



**CLARK & CRUICKSHANK**  
A Division of Berandol Music Limited  
11 St. Joseph St., Toronto, Canada. M4Y 1J8

# EAR CLEANING

R.  
**Murray  
Schaffer**

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Notes for  
an Experimental  
Music Course

R. Murray Schafer

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# EAR CLEANING

## An Introduction

by KEITH BISSELL

*Co-ordinator of music, Scarborough Board of Education*

The author, R. Murray Schafer, is a major Canadian composer. He is also a gifted teacher with a flair for communicating with young people. His technique in the classroom, as observed by the writer, is refreshingly unorthodox. It is flexible, socratic, and deceptively improvisatory; it invariably produces an enthusiastic and significant response from his students. His writing on music education is cogent, and constantly sparkles with the composer's insight into the creative process; at the same time, his extensive practical experience in the classroom enables him to speak with authority.

EAR CLEANING, Mr. Schafer states, is a collection of his notes for an experimental music course, given to first year university students. Logically, this type of course should be used at a much earlier stage of the student's musical training. It was given by Mr. Schafer at this late stage because of the serious gaps in the general background of his class. The situation at Simon Fraser University is not unique; it exists all across Canada, and it emphasizes a crucial deficiency in all elementary and secondary music teaching.

Mr. Schafer correctly maintains that ears must be cleaned as a prerequisite for all music listening and playing. EAR CLEANING describes his procedures for achieving this goal. The common denominator of all lessons is active student participation through free discussion, experimentation, improvisation and objective analysis of the elements of music. No conclusion is accepted until thoroughly tested in the crucible of personal experience.

Obviously, this type of training is of the utmost importance today when the ear is constantly exposed to a mounting crescendo of sounds of all kinds. The difficulties of evaluation, of selecting the good from the bad, the genuine from the spurious, become increasingly complicated. It is futile for music education to perpetuate the old myths of 'music appreciation' to take refuge in the neat formulae of formal training, while leaving this basic aspect of education untouched.

This course, outlined by Mr. Schafer is a brilliant and highly practical description of what can be done to fill this unfortunate gap in music education. Moreover, the skilful teacher can easily adapt it for use at any level, elementary, secondary, or university. The style of presentation, witty and lucid, is in refreshing contrast to the solemnity of the average music text.

EAR CLEANING is a contribution of the highest importance to the existing literature on music education. It has a vital message for all music teachers, and indeed for all people who are concerned with the spiritual welfare of the young.

# EAR CLEANING

## Notes for an Experimental Music Course

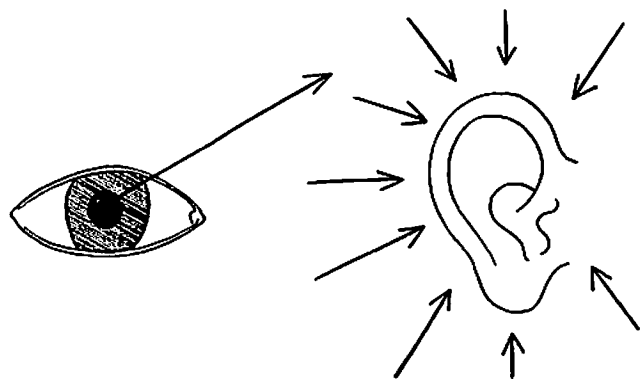
The notes and exercises to follow formed part of an experimental music course offered to first-year students at Simon Fraser University. It became evident when students registered that their musical backgrounds varied enormously; some had several years of musical training, others had none (the result of rather bizarre school-board attitudes to the subject). Most were expecting the kind of music appreciation course to which they had grown accustomed, where the teacher plays disc jockey to the great, invariably dead, composers. Something of the grammar of the fugue is perhaps taught. Etc.

Every teacher ought to be allowed his idiosyncrasies. It is my feeling that one learns practically nothing about the actual functioning of music by sitting in mute surrender before it. As a practising musician I have come to realize that one learns about sound only by making sound, about music only by making music. All our investigations into sound should be verified empirically by making sounds ourselves and by examining the results. Obviously one cannot always assemble a symphony orchestra in the classroom to feel the desired sensations; so one makes use of whatever is available. The sounds produced may be crude; they may lack form and grace, but they are *ours*. An actual contact with musical sound is made and this is more vital than the most gluttonous listening program imaginable. Improvisatory and creative abilities — atrophied through years of disuse — are also rediscovered, and the student learns something very practical about the size and shape of things musical.

