Soundscapes first emerged as a musical genre in the 1970s. They represent a unique musical form that grew out of the encounter between electronic music and acoustic ecology. Its driving force has been Canadian composers and sound artists. Soundscapes would not be conceivable outside of the history and context of electronic music. It was within the latter field that musicians and thinkers extended the boundaries of what constitutes musical sound, as Joel Chadabe (1997) terms it "the great opening up of music to all sounds." Soundscapes also reflect a particular historical moment. Its materials, forms and the relationship between the two (Adorno, 1996) offer a musical commentary on issues arising in the late 20th century western world.

Acoustic ecology and soundscapes, a brief introduction

The figure most identified as founding the acoustic ecology movement, from which soundscapes sprung forth, is R. Murray Schaefer. Schaefer wrote (1977, 1994):

"I call the acoustic environment the soundscape, by which I mean the total field of sounds wherever we are. It is a word derived from landscape, though, unlike it, not strictly limited to the outdoors."

Schaefer founded what has become known as the World Soundscape Project (WSP), which has been described by fellow founding member Barry Truax (1995), as:

"to document and archive soundscapes, to describe and analyze them, and to promote increased public awareness through listening and critical thinking" and "to re-design the soundscape and to reawaken people’s perceptual appreciation of its importance..."

Truax (1995) notes that a second development of the WSP:

"a parallel stream of compositional activity also emerged that created, what I have called, the genre of the ‘soundscape composition’… characterized most definitively by the presence of recognizable environmental sounds and contexts, the purpose being to invoke the listener’s associations, memories, and imagination related to the soundscape."

Soundscape composer Claude Schryer (Schryer, 1998) adds:
"Electroacoustic soundscape composition is most closely related to the visual field of photography.... It is a technique that treats the acoustic environment as both the subject and the content of a composition, teetering ambiguously on the border between representation and abstraction."

Soundscape compositions represent a diverse set of approaches to this aesthetic. These range from field recordings created as completed works to through-composed works whose materials consist of highly processed sounds deriving from field recordings.

Claude Schryer (Schryer, 1998) identifies several approaches that he has taken in his work, all of them identified as varying forms of soundscapes. These include:

"1. Text-based … draws on a counterpoint and rhythm of the timbre of human voices, of the content of the voices, and the soundscapes in and around the voices…
2. Single-take … field recording (which) can stand along as a composition…
3. Unaltered/edited. For these I use simple editing and mixing techniques, letting the process be guided by the musical gestures of the recorded soundscapes…
4. Processed … includ(ing) unaltered edited soundscapes and additional electronically processed sequences…
5. Processed with synthesis … processed soundscapes with additional synthesized sequences…
6. Environmental performance … us(ing) a recorded environmental performance and/or an instrumental improvisation as a point of departure for an electroacoustic composition realized in studio…"

Examples of some of these approaches will be explored below.

**Sensitive, active listening: soundscapes**

Among the ways that soundscapes extend preexisting concerns of electronic music is in its cultivation of sensitive listening. Sounds from unconventional musical sources and those that defy traditional musical categorization have, for the 50 years since the first musique concrete composition, called upon listeners to attend more closely to sound itself than is generally the
case with instrumental music. In electronic music, and quite prominently within soundscape composition, the listener is asked to think freshly about the nature of music (due to the uncharacteristically non-abstract nature of the sound sources), the relationship between sounds and their source (which may be invisible or unclear), as well as to consider questions about content and form. Soundscape, in particular, calls upon the listener to appreciate sounds of the environment as music, and to heighten one's sensitivity to the sounds as they exist in their original context.

The perspective of soundscape composers derives, in part, from an approach to listening that Traux refers to with the term that titles his book, Acoustic Communication (1984):

"... it does not deal with sound in isolation from the cognitive processes that understands it ... we will use the term ‘soundscape’ to put the emphasis on how that environment is understood by those living within it – the people who are in fact creating it. The individual listener within a soundscape is not engaged in a passive type of energy reception, but rather is part of a dynamic system of information exchange.... The communicational significance of any sound can only be judged within its complete context in the broad environmental, social and cultural sense. In fact it is through context that we understand how a sound functions."

John Hull, an author who is blind, offers support for this view in an interview with composer Darren Copeland (Copeland, 1997):

"People can shape ideas about the world and themselves just by listening to the associations triggered by sounds ... Sounds are dynamic and transient. They are soft at one moment, and then unexpectedly loud at another. They can lurk in the distance for a while, and then suddenly, brush against you. One can never predict their arrival or departure. Acoustic experience is, therefore, a whirlwind of unannounced change...."

Truax (1984) describes how the act of recording, a central aspect of soundscape composition (i.e. not only as a means of collecting sound for later use, but a technological means of listening to and reflecting upon something at a time following the initial event), can enhance our ability to listen closely. He notes: "A tape recording of any environment, when listened to carefully,
makes us more analytically aware of it ... by representing the environment to us, the recording allows us to perceive it afresh."

Making historical distinctions

Among the pioneers of the 20th century expansion of the materials of music may be included the Italian Futurist composers prior to World War I, Pierre Schaeffer and the French pioneers of musique concrete during the late 1940s and 1950s, and the musical/philosophical explorations of John Cage, beginning in the 1930s. However, while this redefinition and expansion of the materials and forms of music set some of the preconditions for the appearance of soundscape composition, it does not, in of itself, explain the nature or genesis of the genre. On a surface level, this may not be apparent. The genres are, in fact, quite distinct. It is true that many of the basic techniques of digital sound editing utilized by soundscape composers are reminiscent of the cut and paste techniques of musique concrete composers (albeit in digital rather than mechanical form). And the notion that musical material may be collected from sounds of the world is shared between approaches. But what follows is quite different; beyond the technical similarities, the analogies end.

It is the contention of this essay that the musical materials and forms of any given era reflect the underlying realities and dynamics of its age. In making this argument, I following the aesthetic philosophy of Theodor Adorno (1996), refracted through the thinking of Joel Chadabe (1997, 1999). One can trace this idea by comparing the forms of artistic expression with contemporaneous theories and formulations in social and physical science, and other intellectual disciplines. Looking back to the 19th century, for example, Adorno interprets the popularity of the sonata allegro form of the 18th century as owing to its ability to be expressive of contemporary socio-political realities within European culture. In particular, Adorno felt that the social tension between individual and society, experienced by the rising bourgeoisie, were
paralleled by the movement and tension between the musical themes and the overarching
musical structure, the relationship between parts and the whole. The individual's strivings to act
freely are constrained by the demands of society, enacted musically in the statement and
development of a musical theme faces the constraints of musical form.

Chadabe (1996 and personal communication, 1999) situates musique concrete within an
aesthetic that he refers to as 'items and arrangements'. In the post-World War II period of
Pierre Schaeffer's first compositions, a dominant artistic form was the collage. Collage first
appeared as a form 30 years prior (Picasso and Braque), offering an artistic analogy to the
scientific paradigm of Albert Einstein's theory of relativity. Einstein posited that multiplicities
of events, running on independent time clocks could simultaneously coexist within the same
universe. Asynchronous time (as opposed to the previous notion of unified time and causation)
gave way to a world view within which events could be juxtaposed,

This paradigm became manifest throughout the arts of the first half of the Twentieth Century,
through the 1950s, including the open structures of Earle Brown, the collages of Robert
Rauschenberg, the juxtapositions of Cage's work that defined structures seeking contents, and
Cunningham's dances. Sociologically, one can find parallels in the notion of the individual as a
freely mobile (economically and socially) entity, reflected in the move to suburbia, bringing
along with it the beginnings of fast foods, home appliances, travel on interstate highways,
plastics and televised at-home entertainment (television taking over media dominance from
radio, which was Pierre Schaeffer’s professional medium). Musique concrete, as an approach
drawing upon the editing of the recorded, but abstracted sound object, juxtaposed upon other
independent recorded, but abstracted sound objects, fits within this dominant theoretical
perspective.
Chadabe places soundscapes within the worldview of General Systems Theory, a model of analysis that became prominent in the 1950s and 60s, but which began to emerge in the 1920s. General Systems Theory posits that an "organism constitutes a system of elements in dynamic interaction and this indicates that the behavior of the system cannot be accounted for by a mere summation of the behavior of its parts investigated in isolation." (Bertalanffy, 1975, p. 98).

This approach captured the popular imagination in 1969, when a televised view of the small, distant blue-green earth from the Apollo 8 spacecraft was viewed, with much emotional impact, by millions of people.

Laszlo (1972) contrasts the "holism" of the systems perspective with the "atomistic" and "mechanistic" views that preceded it (Bertalanffy refers to these views as "the analytical, summative, mechanistic, and reaction postulates", p. 97): "Instead of looking at one thing at a time, and noting its behavior when exposed to one other thing, science now looks at a number of different and interacting things and notes their behavior as a whole under diverse influences. This is what we do in everyday life, too, when we think, for example, of players as teams rather than as interacting individual performers." (p. 6)

Bertalanffy offers a biological example in the nature of growth:

"we know a lot about the influence on growth by hormones, vitamins, and nutrition - but why does a living organism grow at all and why does its growth finally come to a standstill? ... growth is the result of a continuous process of build-up and break-down in an organism. An organism will grow as long as the anabolic build-up of components exceeds the catabolic breakdown; growth comes to a standstill if both processes have reached a steady state." (p. 47)

The growth of an organism cannot be understood, Systems Theory posits, by examining the affects of its individual biochemical components and influences.

Summarizing the systemic nature of living beings, Bertalanfy (1952, 1975) comments:

"Since the fundamental character of the living thing is its organization, the customary investigation of the single parts and processes cannot provide a complete explanation of the
vital phenomena. This investigation gives us no information about the coordination of parts and processes... The properties and modes of action of higher levels are not explicable by the summation of the properties and modes of action of their components taken in isolation. If, however, we know the ensemble of the components and the relations existing between them, then the higher levels are derivable from the components." (p. 152-153)

Systems theory has been applied to natural sciences, psychology, history, politics, mathematics and music, among other disciplines. Bertalanffy (1968) describes the application of a systems model to psychology:

"While classical association psychology attempted to resolve mental phenomena into elementary units - psychological atoms as it were - such as elementary sensations and the like, gestalt psychology showed the existence and primacy of psychological wholes which are not a summation of elementary units and are governed by dynamic laws."

