened before us, with a technology also dauntingly vast, and its many conceptual challenges. But in

music we may have to do without NASA, Hubble, governments and industry. The famous medical researcher, Dr. Lewis Thomas, once half-seriously proposed that the German research giant Max Planck Institutes focus for a year entirely on issues surrounding music; but that is unlikely to happen. I have shown that we can now conceive a musical work, a musical experience, as a set of quantized sonic moments embodying a dynamic pattern of transformations—from micro- to macro-oppositions. A kind of quantum chromodynamics, reaching from the sonic profiles of distinct moments to their evolution in phrases, sections, and entire works—and, most important, their projection (or not) in specific performances. To see/hear the objective imaging of a Bach solo cello sarabande performed by Casals, Bylsma, Pergamenschikov has, for me, been a revelation. Similarly a Verdi aria sung by Bergonzi, Domingo, or Pavarotti. Questions old and new; what revelations, what issues!

It is to explore and reveal this range of analytical possibilities and interpretive (in the largest sense) challenges that I have extended and limited my later writing. While I have surveyed dozens of works and performances with oppositional tables, it has not been necessary or possible in every case to publish the whole array of analytic information. Happily, sometimes a few spectrographic images or (hopefully) well-chosen words can serve as the tip of a hidden iceberg below.

I do know that elsewhere in this country, as in Canada, China, France, Sweden, Austria (and probably in many places unknown to me) comparable explorations are being carried out. There still remains almost everything to be done; but I should and must leave most of it to others. This is not a bad thing, as other questions, insights, possibilities will emerge.

Lawrence Shuster: *Your first textbook* Sonic Design *was innovative for many reasons. One had to do with an entire chapter devoted to an early version of methodology for tone-color analysis; another was the fact that it featured another chapter devoted to issues of musical space and registral organization and thus established the foundation for what would eventually become contour theory; another was the fact that analytical examples throughout the text devote equal attention to western tonal music; contemporary music; early music; jazz and other vernacular traditions; and numerous representatives of diverse musical cultures. What factors lead you to explore these dimensions of musical design and what were some of the conceptual and technical obstacles you encountered when working-out your theories and why was it important to demonstrate the implantation of these theories and their corresponding collection of analytical tools on such a tremendously rich and diverse assortment of musical cultures and genres?*

Robert Cogan: I hope I have addressed some of these questions in my previous replies. Now I would like to address directly the teaching of music. In the somewhat distant past it was common to introduce potential musicians to acoustics. This introduction, often somewhat abstract and mathematical, was subsequently eliminated. Now that spectral and other acoustical information has become tangible and directly relevant to understanding musical shaping at every level (composition, improvisation, instrumental and vocal performance) it is

crucial that acoustics, the understanding of sound, be restored and made available to every potential musician. Instrumental performers need to know the realities and sonic potential of their instruments; singers need to know both the facts and issues of linguistic and vocal sound; and the great range of creative musicians will almost immediately encounter (in amplification or electrocomputer music) an acute need for acoustical knowledge.

It has been an unspoken assumption of much musical training that one is preparing a "specialist": a pianist, a violinist, a lyric soprano… But it has become obvious, if often unrecognized in educating musicians, that today's specialists are active in the vastly expanded musical arena we have been discussing. In fact, many of our current students seem more vividly aware of this than the music-teaching institutions that aim to teach them. Many young musicians live and anticipate working in the cosmic musical ecology that now exists. It seems to me essential that we, as professionals, as artists, as teachers, prepare them for that. A specialist requires some awareness of the total ecology in which he/she is active, to be ready for the roles that might require their participation.

For me, their preparation requires some clear thinking. Unlike our media, I do not believe that anyone who can play, sing or even compose a line is an "artist." For me an artist is someone who contributes to the evolution of an art form; to do so requires some understanding (explicit or intuitive) of the facts, resources and potential of that art form. But we also need to recognize that someone, anyone, who can play, sing, or compose a line may be or become an artist. I myself have occasionally been skeptical of the people who have appeared through my doors, only later to be massively surprised at the outcomes. If anything has happened to me in my fifty years of professional activity, it has been to become increasingly skeptical of our prophetic abilities. My seminars and individual students today resemble a mini-UN meeting. We have a global music adequate to them and their aspirations, but not yet a music theory and teaching of it adequate either to the wonders of global music or to them.