I felt my primary task in this course was to open ears. I have tried always to induce students to notice sounds they have never really listened to before, listen like mad to the sounds of their own environment and the sounds they themselves inject into their environment.

This is why I have called this a course in ear cleaning. Before ear training it should be recognized that we require ear cleaning. Before we train a surgeon to perform delicate operations we first ask him to get into the habit of washing his hands. Ears also perform delicate operations, and therefore ear cleanliness is an important prerequisite for all music listening and music playing.

The ear, unlike some other sense organs, is exposed and vulnerable. The eye can be closed at will; the ear is always open. The eye can be focused and pointed at will; the ear picks up all sound right back to the acoustic horizon in all directions.



Its only protection is an elaborate psychological system of filtering out undesirable sounds in order to concentrate on what is desirable. The eye points outward; the ear draws inward. It soaks up information. It would seem reasonable to suppose that as sound sources in the acoustic environment multiply — and they are certainly multiplying today — the ear will become blunted to them and will fail to exercise its individualistic right to demand that insouciant and distracting sounds should be stopped in order that it may concentrate totally on those which truly matter.

The lecture notes printed here are, as will be seen, cursory — I hope not cryptic. They offered me work-points over which to extemporize; and it would be my sincere hope that by printing them in this unaltered form, they might serve to suggest circles of thought in the reader's mind as well. The exercises and discussions printed after the lecture notes followed each individual lecture and were intended to test the validity of whatever we may have said during the lectures.

Throughout the course-notes I have drawn analogies between music and the other arts — the graphic arts in particular. I would not have insisted on this if I did not feel it was useful and realistic. Metaphors will always be helpful even if they may not always stand acid tests. The beginning music student certainly finds concrete relationships useful as he attempts to penetrate into the deepest recesses of the soundscape. Today, as Marshall McLuhan and others are pointing out, we live in an age of implosion. Walls are crumbling; specialisms are cracking up, as we are hurled back into a condition of mutual interdependence. The serious need arises for inter-disciplinary study programs, programs which force music out of the little bag into which educators put it many years ago. Today serious artists everywhere are seeking the precise points where the nerve-endings of each art stretch out to touch those of the other arts. Distinctions which seek to keep the arts in separate categories are disintegrating and the contemporary art of both Europe and America is becoming increasingly synaesthetic. Thus we have stereophonic compositions, graphic poems and kinetic sculpture.

In the past, critics have spoken of the "spatial" as opposed to the "temporal" arts. But recent developments in the arts have tended to dissolve these distinctions for, as Minkowski and Einstein discovered at the beginning of this century, neither space nor time can preserve an independent existence; both exist simultaneously in an ever-present four-dimensional continuum. Both music and speech are concerned with sound. Sounds inhabit time but are transmitted through space. The graphic and plastic arts inhabit space but are transmitted through time. There is, in short, no such thing as an instantaneous cube or a sound that does not move from one point to another in space.

This, it seems, is sufficient justification for drawing analogies between the arts at this elementary stage. In fact it would be foolish to avoid doing so.

## LECTURE ONE

*Where should we begin?*

We can begin anywhere. It is often useful to examine a negative in order to see the positive clearly. The negative of musical sound is noise sound.

## Noise

Noise is an undesirable sound signal.

Noise is the static on a telephone or the unwrapping of cellophane candies during Beethoven.

There is no other way to define it. Sometimes dissonance is called noise, and to timid ears this may be so. But consonance and dissonance are relative and subjective terms. A dissonance for one age, generation, individual, may be a consonance for another age, generation, individual.

About the earliest dissonance in music history was the major third (C to E). About the latest consonance in music history was major third (C to E).

Noise is any sound signal which interferes. Noise is the destroyer of things we want to hear.

Schopenhauer said man's sensitivity to music varies inversely according to the amount of noise he is able to withstand, or something to that effect. He meant as we grow choosy about the sounds we listen to, we are progressively distracted by sound signals which interfere (for instance, unruly audience behaviour at concerts).

For the insensitive person the concept of noise is invalid. A sleeping log hears nothing. Machinery is indifferent to noise because it has no ears. Exploiting this indifference, wired background music was invented for earless humans.

On the other hand:

For a man who is truly moved by a piece of music even applause may constitute an interference. It would be like crying encore at a crucifixion.