Other applications include social science, where "the concept of society as a sum of individuals as social atoms ... was replaced by the tendency to consider society, economy, nation as a whole superordinated to its parts." (p. 31)

During this period, mathematics became conceptualized through the lens of set theory, science through quantum physics, struggles between local and centralized political control (within and between nations), the full realization of the Cold War, the so-called ‘domino theory’ (that suggested that military victory by one Communist nation in Southeast Asia would result in subsequent victories in neighboring countries) dominated social debate; artistic forms increasingly included cross media approaches, popular culture emerged out of cross-cultural borrowings (e.g. black rhythm and blues becomes white rock and roll) and mass media, and computers evolved, offering the rapid computation ability needed to analyze and utilize the large streams of data characteristic of complex systems.

The Club of Rome (Meadows, et al., 1972), in its famous study Limits To Growth, applied systems theory to the study of the implications of "world population, industrialization, food
production, and resource depletion" (p. 23) for "ecological and economic stability [of the planet Earth] that's sustainable far into the future". Ecological applications of systems theory and a growing appreciation of the wholistic nature of the earth as a system, paved the way for the development of acoustical ecology and consequently, soundscapes as a mode of listening and recording, analysis, and ultimately, composition.

Acoustic ecology held that the role and function of a sound in the environment could only be understood within the context of that environment as a whole. The function, meaning and effect of a sound that exists in a particular geographic locale is understood only by examining its place within the context of the entire local and regional soundscape. Similarly, the nature of a local community necessarily includes the role of its sound environment. The addition or subtraction of environmental noise radically changed the relationship of people to that community. Sounds offer communicational content when heard in context.

Soundscapes is a form of composition in which the acoustical/social/geographical context within which a sound originated is considered to be central attribute of that sound. The function of that sound within its founding system is a source of information, to be explored rather than eliminated, as was the case in the creation of the sound object of musique concrete.

We now turn to an exploration of the historical roots of the aesthetic of 'music of all sounds', with an eye towards noting distinctions between the work of these composers and the nature of soundscapes.

Futurism
Luigi Russolo, arguably the leading musical Futurist, held that raw materials for musical composition should reflect and comment upon the sounds of one’s place and time. At the dawn of the twentieth century, Russolo and others were captivated by the sounds of urban life, of trains, factories, and of war. The Futurist aesthetic was consciously revolutionary and provocative. It reacted against art that was concerned with aesthetic beauty, including musical and visual impressionism, preferring loud noise and all that was previously defined as non-musical sound. It is interesting to note that Russolo was also cognizant of the musical qualities of the natural world, as he sought to redefine the nature of music, despite his clear preference for loud urban, technological environments.

Russolo (1913, 1967) was struck by the arrays of sounds around him:

"To be convinced of the surprising variety of noises, one need only think of the rumbling of thunder, the whistling of the wind, the roaring of a waterfall, the gurgling of a brook, the rustling of leaves, the trotting of a horse into the distance, the rattling jolt or a cart on the road, and of the full, solemn, and white breath of a city at night. Think of all the noises made by wild and domestic animals, and of all those that a man can make, without either speaking or singing.

"Let us cross a large modern capital with our ears more sensitive than our eyes. We will delight in distinguishing the eddying of water, of air or gas in metal pipes, the muttering of motors that breathe and pulse with an indisputable animality, the throbbing of valves, the bustle of pistons, the shrieks of mechanical saws, the starting of trams on the tracks, the cracking of whips, the flapping of awnings and flags. We will amuse ourselves by orchestrating together in our imagination the din of rolling shop shutters, the varied hubbub of train stations, iron works, thread mills, printing presses, electrical plants, and subways."

Russolo’s observations about the musical qualities of sounds are quite remarkable:

"Thunder. Mysterious muttering that comes from afar, a threat, or the crash of strange and powerful rhythms that explode to the zenith. Its roars are scattered, hardly weakening, when a new blast resumes and renews them with infinite echoes, to which window panes sometimes respond with a high-pitched tinkling..."

Or water:

"Truly, water represents in nature the most frequent, most varied and richest source of noises. But it is enough to think of the grandiose symphony that the sea produces in all its agitations, of the surf, of the violent and terrible squalls. It would take an entire book to describe and analyze them all.... do you not remember the gurgle of a spring or brook? You notice, analyzing it, that there near a large rock the water makes a lower noise which is in some way
like the fundamental note of a chord, of which the other rocks, smaller, slightly farther away, often produce the third, fifth, and octave. And the sprinkles of falling water form a kind of musical embroidery, with higher notes and very curious rhythmic strides. If you then study the brook in another way, you notice the tones are different, the rhythms changed."

Despite his appreciation of sound found in natural environments, these sounds clearly did not serve Russolo’s compositional focus. He chose to compose noise-music for ‘orchestras’ of mechanical sound makers, his intonamouri, that were reminiscent of industry, and his colleague Marinetti’s spoken text works (such as his 1911 ‘Battle of Andrianapolis’) utilize onamonipoeia and language-like sounds to capture sounds of war. Clearly, technological limitations of the time, allowed the Futurists a limited realization in practice of the new ways of listening that they championed. And their unquestioning celebration of technological advancement, loud sounds of the city, and, most notably, of war, are a far cry from the environmental consciousness of the acoustic ecologist/soundscape composers six decades later. Nevertheless, the Futurists’ appreciation of the musical potential of sounds from the environment suggested new future directions that paved new group upon which coming generations of composers could build.

**John Cage**

Writing two decades after Russolo, John Cage (1937, 1961) observed:

"Wherever we are, what we hear is mostly noise. When we ignore it, it disturbs us. When we listen to it, we find it fascinating. The sound of a truck at fifty miles per hour. Static between the stations. Rain. We want to capture and control these sounds, to use them not as sound effects but as musical instruments ... If this word ‘music’ is sacred and reserved for eighteenth- and nineteenth-century instruments, we can substitute a more meaningful term: organization of sound."

By suggesting a new term, ‘organization of sound’, Cage touched on a concern which bears continued relevance. In what manner does listening to music constituted of non-instrumental
sounds call upon new and different listening skills? And indeed, new listening skills - and a body of theory to address the nature of this listening - remain in their infancy to this day.

Cage was captivated by sound, by its independence from human intervention and control, even where sounds are (unintentionally) created by the objects of human invention. Cage listened to sounds on their own terms, in a different manner than Rusollo. Where Rusollo sought analogies between the dynamics (pitch changes, musical gestures ...) of environmental sounds and instrumental music, Cage was fascinated by the discovery of sounds that exist on their own terms and he remained committed to the lowest level of conscious compositional choice in their musical usage, leading him to chance procedures in compositional choices. Some have commented on the contradictions in Cage’s theory and practice with regard to human intentionality and intervention. Cage’s aesthetic – pre-determined structures into which the composer placed sounds, often chosen according to chance procedures – differed greatly from that of soundscape composers, even though their work overlapped with Cage’s final two decades of creativity.

Twenty years after his famous 1937 Town Hall address, quoted above, in which he predicted the use of electric instruments to create musical sound, Cage (1957, 1961) discussed the significance of sounds found in the natural world. Cage offered a prescient observation about the challenging psychological, as well as musical, shift involved in an embrace of environmental sound as music:

"There is no such thing as an empty space or an empty time ... Until I die there will be [even in my body] sounds. And they will continue following my death. One need not fear about the future of music. But this fearlessness only follows if, at the parting of the ways, where it is realized that sounds occur whether intended or not, one turns in the direction of those he does not intend. This turning is psychological and seems at first to be a giving up of everything that belongs to humanity - for a musician, the giving up of music. This psychological turning leads to the world of nature where, gradually or suddenly, one sees that humanity and nature, not separate, are in this world together; that nothing was lost when everything was given away. In fact, everything is gained. In musical terms, any sounds may occur in any combination and in any continuity." (Cage, 1957, 1961)
Cage’s comments here prefigure the concerns of soundscape composers and acoustic ecologists by addressing the permeable boundary between humanity and nature, and the manner in which human-made sounds are part of the larger sound environment.

Elsewhere, Cage comments about the manner in which sound can stir human emotions. Here, Cage’s words uncharacteristically explore rhetorical ground more familiar to conventional philosophers of music, as they address questions about meaning in music (although Cage would not draw the customary connection between a composer’s musical intent and the emotion and meaning experienced by the listener).

"Hearing sounds which are just sounds immediately sets the theorizing mind to theorizing, and the emotions of human beings are continually aroused by encounters with nature. Does not a mountain unintentionally evoke in us a sense of wonder? Otters along a stream a sense of mirth? Night in the woods a sense of fear? Do not rain falling and mists rising suggest the love binding heaven and earth? Is not decaying flesh loathsome? Does not the death of someone we love bring sorrow? And is there a greater hero than the least plant that grows? What is more angry than the flash of lightning and the sound of thunder? ... These responses to nature are mine and will not necessarily correspond with another’s. Emotion takes place in the person who has it. And sounds, when allowed to be themselves, do not require that those who hear them do so unfeelingly. The opposite is what is meant by response ability." (Cage, 1961)

**Musique Concrete**

The work of Pierre Schaeffer involved the recording of sounds from the world (including the sounds of voices and musical instruments), and the organization of these sounds in musical composition. Schaeffer’s compositional process entailed the abstracting of a sound from its original context and sonic environment, and its use as a sound object, in French, object sonore. Simon Emmerson (1998) observes that "One of Pierre Schaeffer’s ideals was to strip down the sound to its intrinsic components and to appreciate its musical potential independent of its origin or cause."
Michel Chion (1982) underscores the abstract nature of Schaeffer’s work:

"It has not been said often enough that Pierre Schaeffer did not invent musique concrete as a ‘music of all sounds’, but first and foremost as a music based on editing. One ‘snatched’ an acoustic sound - most of the time created for that purpose - from its cause-and-effect context, and worked with it as recording where it became orphaned from its original context."