Lawrence Shuster: *What people, events and experiences would you identify as significant shaping forces in your development as a composer and theorist? What factors prompted you to explore beyond established boundaries in search of new musical cultures and experiences, innovating new technologies along the way in which to subsequently share and characterize these?*

Robert Cogan: All six teachers mentioned at the beginning were important to me; I had a rare opportunity to know some of the great musical minds of twentieth-century Europe. Let me pick out from them Roger Sessions and Philipp Jarnach, who are less recognized today. When I arrived in Boston to begin my own teaching activity, Sessions had been the teacher of almost all the Harvard Composition Faculty of that time: Leon Kirchner, Earl Kim, Donald Martino, as well as of its principal theorist, David Lewin. The same was true at MIT: John Harbison, David Epstein, Jean Bamberger. Of course, Sessions was the teacher of important composers or theorists throughout the country: Milton Babbitt, Edward T. Cone, Andrew

Imbrie; even of Conlon Nancarrow. Sessions was one of the first in the U.S. to publicly appreciate both Schoenberg and Schenker. His knowledge of the European musical repertoire was legendary, but with him it was not just knowledge. His overriding values were profoundly creative. The neglect here of his own music, in part because of its demands, is a genuine tragedy in our musical life; for example, his opera *Montezuma*, so deeply American in all the right senses. He was a valued friend, not only of his students, but also of such international musicians as Schnabel, Krenek, Mitropoulos and Dallapiccola. (I once ran into Sessions and Dallapiccola together in a café in Florence.)

Philipp Jarnach, as a young man, had been the last assistant of the visionary pianist/composer/writer Busoni. Busoni in a letter described him as a man who, on looking at a new score, knew instinctively and accurately, the intentions of the composer—an ability he never lost, even decades later. He was the actual teacher of Busoni's last circle of students (Kurt Weill, Varèse, Mitropoulos and others). Himself a composer and conductor, I knew him as Director of the post-WW II Staatliche Hochschule für Musik in Hamburg. (He was chosen to complete Busoni's opera *Dr. Faustus*.) While regarded with wonder and (sometimes) terror, he was actually a very deep and kindly musician, profoundly marked by the Hitler years in Germany.

Among musicians I did not personally know, Charles Seeger was a giant predecessor in several fields of musical thought, the Charles Ives of American music scholarship. Publicly known as father of Pete and Peggy Seeger and husband-teacher of composer Ruth Crawford (Seeger), he was also a father of the Society for Ethnomusicology and the American Musicological Society. His "neume" theory extended to registral and large-space domains, as well as to rhythm (duration, accentuation), dynamics and timbre –and across many music cultures. He was a genuine forerunner of the later multi-parametal composers and analysts. His invention, the melograph, was a predecessor of the current spectrograph and of spectral analysis; he also explored other forms of photographic imaging of music. There is one other figure I would like to acknowledge, Howard Hanson. Known as a somewhat conservative composer and as longtime Director of Eastman School of Music, he actually foresaw much of the work in interval-group analysis usually attributed to Allen Forte—analysis of the interval-group possibilities of every combination of intervals, an important theoretical contribution that such a composer as Elliott Carter actively used. And Hanson was an active conductor of new American music.