For the sound-sensitive man, the world is filled with noise.

You know what they say about silence.

## LECTURE ONE

## EXERCISES, DISCUSSIONS, ASSIGNMENTS

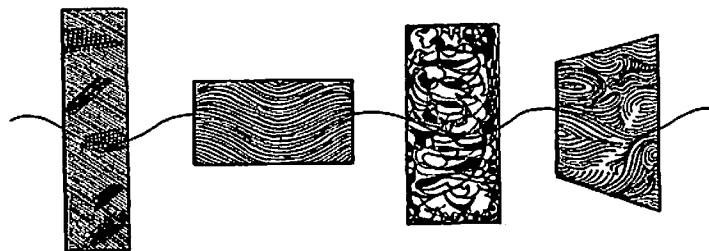
(1) Try taping the following discussion (2) Afterwards play back the tape. Concentrate on listening to the sounds you did not intend to record. What other sounds (noises) do you notice?

(2) Question for discussion: If you do not like a piece of music is it noise?

(3) The following text is to be read by a student at the front of the class in a normal voice. During the reading the teacher cues the class periodically to smother the reader with bursts of noise (roars, whistlings, hissings, gurglings, screams, shufflings, laughter, applause, etc.).

"My voice will at times be smothered by noises which are louder and more chaotic than my reading. At other times this noise will cease and my voice will be heard as the only sound in the room. The sound the others are making is noise because it is undesirable to a true comprehension of my reading. This is why at plays, poetry readings, concerts and lectures, the audience is asked to sit quietly."

Graphically, the above experiment may be shown thus:



(4) Take the noise inserts alone in a new context. They are now to represent a rowdy crowd, say during one of the scenes of Shakespeare's *Coriolanus*. Are they still noise?

(5) In the light of our definition of noise as undesirable sound signal, consider the fate of the garbage can in the discussion entitled "What is Music?" from the booklet *The Composer in the Classroom*, by the same author and publisher.

(6) Listen to the recording of John Cage reading his lecture on "Indeterminacy" (Folkways Records). Question: Are the sounds accompanying his voice sometimes noise, always noise or never noise?

## LECTURE TWO

## Silence

Silence, some say, is golden. It is merely a figure of speech.

In fact:

Silence—the absence of sound—is black.

In optics white is the colour containing all colours. We have borrowed from this the term "white noise", the presence of all audible frequencies in one sound complex. If we filter through white noise, eliminating progressively larger bands of higher and lower frequencies, we eventually reach the single tone — the sine tone. If we filter this out too we have silence, total aural darkness.

Silence is a container into which a musical event is placed.

Silence protects musical events from noise. Musical events, being sensitive, appreciate this protection.

Silence becomes progressively valuable as we lose it to various kinds of noise exhibitionism: industrial sounds, sports cars, transistor radios, etc.

Because it is being lost, the composer today is more concerned with silence. He composes with it. Anton Webern moves composition to the brink of silence.

John Cage says: There is no such thing as silence.

(pause 30 seconds and listen)

If so, is silence noise?

(pause 30 seconds)

Silence is a pocket of possibility. Anything can happen to break it.

Silence is the most potentialized feature of music. Even when it falls after a sound it reverberates with the tissue of that sound and this reverberation continues until another sound dislodges it, or it is lost from memory. Ergo, however dimly, silence sounds.

Man likes to make sounds and to surround himself with sounds. Silence is the outcome of the rejection of the human personality. Man fears the absence of sound as he fears the absence of life. There is nothing so sublime or stunning in music as silence.

The ultimate silence is death.

## LECTURE TWO

## EXERCISES, DISCUSSIONS, ASSIGNMENTS

- (1) A take-home assignment: Silence is elusive. Try to find it!
- (2) Try to pass a sheet of paper throughout the class silently. Everybody listen for the sounds of the paper being passed.
- (3) Just as in absolute darkness the tiniest light is an event of unique significance, in a container of profound silence even the dropping of a pin becomes uniquely important. Try this. Place pin-drops and other diminutive sounds in containers of profound silence.

(4) As the students enter the class Schafer stands at the door motionless with a pile of paper in his hand and a sign pinned on his jacket reading: "Take paper. Write down the sounds you hear." The students entering take paper and record the sounds within and outside the room. A discussion follows to see how sound sensitive the students have been. Did they hear Schafer accidentally drop a kleenex on the floor? And so forth. Two girls have engaged in periodic chatter. They were asked to read out the list of sounds they had heard. While each had recorded the sound of the other's voice, neither had heard her own voice. Pity.