Palombini (1993b) situates this compositional process in Schaeffer’s experience of the gradual cultural/technological shift from listening to sounds created by an observable source to "an increasingly common event: listening - on telephone, radio, CD, sampler - to sounds whose original source remains hidden. From the acousmatic situation Schaeffer evolves the practice of ‘reduced listening’ whereby he creates a ‘sonic object’ and seeks to approximate it to the independent and self-supporting ‘sonic thing’... " The technique of ‘reduced listening’ has been described by Michel Chion (1983) as an "... attitude of listening which consists of listening to the sound for itself, as sound object abstracting its origin, real or imaginary, and the meaning of which it can be carrier." This approach Schaeffer goal of heightening the abstract nature of the decontextualized sound object.

Parenthetically, Emmerson (1998) sees this shift as a modern stage in a long historical process, "a technological extension of that very primal dislocation ... between ritual theatre and sounding result - which started in the Western tradition from at least classical Greek times. Sound and action are separated in space and time and the causal chain broken."

Schaeffer offers several metaphors along these lines. Palombini cites Schaeffer’s metaphor of "listening, for years, to Pythagoras’ voice from behind a veil" (cf. Schaeffer, 1966). Chion (1982) notes that "All recorded voices, for him, came out of a decapitated head: that of Orpheus-he replays the original scene before his eyes without stopping-which myth he used for a long time to explain himself." Chion concludes: "the unity of cause and effect is always lost, and there is only the tearing apart and contradiction with which one can compose."
Schaeffer himself observed: (Palombini, 1993a):

"Sound can no longer be characterized by its causal element, it has to be characterized by the effect only. Hence it must be classed according to its particular morphology, rather than according to instrumental provenance. It must be considered in itself... Correlatively, it is necessary to admit that the notion of the musical note, so intimately linked to the aural character of the instrument, no longer suffices to account for the sonic object..."

A term that is currently used to describe music deriving from the perspective of musique concrete is ‘acousmatic’, first coined by writer Jerome Peignot (in 1955) to refer to ‘a sound that we can hear without knowing its cause’. Francois Bayle (1974), extended the concept to describe a form of music, which he termed ‘acousmatic music’, the art of projected sounds which is ‘shot and developed in the studio, projected in halls, like cinema’.

Referring to the broad genre of ‘acousmatic music’, composer Annette Vande wrote, in a recent announcement for the VIth International Acousmatic Festival (1999), ‘L’espace du Son’:

"Acousmatic listening frees itself from the grip of the visual and liberates the mental images and the creative forms in our imagination.... Perceived through the loudspeaker, the "sound objects" are in fact the imprints, traces which, organized and liberated from an "explained listening", can allow us to access emotions, sensations and metaphors. This is the work of the composer."

The process of musique concrete composition could vary from a predetermined structure (such as the symmetrical forms in Schaeffer’s ‘Etude de Chemin de Fer’ (1948) to what Jonty Harrison refers to as ‘organic structure’ (Harrison, 1998). In the latter,

"... the composer proceeds by drawing out implicit larger structures from the explicit morphologies of individual sound objects (and, as Varese pointed out using the analogy of crystal formation, such organic growth has many possible outcomes). This is an empirical, pragmatic procedure building on the organic characteristics of the materials being used, in a manner appropriate to their musical unfolding in time. The arbiter of this process is the ear - the composer engages in a ‘feedback loop’ with the material and the contexts in which it is placed at every stage, making adjustments until the material is ‘right’..."
The source of an evolving organic structure, such as this, are the composer’s ‘reading’ of the unique (timbral, spacial ...) characteristics of each sound and the trajectories in time, space, timbre, etc., that each sound, and the overall musical direction of the piece suggests. The only meaningful use of the term ‘context’ is the new compositional framework being created by the composer, and not any associations that may have been suggested by the original sound source or the environment in which it was situated.

Schaeffer (Palombini, 1993b) once described his recording technique in terms of using his fingers as if they were sound sensing devices, extensions of his ears:

"It is necessary to fasten the mike to the tip of the fingers, and that everything one experiences reach the mike and be formulated by the mike... This is the musical exercise par excellence. " Often, his compositional process unfolded directly from the experience of recording: "Always the mike at the tip of the fingers, and that which ‘thought’, that each movement of the back of the throat, of the cerebellum be transcribed into suitable sounds on tape by the mike. Formulation as one goes along ..."

The sounds themselves seem to suggest compositional direction, based on their unique sound qualities:

"At each moment of the work of expression, as recording unfolds, sound reacts, proposes its own solutions, incites, elicits ideas, helps the formation of the piece ... When I admit a sound at the output, when I let a sound come out, I must immediately treat it, not as an element whatever, a piece of wood, a fragment of puzzle, but as a pawn or a figure, a person with three dimensions, etc... and I cannot play with it exactly as I please."

Schaeffer is quite explicit about the human/technological intervention that results in a recorded sound. The act of recording (and subsequently, splicing) is central to his project:

"... [Object sonore] are objects of human origin, specially made and posed for man (by man) although these objects have identities of their own, which attain exteriority and complexity, simultaneously with the presence and the evidence of natural objects. But let them be, if possible, more touching than natural objects, for they are human; more decisive, more capable of meeting with approval." It is the human element that makes them "more touching than natural objects", setting up the dilemma, with which Schaeffer concludes this passage: "And does this require - one might think so - that they be more abstract than concrete? This is the question ..."
The musical nature of musique concrete is, in the end, one of abstraction and
degradation, despite the concrete origins of the sound material and compositional
process.

Soundscape composers define their work vis à vis musique concrete

Truax (1984) makes the link between a soundscape approach to listening and a soundscape
approach to composing:

"The essential difference between an electroacoustic composition [i.e. acousmatic and abstract] that uses prerecorded environmental sound as its source material, and a work that can be called a soundscape composition, is that in the former, the sound loses all or most of its environmental context. In fact, even its original identity is frequently lost through the extensive manipulation it has undergone, and the listener may not recognize the source unless so informed by the composer."

He continues by explaining the defining features of soundscape composition:

"In the soundscape composition, on the other hand, it is precisely the environmental context that is preserved, enhanced and exploited by the composer. The listener’s past experience, associations, and patterns of soundscape perception are called upon by the composer and thereby integrated within the compositional strategy. Part of the composer’s intent may also be to enhance the listener’s awareness of environmental sound. Whereas the use of concrete sources leaves the environment the same and merely extracts its elements, the successful soundscape composition has the effect of changing the listener’s awareness and attitudes towards the soundscape, and there by changing the listener’s relationship to it. The aim of the composition is therefore social and political, as well as artistic."

Darren Copeland (Copeland, 1995) makes a sharp distinction between the approaches:

"... the recording artist insists on filtering out – isolating and abstracting – the smallest particles of this richness. S/he stubbornly clings to abstraction despite the multi-layered textures and intricate interrelationships that characterize the sound canvases of the external world, which like a set of theatrical flats on rolling casters, absorb the strides made in life from one scene to the next.... Many creative possibilities continue to remain latent, because the electro-acoustic abstractionist moves out into the soundscape only to peel away the desired specimen spotted on a weekend sojourn to a forest or multi-cultural market. After the sojourn, s/he assuredly
Claude Schryer (Schryer, 1998) more gently contrasts the two approaches in this manner:

"Electroacoustic soundscape composition has everything to do with context, as opposed to the musique concrete aesthetic of reduced listening (écoute réduite) where sounds are appreciated independently of their source for their abstract musical value as objects sonores (sound objects). For the electroacoustic composer, an object sonore is one sound source, among others, for musical production. For the electroacoustic soundscape composer, however, the object sonore is also a complex web of information..."

Clearly, the genres of soundscapes and musique concrete are quite distinct – conceptually and aesthetically- as well as deriving from different eras and their respective intellectual paradigms.

**Musique concrete as sensitive, active listening: does this muddy the distinctions?**

Granted the treatment of sound as ‘object’ in musique concrete, it is worth considering whether the emotional and contextual quality of a sound was of interest to Pierre Schaeffer and his colleagues. The abstract nature of musique concrete often seems to suggest a dispassionate attitude towards sounds. But what was the nature of Schaeffer’s interest in sound? Was the goal of his research simply the ‘mining’ of sounds to gain compositional raw material? Was Schaeffer interested in the inherent qualities of a sound, on its own terms? Was context of any interest to him?

In fact, through the process of his investigations, Schaeffer (Palombini, 1993b) discovered that "Each sound imposes upon myself (and upon the music) in all its thickness, with all the associations of ideas which it entails ..." Francois Bayle observes, "The great art, for Schaeffer, is to listen. If one stops time, it is for that reason above all. To listen. And to reflect. To reflect on listening, on the object, on the subject. That was the program of the Research ...."
For Bayle, the fixed and, one supposes, abstract nature of the object sonore enhanced Schaeffer’s ability to listen and engage with a sound. Bayle continues:

"... the concrete adventure (music and reflection) emerges in good form from this stopping of time: necessary, it seems to freeze the infinite richness of the actual, the subtle - so that we can rub against it, add to it, learn it ... The more fixed the object that one observes, the more variable is the sense that one gets from it ... Freezing the moving object allows us to do an in-depth inquiry on the different layers of awareness, sometimes based on the feelings of one day, sometimes of another day. " (Francois Bayle, 1989, liner notes to Schaeffer’s ‘L’Oeuvre Musicale’, 1998).

Once again, Schaeffer: "Sound can no longer be characterized by its causal element, it has to be characterized by the effect only.... the notion of the musical note, so intimately linked to the acual character of the instrument, no longer suffices to account for the sonic object..."

Schaeffer, in exploring sound originating in non-instrumental sources, and sound in of itself, necessarily moved away from seeking linkages between a sound and its origin.