Lawrence Shuster: *As a composer your compositions place enormous emphasis on texture, timbre and spatial relationships. What factors led to the development of your unique compositional style. What role did world music, jazz, and other vernacular traditions play, if any? How has your interests in spectral analysis influenced your compositional approach and perceptions?*

Robert Cogan: In my teens jazz was my focus. I came along at the time of the bebop generation; one of its important interests was twentieth-century music: the impressionists,

Stravinsky, Bartók, even Schoenberg and his school. It is known that Charlie Parker wanted to study with Varèse. So I turned my interest toward this classical music; I wanted to find out what was there. Through that pathway I came into the rest of music. In a sense I came into historical music through what some might call the "back door." However, it was an ideal way to come in, because I then always had an ear open for cultural and historical approaches other than the 19th century one. Brahms and the music's of India were equally new to me. I was always open to various cultural/historical musics, whether African, Asian, native-American or to global music in general.

We must remember that this was the late 1940s. Because of World War II, European music and culture had lost some of their parental rights and prestige. The notion of a single global culture was about to emerge; later, as realities of post-colonialism, communism and a new American empire became apparent, a single global world (alas) lost a bit of its luster here. But I felt very deeply that the roots of my music were not and could not be limited to the classical world of Europe. It then emerged that some of this view resonated with the Messiaen circle and others world-wide. This influenced my music in three distinct directions. One was timbre; the timbral world of jazz, exemplified by such a musician as Ellington, was rich, natural and fascinating for me; but all tone color still remained outside of analytic discourse. Second was the rhythmic world of jazz, so connected to the rhythmic world of Africa, but also of Asia and of native America. In all of these, the foreground role of rhythm and the color of percussion seemed entirely different from the common European tradition.

Third was the different "class-sense," that the world-cultural role of music was different from the previous low-culture/high-culture split in Europe and the U.S. I am thrilled that global music is now much more available and influential than in my early days. But I think we still have not arrived at a complete inclusiveness. The domains of music scholarship, especially music theory and music teaching, have been very slow to recognize and fully integrate these factors. I realize that they raise complex, challenging issues. The premises of one music culture can be very different from another; but as Miles Davis is said to have remarked: "They're all music." Thus there are underlying commonalities, and much to be gained from knowing what they are. They also present great possibilities and wonderful riches; more and more this is the music world, the artistic ecology, in which we and our students exist.

Let me be incorrect. In the 1960s my last American place of schooling, Princeton, decided to offer the doctoral degree in composing. In addition to new candidates, those of us who held the previous terminal degree. MFA, were eligible for it, upon submission of an acceptable composition and scholarly paper. Why not do so; who knows when it might be useful? Together with writing *Sonic Design* I was then composing, for a NYC commission, my *Spaces and Cries* for five brass instruments. While previous of my compositions had been played and broadcast nation- and world-wide, *Spaces and Cries* was the first appearance of my real music, the result of the soul-searching about music that was partly a consequence of writing *Sonic Design*. *Spaces and Cries*'s sonorities, rhythmic notation, and collaborative expectations of the

"performers" were all different from my earlier music. Of the four faculty evaluators, *Spaces and Cries* was "approved" by two, happily meeting that part of the degree requirement. But I rightly took this as a sign that my current thinking and writing were unlikely to have broad faculty support. Since I was then very busy teaching and leading a large conservatory department, I was free to opt out of this quest. Since then, a number of Princeton faculty composers (and many others) have assumed the procedures and ideas that appeared so questionable then.

My next composition *whirl...ds* I had an underlying idea of active interplay between "linguistic" and "musical" sound and performance. It was for two solo voices, one of them the late Jan DeGaetani, and 44 instruments, and received a tumultuous welcome at Boston's Symphony Hall in 1968 under the direction of the late Gunther Schuller. Many were reminded of the scene at the first performance of Stravinsky's *Le Sacre du printemps*. Gunther programmed the work the following summer for Tanglewood's principal new music concert. Theodore Strongin of The New York Times wrote, "The work is monumental in scale, a brain-joggling investigation into the sound of language. The principal singer breaks language apart into the sounds that make up vowels and consonants. James Jones was masterful in the role. Each instrument varies its timbre in an attempt to penetrate the singer's language complexity. The total result is raw power and tremendous variety in texture. It is a piece unto itself, very personal and original." That 1968 performance is the last it has had.