The previous day the same text was given to three small children: Anthea, age 12, David, age 9, and Miranda, age 6. It is discovered that while many of the adult students failed to notice the most intimate sounds of all — the sounds of their own body, their breathing, their heartbeat, their voice, their clothing etc., David and Anthea were very sensitive to such sounds. Here are their lists:

## David

Grownups talking  
Miranda talking  
My pencil and paper moving  
Mommy doing dishes  
Clock ticking  
Grownups walking  
Me scratching my head

Me banging pencil and sniffing  
Miranda thumping  
My teeth clattering  
Me coughing  
Anthea talking  
The fan  
A tap turning on

## Anthea

The tick of the clock  
The sound of Miranda's quick running steps  
David banging his pencil  
Miranda's breathing  
David's deep breath  
The sound of David's pencil  
The sound of David's paper  
Daddy's heavy steps  
Phyllis's soft steps  
Daddy's whistling

The sound of the furnace  
Mommy washing the dishes  
The turned-on tap  
The sound of water boiling  
The sound of water being poured  
Miranda's giggling  
The crackle of the fire  
My breathing  
The sound of the pencil on the paper  
The sound of the fan  
Me taking off my hair-band

Miranda, who doesn't write, drew pictures of water-drops, a fire and her own pencil moving.

## LECTURE THREE

## Tone

The tone cuts silence (death) with its vibrant life.

No matter how softly or loudly, it is saying one thing: "I am alive".

The tone, intruding on the darkness and oblivion of silence, cuts a light into it.

Let us call the instant of sound-impact the "ictus". The accent of the ictus divides silence from articulation. It is like the dot in the painter's vocabulary, or the period at the end of a sentence.

This dividing of silence from articulation should be one of the most exciting experiences possible. In medicine the "ictus" refers to a stroke or sudden attack.

To this tiny Uratom of sound belong cosmogenic properties. It is the egg, the primordial cell, procreator of everything to follow.

In creating you are given one free gesture. After that comes the discipline of establishing relationships. We are still on that point of free gesture. Only for that instant until we slice into sound do we feel terrifyingly free.

Sustaining past the ictus, the tone stretches itself out in a horizontal line at a constant altitude (frequency).

In language the tone is called a phoneme. This is the most elementary speech sound. The word phoneme itself, for instance, is a five-tone word: Ph-o-n-e-m(e).

But we are still considering one-tone compositions.

The single tone is two-dimensional. It is like a white line moving steadily across a black, silent time-space.

But there are distinct limits of interest in such behaviour. How does the tone keep from boring itself?

## LECTURE THREE

## EXERCISES, DISCUSSIONS, ASSIGNMENTS

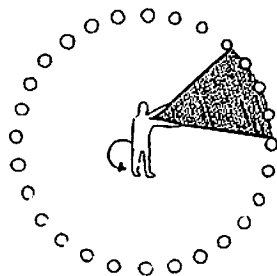
(1) Assume you have been mute for a long time. Try to feel the vibrancy of cutting the air with pristine sound — the terrifying freedom of the ictus.

(2) The class is given a single tone. How expressive can a one-tone composition be made merely by punctuating it with silence? The tone may be short or long, repeated rhythmically or arrhythmically. Different students are asked to conduct the class in this exercise. With his finger the conductor creatively incises sound into silence.

(3) Sustain the tone for a very long time, at least until total boredom overtakes it. The class must feel the unvaried tone dying a slow, slow death. Ask for suggestions as to how the tone can find new life. The class will find no difficulty in discovering the need for variations of amplitude and timbre. They may even discover antiphony.

(4) Experiment with echo effects. Let part of the class sing loudly then cut to reveal other voices sustaining softly. The discovery of the potentiality of acoustic space is thus suggested.

(5) Another way to help a tone live by using space: The class stands around the room. The student conductor with both arms outstretched slowly pivots so that only one portion of the class is heard singing the tone as it slowly moves about the room in a circle. Interest in the tone is sustained by using the total acoustic space available.



The full four-dimensional continuum of the soundscape has now been as it were subliminally suggested by considering the quest of a single tone to remain alive, and the student is prepared for the more intensive investigations of the dimensions of sound to follow in the next lectures.