While Schaeffer and soundscape composers both prioritize sensitive listening, their respective goals of that listening moved them in opposing musical directions. Schaeffer’s sound research led him to the isolation/freezing of sound as specimen/object. Soundscape composers may draw strongly upon Schaeffer’s legacy (ie. a keen interest in the nature of sound), but their major attention is directed to the broader sonic context within which the sound is placed, and in the relationship- between those sounds and their environment. Soundscape listening is dialectical in nature. One shifts between the inner nature of a sound and its environmental context. The notion of movement between two types of listening may be found in Adorno’s conceptualization of objective and subjective listening (‘speculative ear’ and ‘exact imagination’; see Nicholsen, 1999). This movement within listening is worthy of further exploration.

That in his historical time, Schaeffer would have selected his chosen focus is hardly surprising. It was a choice that was expressive of the paradigm of his time. Music was yet to go through a
period of even greater abstraction during Schaeffer’s later years. Compositional perspectives, especially the complex mathematical serialism of composers from Columbia-Princeton to early Stockhausen, reflect a movement towards greater abstraction and formalism. Parenthetically, Schaeffer’s concern with the organic musical implications of the placement of a sound places him squarely within the western musical tradition, which is grounded in abstraction. In this regard, Schaeffer is less radical than it is generally stated.

**A shift from musique concrete to soundscapes**

With the exhaustion of some traditions of abstraction within the avant garde in the 1970s and 1980s, soundscapes composers have participated in a move by many composers away from abstraction (for some, this has meant greater realism, and for some, a new look at tonality), and towards less formal complexity and a growing interest in a relationship between music and meaning that is more directly perceivable to the listener.

Darren Copeland (1995) writes:

"Abstraction is merely just one available working method among a host of others. ... [within] an artistic medium which can engage a new heightened realm of listening sensitivity, a mode of listening that can facilitate intellectual engagement with the meanings and messages embedded in the sounds of daily life.... Abstraction closes doors on the worlds located within the experiential world."

Other factors in the shift reflected in soundscapes include:

*a lessening in what some view as the inappropriateness of less complex and, sometimes, more representational forms;*

*the development of technological means of creating realistic sonic representations of complex sound environment;*
*the development of technological means of sophisticated digital processing applications with which composers can address considerations relevant to soundscaping (including complex spatialization, time stretching and other means of heightening the impression that the listener is positioned inside of a sound);

*a subsiding of the modernist connection between formal complexity and human progress, bringing along with it a realization that there can be artistically sophisticated languages of non-tonal, non-instrumental music that draw upon familiar sounding musical materials that are emotionally resonant, if not charged;

*an interest in re-enchanting a world whose philosophical underpinnings tended towards a heightened rationalism in modernity. This is reflected in a desire to uncover a sense of wonder in nature, including an appreciation of sounds that exist in the natural world, and a willingness to embrace ideas (and sounds) that in modernity were viewed as primitive and naive;

*a questioning of whether an assumption that undergirded much of electronic music throughout its history - that is, that we can listen to sound without regard to its origin and context - may have been premature if not unfounded. Simon Emmerson (1998) writes: "since the 1960s there has been a greater acknowledgement of a tension founded on the very basis of our ear/brain/operation. It proves very difficult to hear sound only in terms of an appreciation of its shape and spectral properties as Schaeffer seemed to advocate. Just as a Pollock painting might address deep archetypes of form and feeling within our subconscious (even appearing to ‘represent’ them at times), so we listen to any sound conditioned by our primeval past and evolution." In short, might many of the parents of electronic composers have been not entirely off base when they insisted on supplying real world references for the sounds filling their children’s abstract compositions?
The overarching question that soundscape composers raise is whether we can embrace new musical languages that reference our daily lives without returning to conventional tonal, instrumental music. For some, like Darren Copeland, the question is whether the day of musical abstraction is passing. Copeland (1995) writes:

"… it is time that the sonic artist comes to terms with the fact that s/he is in touch with an artistic medium which can engage a new heightened realm of listening sensitivity, a mode of listening that can facilitate intellectual engagement with the meanings and messages embedded in the sounds of daily life."

In sum, might a heightened concern with context reflect a vital shift that can influence music of our time?

"The resulting tension between the two possible approaches to the materials of electroacoustic music (mimetic and aural) was quite extreme, though some composers tried to chart a middle way (Emmerson 1986). Yet it was only from the mid-1980s that a real dialectical synthesis of the two began to emerge, creating genres of music which balanced on a knife edge between conjuring up a real space in front of our ears and yet doing so with exquisite sound shapes and colors. The 1990s have seen an increasingly refinement of this approach to the soundscape, helped by the development of more flexible tools which encourage the ability of sound artists to control the 'aural landscape' created within the listener’s mind." [note: Emmerson (1998) refers here to new approaches to sound diffusion].

Three listening examples: an exploration of some of the issues of this essay viewed through the lens of music by Annea Lockwood, Hildegard Westerkamp, and Darren Copeland.

Annea Lockwood

On ‘A Sound Map of the Hudson River’, commissioned by the Hudson River Museum, Annea Lockwood records the one of the world’s great rivers from its source at Lake Tear of the Clouds in the Adirondack Mountains, to the place where the river meets the Atlantic Ocean, near New York City. Each moment along the way offers its own sonic texture, its own particular tonal qualities, dominant spectral composition, degree of intensity. The various
sections of this work were recorded at different times of the day (6 p.m. to 5 p.m.). Thus, portions of the recordings are shaped by what is happening in the natural environment at various times. In places, we hear early morning birds, for instance. This is an example of soundscape that Claude Schreyer described as: "Single-take … field recording (which) can stand along as a composition…".

What connects most of the segments is the constancy of the sounds of flowing water. It is remarkable to note how different are the sounds that water can make. There is the hollow, yet fluid sound of a stream rushing between and across large and small rocks (each affects the water sounds differently). As we move down the area around Mt. Marcy (tracks 1 - 5), and as the stream of water widens, the sound progressively thickens in density and in its spectral shape: we hear more low frequencies, colored with a greater degree of reverberation. Steadily, sounds from a greater variety of water streams, all present at once, may be heard in a subtle mix.

As the Hudson River widens, moving closer to New York City, the nature of its sounds subtly change. There is a greater stillness, at moments including less complex, lower frequency rushing sounds more characteristic of a wider, more slowly moving river, and briefly, we hear the sounds of a tugboat and train, But the swirling sounds of a multiplicity of water streams almost always invariably reappears. Only toward the conclusion, as we move toward the Sea, do the steady state lower frequency band sounds predominate, in a small decrescendo.

What is the musical nature of this piece? On one level, there is a transparent meditative quality to the work. Lockwood notes, "It occurred to me that water sounds are so calming because, at one level, it seems as if the sound isn't really changing. And so the part of one's audio system
that's scanning for new input is calmed." The lack of dramatic sound material helps keep one’s attention upon the steady, calm nature of the sounds.

On a second level, this is a piece about sensitive listening, about focussing on sounds in of themselves. The composer continues, "And, on another level, the intricacy of the sound absorbs the mind, so you don't necessarily fall asleep or become disengaged. The mind is both lulled and absorbed at the same time. It's a combination that keeps the listener inside the sound." This work also engages the listener by the subtle but fascinating nature of the sounds. The rate of change is slow, allowing one to focus clearly on the nature of each sound as it presents itself.

While the nature of water sounds is a calming one, as they consist largely of white and pink noise, there is a clearly referential nature to the sounds of this river. The sounds are not disguised. Rather, it is always clear that we are listening to water, if not the progress of a river. It is natural to freely associate memories and experiences of water, and of streams and rivers in specific. The composer is clear about this work being a documentation of the progress of the Hudson River in specific. One who is familiar with this river (as the present writer is keenly so) will find that memories of particular places along the Hudson are brought to mind, as one listens. Warm (or otherwise!) memories of the quality of particular familiar places along the river are evoked.

These two modes of listening can theoretically coexist simultaneously. This listener found himself shuttling back and forth beween the two. The results were alternately an experience of listening to a calm, complex but relatively steady and interesting sound, with abundant time to luxuriate in its fullness, and moments where the mind wandered, both within and away from the specific sounds, in a journey of memory about the Hudson River. One question that comes to mind is whether one could conceivably apply Pierre Schaeffer’s ‘reduced listening’ to this work, treating it as an acousmatic piece. The drone-like quality of water and the manner in
which its sounds draw in the listener almost allows such an approach. Yet ultimately, the meaning conveyed by associations the music suggests, or even demands, by its choice of water sounds that are ultimately not disembodied but connected with rivers, and the Hudson River in particular, distinctly define this work as a soundscape, one whose referential pool of meanings are unavoidable and, in fact, central.

Hildegard Westerkamp

Hildegard Westerkamp’s ‘A Walk through the City’ (on her recording ‘Transformations’) typifies the work of this composer: subtle shaping of recorded sound material, at times processed, but showing great sensitivity to the integrity of the source material. Her work is a commentary about the effects of the human presence in the environment and about life in Vancouver’s ‘Skid Row’. In this case, since the environment is an urban one, the human presence is dominant. Westerkamp refers to this piece in the liner notes as an ‘environmental composition”. It is ‘environmental’ in that it brings the listener into a particular neighborhood to experience the sounds one may find there. It is a composition in that the sound material has clearly been organized into an aesthetic whole, and some of the sounds have been processed, some subtly, some more drastically. Westerkamp notes that these sounds are "its ‘musical instruments’... These sounds are used partly as they occur in reality and partly as sound objects altered in the studio. A continuous flux is created between the real and imaginary soundscapes, between recognizable and transformed places, between reality and composition.” This is an example of the model of soundscape described by Claude Schryve as "Processed … includ(ing) unaltered edited soundscapes and additional electronically processed sequences…".

The composition begins out of silence with a slowly emerging non-descript low-frequency rumble, to which is added additional bands of semi-pitched sounds that slowly rise in frequency, all possibly filtered sounds of traffic or overhead airplanes. Just after 3 minutes, we begin to hear discernable car horns and the rushing of traffic, and soon voices, and multiple screeching brakes. The repeated brakes sound as if they were played’ like musical instruments. Approaching 5 minutes, the words of a poem, after which this piece was entitled, is heard. The poem, written and read by Norbert Ruebsaat, addresses, often in dramatic language, the (painful and violent?) human presence in the environment, which is a major theme of this piece of music: "Somewhere a man is carving himself to death ... Disgarded shoe, like an open note, burned on the pavement.” As we approach 8 minutes, the voices of children enter, reminiscent of similar sounds on Karlheinz Stockhausen’s classic ‘Gesang der Jungling’.