Lawrence Shuster: *In the last decade music theory as a discipline has become increasingly more inclusive marked by a gradual shift from a nearly exclusive focus on western art music to a more encompassing purview including studies in jazz, popular music and more recently, world music. How do you foresee the future of our discipline and more particularly, the role of jazz, vernacular and other world music traditions within it?*

Robert Cogan: I am delighted that you find the last decade of music scholarship to be more inclusive. Perhaps I am too impatient; but I find the traces of the earlier biases and separations still very evident. Sometimes, in my view, there is a shift from one dominant preoccupation to another (musical ideas drawn from Bali, or from American "country" music, for example, in place of classical Europe), but not a notion of music as a "whole." I am not certain that this kind of substitution gets us very far when the idea is merely to substitute a gamelan ensemble for a string quartet. That may have some uses and even some delights, but for those of us who try to understand and work in musical understanding and invention as a whole, it is only a partial (very partial) solution. However, I do want to recognize the contributions of Olivier Messiaen, Elliott Carter, and John Cage. Each in his own way drew creatively from very wide sources of musical possibilities. The French composers Grisey, Murail, and Risset also have done so, the first two under the banner of "spectral music." This term, however, is a bit misleading, because one of the new revelations is that all music has significant, characteristic spectral elements. All music is spectral. Perhaps this slogan was a music critic's concoction; but unlike much music terminology, it does at least recognize spectrum as a significant musical/sonic feature.

I am certain there are younger composers and music scholars everywhere who deserve recognition here. However, I find one aspect of the current musical world very troubling. There is little recognition that music is not only creative work, but also "inventive" work. A notion seems prominent that music is like air and water, unfailingly available and free for the taking (and for polluting). This attitude could be as destructive for music now and in the future as it is for the physical and mental environments. Henry James said, "Art gives meaning to existence." If so, where are we?

As I have said, one of the motivations my wife and I had in writing the two *Sonic Design* books in the 1960s and early '70s was to bring the emerging recognition of music as global into music theory and its teaching, as part of understanding all of music's active parameters. I think it is fair to say that few people working in the domain of music theory were ready to accept that challenge. I still believe that to prepare our students or ourselves to meet the existing musical world, we have to confront these issues. When that is done, we will realize how vast and astonishing the musical world is. For example, the great cosmos of Asian musics, from Korea and Japan to Iran and India, much of it still almost wholly unrecognized here: like the "dark matter and energy" that apparently comprise 95% of the cosmos.

Lawrence Shuster: *Ongoing advancements in mass communications technology has been making the world and increasingly smaller place for some time now. Today's listeners have unprecedented immediate access to musical cultures, styles and traditions from around the globe, both past and present via the internet. In what ways do you think world music cultures, jazz, popular and other vernacular traditions should be included in the typical undergraduate theory curriculum? What advantages would result from such integration and any ideas on how best to go about doing so?*

Robert Cogan: Let me answer the last part of that first. The way to do so, I believe, is to eliminate from the outset any historical or cultural bias in approaching music. We have to drop assumptions that there is one ruling, primary music culture. For one thing, that is not true for many students, who often encounter music from diverse cultures. An inclusive approach can present problems, but such problems are artificial compared to the problems presented by imposing a single culture. I am not saying that every musician must be a generalist across every domain of music. But it does seem to me that music theory and teaching should be able to conceive their categories inclusively rather than exclusively. And that musicians should understand the place of their specialization within the larger musical ecology. It is utterly false that increasing "breadth" in this way means decreasing "depth." Rather, this would lead to a far deeper understanding of any particular specialization. The teaching of rhythm by including Indian talas or Balinese time cycles enriches and strengthens a musician's rhythmic capabilities and understanding. The great expansion of technology during and after World War II opened worldwide vistas. This has been intensified by the computer/technological explosion that has continued into the twenty-first century. We are now deep enough into it to see both its great possibilities and its immense challenges. Contrary to some of its hucksters, it does not inevitably lead to a parallel increase in our brain

power. What is in the "cloud" is not automatically in our heads. In fact, there has been an enormous increase in trivia, in noise, and in the potential for confusion and loss. It is not yet clear that we can successfully separate the benefits from the damage; it may be another instance of too much CO_2, irreparable ecological destruction. There are signs of this destruction in the music world, as there are signs of some positive benefits. We need to become more vigilant, more self-critical, not less. The hucksters are self-interested and often deluded. Naivety can be dangerous; so can economic and political self-aggrandizement.