As we enter the second section of this 16 minute work, repetitive machine sounds, some of them steady state, others rhythmic enter. They sound as if played on percussion instruments, enter. The actual sounds of percussive music are added to the mix in a relatively seamless transition. Next comes a section of quiet machine sounds, distant traffic, and then the sounds of a man speaking, seemingly unrelated to the poem. Rhythmic material moves into the background; it is hard to identify as either environmental sounds or percussive instruments, but soon the sounds of harmonica music and the speaking voice of a drunk man move to the fore. The voice drops out, replaced by hushed sounds of the poet, and then briefly comes a quieter moment, soon filled with rumbling sounds reminiscent of the open section. And abruptly, the piece concludes.

Many of the sounds in this piece are recognizable, and may be easily connected with their source. Some have been processed. Westerkamp notes that she processed the brake sounds beyond recognition. The result is the isolation of the sounds from their original surroundings, so that they may be placed with delicate precision in the compositional mix, but also so that
they may be treated as if they were pitched instruments. There is a dual use here, with a degree of tension between the two. Periodically there are sections of this piece that move towards abstract sounds, albeit originating in environmental sources, but every time, we are eventually suddenly and at times violently placed back in a recognizable environmental context.

This shift between abstract and referential, processed and recognizable sounds, characterizes ‘A Walk through the City’. Westerkamp describes her process as one in which she composes(s) with any sound that the environment offers to the microphone, just as a writer works with all the words that a language provides.” This literary metaphor is apt, as the impressionistic nature of Westerkamp’s work draws from both the abstract and concrete qualities of spoken language. There is a strong suggestive element in this piece, notably because the work bears a message, albeit one that is presented in a musical language which necessarily has an abstract nature. Thus, the use of poetry as an element may suggest the musical nature of that media and the referential nature of a soundscape. Maybe we are brought to explore the meeting point between the two? We are placed in an urban, human environment that is clearly challenging to those who live there, yet the challenge of humanity to the natural environment is suggested by the treatment of technologically-based sounds in a way that suggests their environmental sound qualities. Human and nature are fused, yet suggesting an irony that it is the human and technological that changes the natural environment (one would assume not for the better) and that the human environment can be anything but humane (witness the speech of the drunken man).

On the other hand, the care and sensitivity of the recording and compositional process suggests a deep affection for the sounds of this urban place. We are invited to listen closely as if what were depicted were the sounds of a pristine rainforest. Although in reality, this environment is nothing of the sort.
All manners of sound processing and treatment serve the creation of an impression about this particular place, placing the work clearly in the context of soundscapes. We are presented with both sound images of the actual place and the composer’s subjective commentary, towards which the recorded sounds are shaped. This is a very different type of soundscape than Lockwood’s ‘A Sound Map of the Hudson River’. Ironically, while Lockwood’s work tends more toward documentary than does the present work, it is in this piece that realism comes to the fore. We lack the moments of seeming abstraction found in the Lockwood work, even know its sounds are the unprocessed (albeit selected) recordings of a river and its environs. In Westerkamp’s piece, all abstraction functions as moments of lull which places in relief the sudden reappearance of stark reality, poverty and a dominant technological presence.

Darren Copeland’s ‘Rendu Visible’, like all of his music, draws exclusively from sounds recorded in the environment. The title of the present work, ‘Rendered Visible’ is meant to suggest, in the words of the composer, that "a composition using real world sounds is able to re-awaken latent visual imagery in the mind of the listener, as if this disc was really an empty canvas or a fresh stock of film." Copeland’s goal is, at least in part, to engage our visual and, in fact, all of our perceptions, by means of musical material that has a clearly visually suggestive quality. The latter is rooted, as the composer understands it, in the dominance of our visual senses, at least in the case of people with sight. It is also related to Copeland’s interest in helping the listener call to mind specifically visual images through the use of sound, as if he were a photographer (in fact, he refers to himself as a ‘phonographer’, a sort of hybrid between the two disciplines). This is an example of the model of soundscape described by Claude Schreyer as "Processed … includ(ing) unaltered edited soundscapes and additional electronically processed sequences…").
This piece begins with a juxtaposition between an inchoate, low rumbling sound, which could point as strongly towards an industrial sound as it could to a waterfall, with the clearly definable sounds of birds and geese. Sounds of distant voices and maybe movement through rainforest foliage enter, with a dense mix of sounds increasing in thickness and spectral span. Much of the ‘whoosh’ experienced by the listener in the presence of the dense mix, is higher in frequency, complemented by lower frequency sustained sounds (reminiscent of fog horns or low pitched wind instruments). The calls of geese wax and wane. The overall effect of this piece is the feeling of being inside a rushing mass of sound, much of it vaguely identifiable, yet rarely with much precision. There is an impressionist quality to the piece. Thus, this listener finds himself witnessing a middle place between abstraction and referential material. This seems at odds with the stated intent of the composer to suggest concrete images.

In fact, the beauty of this piece seems to owe to the ambiguity of source material. It is this quality, and the firm compositional hand of its composer, that places the present work on the opposite end of the soundscape spectrum from that which tends towards documentary, such as Lockwood’s piece. We are left wondering about the identity of the lush sound environment that we are experiencing, yet the free manner in which any potential reference points are subtly maneuvered renders it much less important. I do not know whether my analysis of the source of the success of this piece would trouble the composer, but I find it to offer a fascinating whirlwind ride lasting just under six minutes.

Copeland looks to a time when the art of phonography [will be endowed’ with a dictionary from which a sonic language based on the imagistic properties of real world sound can only ever evolve.” His ultimate goal would be phonography, that is, the presentation of sounds that directly point to perceptible images. The present writer finds this suggestion interesting and problematic. On one hand, it suggests a direct relationship between sound and meaning that is
generally dismissed by philosophers as impossible, on the other hand, it is but a further extension of the philosophy of soundscapes, which is to sonically depict a sound environment. In the end, this work suggests to this writer, evidence for a newly emerging genre of electronic music that is neither soundscapes nor musique concrete, but rather is a highly subjective, at times even abstract music that draws from sounds of the world, at times evocative of the places to which its sounds allude and refer.

Challenges of environmental sound as music

Even if it turns out to be true that a natural human instinct is to wish to identify and relate to the origin and context of sounds, significant obstacles exist that challenge the soundscapes listener. Darren Copeland (1997) comments that we tend to undervalue music that can be pigeon holed as functional. Music that references daily life is easily dismissed: "... Sounds from the environment remain tucked away in the undervalued realm of functional utility." He sees this as a challenge in which composers can take the lead:

"... it is time that the sonic artist comes to terms with the fact that s/he is in touch with an artistic medium which can engage a new heightened realm of listening sensitivity, a mode of listening that can facilitate intellectual engagement with the meanings and messages embedded in the sounds of daily life. If sonic artists make this leap, then a new sensibility of acousmatic expression will take hold and challenge many deep-rooted assumptions about listening and the experience of sound in Western culture."

Barry Truax (1995) describes several additional obstacles to soundscape listening. I offer commentary upon his remarks:

1. "... environmental sound results in a different pattern of listening than one might expect within a musical situation. Despite the ubiquitousness of music, environmental sound surrounds us constantly and the conventional modes of interpreting it are far more habitual and operate at a lower level of awareness than a focussed attention for speech or music..."
Indeed, soundscapes present a new challenge to our assumptions about what is music. They call upon listening skills that are similar and dissimilar to listening skills relevant to both abstract electronic music and also tonal music. On one hand, we are asked to listen to sound as music, as is the case of much electronic music that preceded it. On the other hand, we are asked to listen in a non-abstract, if not representational manner, as we would to tonal music. The musical material presented within soundscapes bucks a long history of abstraction in western music, with the possible exception of some forms of programmatic music. Finally, differing from the ineffable nature of even tonal music, soundscapes present material offering a one-to-one relationship with their source, sharing something in common with spoken language. This is a complex state of affairs, and not only for the inexperienced listener.

2. "At the most basic acoustic level, environmental sounds are much more complex in their spectral and temporal shape than most other musical material … The tools to shape and explore such sounds remain primitive and largely dominated by signal processing models. Moreover, environmental sound is not easily parameterized, and hence does not fit into any of the permutational ordering schemes normally thought of as compositional techniques."

Although every year brings substantial technological advances, the representation of sounds of the natural world in a realistic manner remains far more difficult than the reproduction of most if not all other forms of music, owing to the extreme complexity of its sounds. Processing tools yet do not exist that address the particular needs of the material. It is not even clear what these might be. Finally, environmental sound demands forms of musical organization that may differ from forms appropriate to more abstract electronic music.

3. "Perhaps the biggest obstacle that environmental sound erects to its musical usage is the fact that its meaning is inescapably contextual. Environmental sound acquires its meaning both in terms of its own properties and in terms of its relation to context. Therefore it cannot be arbitrary as the semiotic sign, because its own aural properties become inextricably associated with its meaning. Electroacoustic techniques specialize in taking sounds out of their original context and reproducing them arbitrarily in another – a ‘nervous’ condition described as ‘schizophonic’ by Murray Schafer …"
If composition has, in the past, referred to a structuring of sounds based upon musical criteria, or according to an algorithm, or another abstract or formal means of ordering information, how might one approach the organization of material that offers its own internal reference points, contexts, if not meaning? How effective in this genre are forms of organization that are based upon musical criteria, such as timbral taxonomy, such as those utilized by Pierre Schaeffer and others? To what degree does organization based upon narrative represent musical composition as opposed to film or written forms of expression? If environmental sounds bear their own associations, yet the meaning of which may be the source of different interpretations by multiple listeners, to what degree can a composer successfully apply her/his own interpretation, wielding an imprint on the material and its implications that can offer a convincing and musically interesting composition? The list of questions unfold.

4. "At the very least, environmental sound compositions challenge what constitutes a musical form of listening, if not the most appropriate venue (concert hall, radio, or public and private spaces) for their performance."

The environmental nature of many soundscapes raises the question of what is the best choice of setting for listening to this form of music. Is it indoors? Outdoors? If indoors, the listener is once again faced with sitting in a darkened room, with no observable relationship with cause and effect, despite the connections one may mentally make in terms of the origin of heard sounds. If outdoors, what does it mean to play recordings (in part representations or copies) of sounds that the soundscape artist hopes one will appreciate as they exist without human intervention? Once a recording is made, never mind digitally processed, the connection between natural and technological becomes a problematic one.

But is this dilemma not another manifestation of the basic reality of being human, having access to technology, be it the first tools of early humanity or laptop computers, which allow us to act upon nature, while we are simultaneously a part of that very natural world? In this
respect, soundscapes may help us explore this timeless question about what it means to exist within and also outside of nature - and to offer artistic commentary upon it.

**New directions at the close of the 20th century**

This essay is written in a time of historical transition. The systems theory paradigm appears to be undergoing a shift and with it the nature of soundscapes compositions. While soundscapes that seek to document or recreate a sense of place continue to appear, so too does a new subgenre seem to be emerging. This new music draws from the aesthetic of soundscapes, but reflects a more subjective and personal form of composition. Sound material continues to originate in the world, and compositions continue to be constructed mindful of the original context of sounds. Yet one finds more signal processing and a more directive compositional hand upon the sound materials. There is neither a return to the abstraction of musique concrete, nor an interest in documentation found in earlier soundscapes. Rather, one detects a shift towards music that is more reflective of the personality and identity of the composer, that individual’s personal vision of the acoustic environment and her/his relationship to it, and, at times, a depiction of an imagined reality that draws upon the world our senses experience.

One finds this approach in the recent work of Claude Schryer, Hildegarde Westerkamp and in the compositions of Darren Copeland, Jacques Tremblay, Yves Daoust, and Susan Frykberg. In these recent soundscapes compositions, the composer wields a more deterministic hand. Environments are to a lesser degree left to speak for themselves. The composers’ representations of the places sonically depicted become more interpretive, as we have noted in our discussion of Copeland’s work.

In some ways, this shift may reflect the emergence of new digital processing possibilities, driven by faster computers, but it is also representative of a post-modern shift towards art that
is intersubjective. By this I mean that the meaning of a work emerges from a collaboration between the composer and listener. The meaning of the work is a product of not only the composer’s intentions, but also the emotional and personal associations that the listener necessarily has with the recognizable material. Its meaning becomes the product of a collaboration between the composer and listener in a manner that is different from that of abstract composed music.

Soundscapes already have an intersubjective quality. That is to say, by drawing from material that is recognizable and about which the listener will have concrete images and associations, soundscapes implicate the listener in a manner akin to much post-modern, especially feminist art. In the process of listening, as recognizable sounds cease to be sound objects, objectivity and abstraction slips away. The suggestive nature of soundscapes is heightened in the newer works by the imaginative quality introduced by the composer.

Problematic: musique concrete, soundscapes and meaning

The heightened abstraction of musique concrete and the intersubjective nature of soundscapes raise interesting questions about music, communication and meaning. Much has been written about the construction and communication of meaning in music. Among the numerous contemporary theoretical perspectives on this question are included the work of Suzanne Langer (music and art are significant forms, representative of the structure of human emotions), Peter Kivy (music arouses the emotions), Laird Addis (music is isomorphic with states of human consciousness), and Theodor Adorno (the dynamics between musical gesture and musical form parallel the tensions between the individual and her place in society). While these theories offer quite varied approaches, what they share in common is musical object of interpretation, specifically, music of the European classical tradition. Where they touch on contemporary music, and electronic music in particular, the results are generally unsatisfying.
In music of the tradition addressed by most writers on musical aesthetics and meaning, specifically within what is known as the Common Practice Period (Baroque, Classical, and Romantic music), the central focus of attention is on melody, and the basic organizing principle is harmony. In music of the late Romantic period, including Wagner, Mahler, some of the works of Richard Strauss, and others, harmony became stretched to its limits. And the system became unglued in the early work of atonal composers Arnold Schoenberg, Alban Berg, and Anton Webern. While some composers responded to this developing by creating new organizing principles for post-tonal music (i.e. 12 tone and serial music), others further stretched the now permeable boundary between what was considered in that tradition music sound and what was labeled ‘noise’. We have spoken about the music of the Futurists, John Cage, musique concrete and soundscapes.

Granted how limited is the literature on music and meaning that addresses electronic music, how can one begin to speak of music that draws from a wider universe of sounds and noise?

French philosopher Jean-Francois Lyotard (1993) offers a challenge for the understanding of modern music and art:

"The function of art and politics is to make people dream, to fulfill their desires (but not to allow their realization), to transform the world, to change life, to offer a stage on which desire (the director) plays out its fantasmatical theatrics. The operations common to the dream (or to the symptom), to this art, and to this politics must, therefore, be recovered and made manifest."

Lyotard observes that there is a relationship between desire and fantasy - and art. He begins by noting the differences between discursive language and art, be it music, plastic art, literary art:

"The meaning of a statement [i.e. discursive writing or speech] presupposes the existence of a common code: the language in which it is produced ... Plastic [i.e. artistic] expression belongs to a space with properties quite different from those appropriate to linguistic space. In the case of literary expression, despite the apparent uniformity of the signifier in both the work and its interpretation (both being articulated discourse), one may postulate that they are profoundly
Having noted the obvious differences between these realms of engagement, Lyotard looks to Freud for tools to better understand the function and power of art: "It is obvious that figurative operations reveal the same traits as those used by Freud in locating the unconscious order, that is ‘absence of contradiction, primary process (mobility of cathexis), timelessness, and a substitution of psychical reality for external reality.’ (Freud, ‘The Unconscious’, 1915) ... "Expression is the presence, in the secondary process, in discourse and in realist representation, of operations belonging to the unconscious system..."

For Lyotard, the power of art pertains to its relationship to the non-rationally ordered, non-time bound unconscious. He finds a meaningful parallel to art in Freud’s salient explanation of the function of jokes and humor, "Jokes and Their Relation to the Unconscious." (1912) Freud held that jokes and human allow us to experience pleasure in impulses that are normally subjected to psychic repression. Not only are our inhibitions given leave in a socially acceptable manner, but we experience emotional relief when hearing a successful joke because the psychic energy released parallels the psychic energy expended in repression of that same impulse. Freud wrote:

"... a ‘psychic expenditure’ is required for the formation as well as for the retention of a psychic inhibition. Now if we find that in both cases the use of the tendency-wit produces pleasure, then it may be assumed that such resultant pleasure corresponds to the economy of psychic expenditure... We observe that economy in the expenditure of inhibitions or suppressions seems to be the secret of the pleasurable effect of tendency-wit..."

"... if wit makes us laugh, it has also established us in a mood most unfavorable to reason, and then that mood is forced upon us from one point which already suffices for play in which wit strives to displace by all means.... it disdains to withdraw from conscious attention the ideas..."
which are connected with the painful affect, as repression does, and it, thus, overcomes the defense automatism. It brings this about by finding the means to withdraw the energy from the ready held pain release, and through discharge changes the same into pleasure." (Freud, 1912)

Lyotard observes:

"For Freud, art must be considered with reference to fantasy... the artist does not hide his fantasies; he lends them form as real objects and moreover, renders their representation a source of aesthetic pleasure. According to Freud, the aesthetic object exists for art lovers as well, that is, in reality, only because of a similar lack. ‘The dissatisfaction produced by the substitution of the reality principle for the pleasure principle is itself a part of reality.’ (Freud, ‘Formulations’) ... the artwork finds its place in the gap left free for wish-fulfillment by the withdrawal of the signifier. Freud interprets aesthetic pleasure in economic terms, as a seductive reward (Verlockungsprämie), as the permission given the reader or the art lover ‘to gratify his own fantasies without reproach or shame.’ (Freud, ‘Creative Writers’) The pleasure of art is the same as the pleasure of play: it is announced that in reality, reality will be put aside in favor of pleasure...

Lyotard suggests that the power and meaning of art is not situated in its representational qualities, e.g. tonal organization or narrative structure, but in its ability to move us out of our regular, waking time rational selves. By acting on our unconscious, our normal repression mechanisms become suspended, and we experience more of our elemental psychic lives.

Further, following Freud, the very contents of our repression and inhibition become available to be experienced in a healthy manner.

Further, art can allow us to explore experiences, sensations, ideas, and images that can be profoundly disturbing or even painful. In this way, art bears similarities to dreams, in which we allow ourselves to confront that which is difficult for us to cope with in our waking lives:

"In the expressions of the artwork, the same operations of condensation, displacement, and figuration, which in the dream or symptom have no purpose but to disguise the wish because it is intolerable, are used to set aside the harmonious, the reassuring, the familiar, what Ehrenzweig calls ‘good form’ (that is, the secondary process, the order of the preconscious) in order to expose the ugly, the disquieting, the strange, the formless, which represent the chaos of the unconscious…“
This sounds like a thought provoking approach to the abstraction of musique concrete, provided that one seeks to listen to this genre in a manner beyond the appreciation of sound qua sound or in terms of the formal organization of its structure. Musique concrete, and all forms of abstract music that draw upon sounds whose origin we cannot or choose not to seek to place, certainly can engage the subconscious, calling upon our imaginative powers. Maybe here is where we can locate the potential source of power in this music.

If the work of the acousmatic composer is indeed to engage the unconscious, Lyotard’s theoretical perspective warrants further exploration. Musique concrete and other acousmatic music can achieve this goal by decontextualizing sound, as already discussed. But Soundscapes, by capturing sounds of our world and not only retaining, but at times directly referring to their original context, we experience an integrated musical experience that can engage our attention and emotions in a profound way.