As musicians, artists and educators we have to find ways of enlarging ourselves and our students, knowing that however enticing, this is not always easy. Elsewhere I have quoted the American writer Marilynne Robinson: "Acknowledge that there is more beauty than our minds can bear, that precious things have been put in our hands and to do nothing to honor them is to do great harm."

Lawrence Shuster: *Having just graduated from the Berklee College of Music I entered in the master's program in theoretical studies at The New England Conservatory with relatively little experience with traditional tonal music and music theory as result of my preoccupation with jazz and contemporary music. The first seminar I attended with you was Psychophysical Analysis 1 and the first week's assignment involved analysis of two short works. One, a Japanese folk song for voice and shamisen called Kotsu-Kotsu Bushi; the other, a selection of plainchant, the Alleluia Veni Sanctus Spritus. At the time, I assumed the music theory as a discipline embraced all musical traditions and cultures. It was not until some time later that I learned otherwise and realized how remarkably innovative and unique the theory program at The New England Conservatory of Music was. Could you share how this situation came to exist and what factors resulted in the development of such an innovative, progressive approach to music theory?*

Robert Cogan: This response will necessarily be personal. I was hired in 1963 at New England Conservatory by its then-President Chester Williams to be Chair of Music Theory, specifically to create a new approach to teaching music theory and engage new faculty to do so. The previous Chair had created a crisis at NEC by imposing a curriculum based on his notions of French conservatory training, including heavy doses of French solfège. For me this presented an almost unique opportunity. I say "almost unique" because just a few years later we were invited to join a nationwide effort funded by the Ford Foundation and Music Educators National Conference called Institutes of Music in Contemporary Education, with the idea of renewing approaches to music study nationally. (This was in those maligned, exceptional 1960s; much in these innovations both at NEC and on a national scale was decimated in the following decades—another story.) There were two lasting consequences of this modernization initiative. One was the creation of a Graduate Music Theory program at NEC that I then led for more than forty years, which was able to sustain the global and transformative aspirations begun in the 60s.

The other led to our writing *Sonic Design*, as a way of embodying and implementing those ideals, since it was widely felt that appropriate new teaching material did not yet exist. (The recent global translations of *Sonic Design* reflect a continuation of that need.) The seminar you mention was part of that new Graduate Theory program. Many of the forces behind these transformative attempts in music theory and its teaching—be it the globalization of music culture, the changing roles of music science and technology, or the spread of new concepts in musical performance, composition, and scholarship—all of these are still evident, and possibly even more powerful than earlier. Whether it is the liveliness of early music or new music, of spectral or other kinds of analysis, of composition from America, Europe, Africa or Asia, all of this suggests new needs for music theory and the conceptualization of music that it embodies. As always, music is happening within a larger context. None of the current power forces in the world, whether aggressive global market capitalism, or parochial terrorisms, or self-aggrandizing nationalistic collectives, seem to offer a fully promising environment for a comprehensive, inventive global artistic culture. Whether particular artistic, scientific, scholarly, or educational domains that fundamentally require individual freedom and action can continue to survive is not automatically certain. Perhaps personal ingenuity and determination will manage, as sometimes in the past. It is not necessarily a matter of thriving, but is certainly one of survival. The continuing presence and growth of the oddly necessary phenomenon of music throughout much of past human history surely offers some grounds for hope and action. "Only one who knows longing, knows what I suffer…" ("Nur wer die Sehnsucht kennt, weiss was ich leide," Goethe/Schubert)