Meaning as a goal, however, seems to have been more the focus of soundscape composers than those creating musique concrete. Soundscape composition, by drawing upon sounds that refer to familiar parts of our world, appears to create a new musical language with which the composer seeks to help the listener identify and find oneself. There is an analogy here to the popular draw of tonal music, which also offers a language of sorts that engages the emotions of listeners. There is a cinematic quality to soundscapes that has been noted, but explored in little depth. A parallel may be found in the power of rich visual imagery in film, and the manner in which we mentally seek to find or create narrative with which we can identify when viewing engaging visual material. This is especially a phenomenon in the presence of sounds that seem to suggest particular environments and whose sounds change and evolve in ways that draw us in emotionally. At times, we can find ourselves attempting to compose our own internal narration or script, an act that would be considered poor form for the informed listener of musique concrete.
We have noted prior the dilemma of presenting representational material that is subject to highly subjective individual interpretation. This situation certainly present in the case of soundscapes. But is this not true to the basic nature of music, due to its non-discursive, ineffable nature. Questions of interpretation and meaning, and their role in engaging the listener of soundscape compositions, seems to me to be a valuable topic for discussion.

Moving towards a conclusion: some brief observations

In summary, the question remains whether soundscapes ultimately suggest a new direction for music, one that moves beyond abstraction and into territory unique to this genre. Some, like Darren Copeland, hail this shift as an evolutionary direction. Recall his statement (Copeland 1995) that the acousmatic/musique concrete composer "stubbornly clings to abstraction despite the multi-layered textures and intricate interrelationships that characterize the sound canvases of the external world, which like a set of theatrical flats on rolling casters, absorb the strides made in life from one scene to the next...." In this view, the depth and richness of sound is blunted by the use of abstraction. Indeed, there is indeed an amazing richness to environmental sound that has not (yet?) been approached by any technological means of creating and projecting sound.

Yet, Copeland’s own ‘Rendu Visible’ makes a case for the profound experience of listening to music that retains a degree of the abstraction that is inherent to music. It is this quality that distinguishes music from all other means of creative expression. The musician draws upon this media because one can express feelings, ideas, experiences, mathematical constructs, in a manner than words and images cannot. What Suzanne Langer referred to as the ‘ineffable’ quality of music is the source of much of its power. The melding of this quality with the sonic
richness and deeply meaningful referential nature of sounds from the world offers a unique and remarkable synthesis.

**On Soundscapes: Some questions towards a postscript**

1. The idea of soundscapes is at least in part grounded in an appreciation of the complexity of sound in the environment, especially as compared with the acoustical nature of the sound object, synthesized sounds and, especially, sampled sounds. But once a sound is recorded, reproduced and transmitted electronically, it too becomes a reduction of the original sound, in a sense, its own type of sound object. What does it mean to create a soundscape that itself is a two dimensional projection of a 3-D space?

2. Soundscapes utilize technological tools to reflect upon the nature of technology. This presents a paradox. What does it mean to offer a technologically-based critique of technology? And once technological means of making art are used to capture nature, is this not inherently an intervention in nature, and does that not change the condition of nature?

3. Soundscapes and other artistic forms that introduce inter-subjectivity into creative expression are responding, at least in part, to a disillusionment in the totalizing ideological perspectives of modernity and a sense of the failure of technology to address the ills of human life on earth. A musical manifestation of these perspectives includes the overarching intellectual conception of musical serialism. Also in the backdrop is the modernist notion that human history is inherently progressive and ultimately pointed towards the eventual betterment of the human condition. The history of the 20th century bears witness to the dangers inherent in both of these conceptual frameworks, which include the legacy of false utopian goal of Nazism (grounded on the elimination of all that was considered impure and undesirable) and the overly centralized schema of Communism (which placed rationalized institutional structures before
human rights and concerns and ends before means). To date, technology hasn’t led to a more world of justice, food for all and the elimination of war and strife (despite the ways that it has improved such things as health care and lengthened life spans in more affluent countries).

Grounded in subjectivity and inherently critiquing the ecological costs of technology, soundscapes is a form of expression that eshews totalizing tendencies and formal structures. In exchange, its musical structures are based more upon organic and intuitive approaches, and musical movement based upon inferred meanings and associations. The results of stepping away from ideologically-driven direction can reflect an appreciation of subjectivity and a humility in the human condition, but it can represent a conservative, retrograde tendency. Just as non-political social movements can inspire human betterment or counsel inaction and a loss of hope, so too emotionally and referentially based art can be expressive and striking or it can be meaningless and sappy. Milton Babbitt’s famous statement "I don’t care if they listen" has been transformed into "if they don’t listen it isn’t meaningful", but just because people can more easily can listen doesn’t mean that there is value in what is being said. Similarly, the legacy of Soviet Realism points to the conservative and repressive tendencies that can characterize art that attempts to communicate directly and representationally.

Soundscapes offer artistic promise, meaningful interaction, and a important cautionary tale about art and technology. But does the practice fulfill this promise? The results are no doubt mixed, as is the case in all forms of art.

4. The late Romantic shift from conventional musical tonality (Strauss, Wagner, early Schoenberg) proved to represent a holding pattern, as new forms of musical organization emerged. Will soundscapes ultimately prove to represent a significant musical statement or a brief intermezzo between extreme abstraction and mathematical complexity and whatever the musical future holds in store?
An introduction to the repertoire of soundscapes and its close relations

The genre of soundscapes is represented by a diverse and growing discography. What follows is a sampling of some of what I have found to be the more interesting recordings that I have listened to in recent months. It is by no means complete, but rather, representative of the breadth and depth of the field. For clarity, an asterix marks the name of each recording:

Possibly the first soundscape is *John Cage’s ‘Williams Mix’ (1952), a sound collage of randomly combined fragments of sounds drawing from numerous categories. Cage’s aesthetic was, of course, greatly different from that of contemporary soundscape composers.

The tape music of *Luc Ferrari, collected on ‘Presque Rien (Almost Nothing)’ may be viewed as ‘proto-Soundscapes’. Ferrari offers a wild collage of sounds from across Europe. Barry Truax (1984) considers Ferrari’s work foundational.

Some soundscapes are field recordings of natural and human environments. Among these are the famous ‘Music From Nature’ series, and numerous others, including:

*‘Sounds Of North American Frogs’ (field recordings by Charles Bogert), recordings of insects and birds by *Felix Hess, Peter Cusack and Douglas Quin (on the ‘Musicworks 59’ CD), and *Douglas Quin’s ‘Antarctica’ recordings (excerpts on the ‘Musicworks 69’ CD). On *‘The Lion In Which The Spirits Of The Royal Ancestors Make Their Home’, David Dunn documents the people and environment of Zimbabwe, Africa. Dunn seeks to describe in sound the many components of a complex, changing society in transition. We are treated to "vernacular sounds of Zimbabwe, Africa. Natural and human sounds are mixed into a rich and evocative soundscape." *‘Soundcards From Chile’ includes Ramuntcho Matta’s recordings
from Chile, organized by Samon Takahashi, and natural sounds and pre-Columbian musical
instruments collection of the Museo people.

Very significant to the development of the soundscapes as a documentary and compositional
movement is *‘The Vancouver Soundscape’* two recordings from Vancouver, B.C. (Canada).
The first CD (from 1973) contains recordings from R. Murray Schafer’s World Soundscape
Project, depicting the ocean, harbor, and sounds from places throughout the city. The second
CD (1996) draws from the field work of four sound artists (Sabine Breitsameter and Hans-Ulrich Werner from Germany, and Darren Copeland and Claude Schryer from Canada).

Some soundscapes document the ever-changing nature of watery environments:

On *‘A Sound Map of the Hudson River’*, Annea Lockwood traces the varying sound
qualities and textures of flowing water, as we travel the length of the Hudson River from its
source in the Adirondack Mountains to where it meets the Atlantic Ocean in New York City.
*‘Ocean Flows’* by Rik Rue, an Australian sound artist, presents recorded sounds of watery
environments around Sydney (Australia): water moving through caves and rocks, ocean waves,
and sound images of the Sydney Harbor. David Lumsdaine’s *‘Lake Emu’* traces water and
animal sounds around and within a lake in Australia, and a plain cross which the river traverses,
over the period of a day. *‘Le Triangle d'Incertitude’* is a series of soundscapes by Cecile le
Prado evoking the French Brittainy coastline: the sea, boats, sailors, the maritime environment.
*Thomas Gerwin’s ‘Wattenmeer-Suite’* explores the sea boats, sheep, seal babies, wind energy
wheels and railways of Waddensea National Park (Germany), and the Neckar River, the water
itself and of the people and places along it.

Many soundscapes capture sonic impressions of diverse natural and rural environments in
unusual and creative ways:
Australian composer, Alan Lamb (*'Primal Image’ and *'Night Passage’) presents recorded noises of wind blowing, and birds and insects landing on telephone wires (he calls it a "wind organ"). Lamb placed contact microphones on the wires and captured a remarkable array of rushing, endlessly shifting choral-sounds. At times even temperature changes created interesting sounds as the wires expanded and contracted. Parts of ‘Night Passage’ were recorded in Kobe (Japan), where the wire sounds are complemented by the extraordinary bowing of a vast nylon string suspended from the telephone wire to the ground.

*Hildegard Westerkamp's ‘Transformations’ includes a varied set of soundscapes. We find ourselves in a city, on the beach, in a forest. Westerkamp treats the microphone as if it were a paint brush.

Bruce Odland and Sam Auinger, creators of *'O+A Resonance’, understand their task as "learning to make sense of the sound environment we live in by listening, hearing, exploring and attempting to understand it as a language." Their technique is to "collect, filter, and expand resonances found in nature and cities to make the hidden voices hearable." O+A Resonance begins with a sonic road trip: a gentle rain turns into a raging blizzard. The composers capture the sounds of a Colorado rafting trip, a flooding river, the inner workings of a train station, boulders in a state park, and four cities, including Rome, Salzburg, Berlin and New York. Some of the sounds are captured through resonating tubes.

In the work of numerous composers, recorded sounds are electronically processed to offer commentary about an environment or to create an entirely new composition that makes references to an environment. Soundscapes that reflect a more directive compositional hand, utilizing material from soundscapes include:
*Claude Schryer's ‘Autour’ draws deeply from sounds from the natural environment and his experience with the World Soundscape Project and R. Murray Schaeffer. We are brought on most remarkable sonic journeys into Quebec City, Vancouver and Mexico. In *‘Amore’, Roxanne Turcot uses recorded sounds to tell an imaginary cinematic tale of love relationships in Montreal. Sound materials include telephone rings, melodic musical themes, dream-like sampled sounds, and human voices. The music is evocative and refreshing.

*Larry Austin's ‘SoundPlays, Cityscapes, SoundPortraits--1993-96’ includes 'Cityscapes', a computer sound poem, in the composer's words, a "sonic reverie of Tokyo... inspired by [its] dynamic soundscape and culture..." 'BluesAx' brings together saxophonist Stephen Duke with a computer music sound montage drawn from Stephen Duke's saxophone, as well as from various city and woods environments. *Charles Amirkhanian's 'Pas de voix' (1987), a sound portrait of playwright Samuel Beckett's environment is found on 'Perspectives Of New Music 26'. "Upon learning that Mr. Beckett does not permit his voice to be taped under any circumstances, I proceeded to record the lobby of his apartment building in Paris, the open-air Metro stop across the street, a sound poets' dinner later the same evening, and two young girls watching a mime act at the plaza near the Centre Pompidou." The, result [after electronic processing] "is an impressionistic cyclical narrative sound-portrait, touching on various aspects of Samuel Beckett's life."

*‘Rainforest Images’, by Priscilla and Barton McLean is a sound collage incorporating sounds of rainforest environments from around the world with music played by acoustical instruments, including didgeridoo and recorder. Also included is a "romp for voice, mosquitos, bees and amplified bicycle wheel" and a collage featuring recording of songs from Tibet. The compositions on *‘Titakti’ are the fruit of Philippe Le Goff's immersion in the Inuit culture of the Canadian Arctic. Sounds were recorded in villages throughout the Canadian Northwest
Territories. There is a dream-like quality to these intimate aural journeys that offer a glimpse of
the composer's response to the culture. At times, acoustical instruments mix with the recorded
sounds.

*Darren Copeland's ‘Rendu Visible’ is highly imagistic music, drawn entirely from
environmental sounds. The composer describes 'Night Camera' as "each scene unfolds inside a
recording from the World Soundscape Collection housed at Simon Fraser University (British
Columbia, Canada)." *Christian Zanesi's ‘Le Paradoxe De La Femme-Poisson’ is highly
evocative music for Michel Kelemenis' choreography. 'Marseille 1 (paysage)' and 'Marseille 2'
draws upon environmental sounds, voices and traditional instruments to capture sense
impressions of Marseille, which Kelemenis describes as "like a mosaic design, a maritime
metropolis where anonymity is the consequence of diversity ... like the sirens, Marseille
seduces ..."

It is the experience of wonder that captivates *Susan Frykberg in ‘Astonishing Sense’ a series
of works for live performance and tape, personal narrative, nature sounds (insects, birds, the
wind), drones, and computer synthesis. On *‘Stories Heard And Retold’, Bob Gluck creates
sound collages of synagogue gatherings and artifacts of Yiddish song and culture; ocean
waves, rams horns and whale calls comprise a fanciful narrative about the biblical Jonah. On
*‘Musiques Naives’, Yves Daoust explores the blurred boundaries between our perception of
environmental sounds and how we listen to the aesthetic dimension of music, as it is
conventionally conceived. Environmental sounds are melded and counterposed with sounds
and forms of classical instrumental music.

*‘Sinopaah’, by Annea Lockwood, includes 'World Rhythms', with its sounds of volcanic
eruptions, earthquakes, radio waves, geysers and mud pools, tree frogs, bonfires, waves, human
breathing. The composer writes of the sounds: "They have their own intrinsic rhythmic
patterns, and are also interactive with one another. Sometimes this is perceptible to us ... often however, the time scale is too great or the effects too subtle for human perception."

*‘Soft Ash’ by Darrin Verhagen captures the crisis of lethal environmental incidents, such as at Union Carbide's Indian plant, and in Chernobyl. Some of the sounds draw from environmental settings, supplemented with recordings of acoustical instruments and voices, resulting in an ironically beautiful and suggestive atmosphere. *'Kalsruhe', the title composition on Karlsruhe: Klangbilder Einer may be translated a 'Sound Pictures of a City'. On this 'acoustical portrait in 12 movements', Thomas Gerwin creates a sonic portrait of the city of Karlsruhe (Germany). Gerwin combines radiophonic art and musique concrete to assemble sound impressions of Central Station and the Zoo, Market Square, the University and other places in the city. The composer observes: "I am living inside a symphony."

In *‘Gran Tiempo’, a collection of Coriun Aharonian's electronic works, the composer moulds and transforms acoustic sounds, environmental and made with instruments and voice. Aharonian writes that a key to his music may be found in its rootedness in a region marked by repression and genocide: "the structures are organized on the basis of juxtaposition and superposition of blocks, there is a will of nakedness or austerity in language resources, silence is valued as an expressive element... The temporal perception is Latin American, no an imitation of the European one... violence exists, together and without contradiction, with a taste for small things." *Rodrigo Sigal's ‘Manifesto’ is music for acoustical instruments and sound collage. 'Babel' for flute and processed sounds recorded in Mexico, Spain, Italy and France. The environmental sounds of the quintet 'Lagarto' are from the Lacandona rain forest (Mexico). Sigal seeks to create interesting settings within which acoustical instruments can interact.

*‘Another Coast’, a diverse collection of music by San Francisco Bay Area composers, includes several works drawing upon environmental sounds. The sound material for Paul
Dresher’s 'Other Fire' is processed recordings from the composer's travels in East Asia; 'Water Dreams' begins with a wide range of water sounds from Mendocino county, California, mixed with synthesized and sampled sounds. Maggi Payne's 'Airwaves (Realities)' begins with the sounds of cars and airplanes, moving into highly processed recordings from television and radio broadcasts. Laetitia De Compiegne Sonami's 'Pie Jesu - Sounds From Empty Places No. 3' blends a Moslem song recording from India with CB radio, dog barks and synthesized string sounds.

Balkan folk songs and percussion sounds provide the recorded material at the heart of Neil Rolnick’s ‘Macedonian Air Drumming’. The title composition is performed with Air Drums and the music is highly evocative of its home environment. The title composition of Gene Tyranny's ‘Country Boy Country Dog’ is a collage of sounds recorded in Ann Arbor (Michigan) in 1966. The collage was constructed by pairing and contrasting sounds based on their comparative timbral qualities. The balance of the works on this recording are realizations of Tyranny's procedural score for recording and composing with environmental sounds, 'How to Discover Music In the Sounds of Your Daily Life'. Some are subtle transformative modulations of the sound, and others are instrumental compositions incorporating the results. On Henry Gwiazda creates music from animal and environmental sounds augmented by electric cello, flute, guitar, and the rhythm track of a man eating potato chips.

*‘Whose Forest?’ is a compilation of music released in protest of government forest management policies in Ontario, Canada. While some of the music is instrumental, several electroacoustic works are based on environmental recordings. Composers include Sarah Peebles, Wende Bartley, Richard Windeyer. *‘Stargazer’ by Ros Bandt includes several environmental and sound pieces, including 'After Meditation' for solo alto recorder. *‘Sky Song’ includes sound and environmental works by Alan Lamb and Sarah Hopkins. *‘Past’ is
a collection of intriguing and personal ambient-noise-environmental works by an adventurous young Hong Kong composer. ‘WHITE’ is ambient music by PVH.

*‘Music from Nature’ is a wide-ranging compilation of sound works relating to nature. We hear David Lumsdaine's Australian bird sounds, Chris Hughes' minimalist bird and synthesizer duet, Douglas Quin and Gary Daum's duet for flute and MIDI-guitar triggered loon calls. Some of the music is high tech ambient, and some of it consists of field recordings. Among the most interesting works are excerpts from the rhythmic, instrumental 'The Circle of Winds', a 'Sonic Geography of the Arctic' composed by John Luther Adams, and Sarah Peebles' sample-based 'Nocturnal Premonitions'.

Some music draws upon the experience and/or structures (but not recorded sounds) of physical environments. These may or may not be considered as belonging to the genre of soundscapes, but they are at least close cousins:

The music of Deep Listening Band and its members offers improvisations performed in deeply resonant spaces that help shape the music itself: *Deep Listening (recorded in the Fort Worden Cistern on the State of Washington's Olympic Peninsula), *Stuart Dempster's ‘In The Great Abbey Of Clement VI’ (recorded in a medieval abbey in Avignon, France), and his ";Underground Overlays From The Cistern Chapel; (recorded in the Fort Worden Cistern) exemplify their work.

On *‘On The Way ..., R.I.P.’ Hayman seeks to create an imaginary soundscape based upon his near death experience. The composer refers to the music as an "arrhythmic continuum of a subtle texture", and it is the sound component of a sound and light installation, a "contemplative environment in a 'chapel' space". *David Tudor's ‘Rainforest’ uses the
resonant properties of objects, a constructed environment of suspended junk sculpture, pieces of metal, and fragments of wood, to project sound. Each object vibrates through an attached contact loudspeaker, with the resultant sounds picked up by a contact microphone and broadcast through loudspeakers around the space. *On ‘Off Hour Wait State’, Tom Hamilton depicts "the [New York] city transportation system translated into rhythm and texture". (Kyle Gann) Musical timing is based upon the rhythms of train departures and synthesizers are used to create sounds commenting upon the sounds of the stations. A group of improvising musicians respond to the results.
References

John Luther Adams, ‘Resonance of Place – Confessions of an Out-of-Town Composer’, published on the web, 199?.


Darren Copeland, Cruising For A Fixing In This ‘Art of Fixed Sounds’, Musicworks 61, Spring 1995.


Francis Dhomont, liner notes to ‘cycle de l’erance’ (empreintes DIGITALes), 1996.


Sigmund Freud, Jokes and Their Relation to the Unconscious, 1912.