## LECTURE FOUR

## Timbre

Tone colour — overtone structure.

If a trumpet, a clarinet and a violin all play the same tone, timbre is what makes trumpetness, clarinetness and violinness.

Timbre is that characteristic overstructure of a tone that distinguishes one instrument from another at uniform frequency and amplitude. (Scientific explanations of how this is so can be found in all music dictionaries. Sometimes it is more valuable to think picturesquely.)

The tone is bored with its role.

Timbre gives it a colourful wardrobe of new clothes.

Timbre brings the colour of individualism to music. Without it everything is a uniform and unvarying grey, like the pallor of a dying patient. Thus death is orchestrated in monochrome by the electronic organ.

By comparison, the colourful array of instruments in the symphony orchestra is an expression of *joie de vivre*.

Human speech expresses this same *joie de vivre* in the most vibrant manner. In speech timbre may change the sound of a word and also its meaning: sat, sit, seat, site, soot.

Every sound in speech has a different timbre, and hence the timbre change is constant and rapid. In music, where one instrument may be used more or less extensively, the changes are less rapid.

The single tone is two-dimensional. It is like a white line moving steadily across a black, silent time-space.

A warm sound gives the impression of moving towards the listener; a cold sound moves from him. (Suggestion of a third dimension.)

A real third dimension is brought to a sound by means of amplitude.



## LECTURE FOUR

## EXERCISES, DISCUSSIONS, ASSIGNMENTS

(1) A problem: Given one tone and the following text how do we make the text itself an example of the condition it is describing?

"Timbre is the tone colour of the note."

After considerable discussion the class decided to divide the text into syllables, give each syllable to a different voice and by singing them one after another and sustaining them, a single line is produced which slowly changes colour. Are there other solutions?

(2) Another experiment along similar lines might be made with a group of instruments and voices so that each instrument or voice grows out of the last. Repeat this until the growing and dying of each individual combines to produce a line of unvarying amplitude. Graphically:

(3) Try moving this slowly around the room as before.

(4) Name some instruments with a warm tone colour. Name some with a cool tone colour. Any differences of opinion?

(5) The writer H. L. Mencken once described the music of Debussy as "a beautiful girl with one green eye and one blue eye." Do any composers suggest any particular colours to you? Why do you think this should be?

(6) Each instrument has its own distinct timbre. But can different timbres be produced on one instrument? Various players try to produce different timbres on their instruments while the class, eyes closed, tries to guess which instrument has played.

(7) If different singing or speaking voices sing or recite the same passage independently, the difference will be largely one of timbre. Eyes closed, have the class identify the different voices and describe the differences.

## LECTURE FIVE

## Amplitude

Loudness — softness. Addition of the third dimension to the tone by the illusion of perspective.

Where does the loud sound appear in relationship to you, the listener? Where the soft? A soft sound is instinctively thought to be behind a loud sound, hence the echo.

It is not accidental that shortly after Uccello and Masaccio began experimenting with perspective in painting Giovanni Gabrieli composed his *Sonata pian e forte* (lit. to be sounded soft and loud) and thus introduced perspective thinking to music.

Does a loud sound imply any special movement, either in on the listener, down as if by the pull of gravity or in on itself?

Psychology shows that the loud sound is often thought to be concentric, i.e. vortical, though this is frequently interpreted as bearing in on the listener. (Note the experience of the single-note crescendo in Alban Berg's *Wozzeck*.)

A loud sound may also be characterized as carrying a heavy weight, and therefore the downward pull of gravity. Acute tensions arise when a forceful melody attempts to climb upward. A delicate line climbs upward effortlessly.

The editorial sign for crescendo  implies growth, a pressing forward; while  suggests the opposite, a sonic retreat.

A soft sound is constantly dissolving, fleeing like mist, escaping from itself. It longs to fly over the horizon into silence. Hence we call it eccentric.

If amplitude is perspective in music, then the tone moves at the composer's will anywhere between the acoustic horizon and the eardrum.

Thus, to the fourth dimension of time, the three spatial dimensions are suggested. Every piece of music is an elaborate soundscape which could be plotted in three-dimensional acoustic space.

To speak of a soundscape, of course, is in no way to invoke program music. There is a difference in talking about space and attempting to fill that space with objects. The space to which we refer is empty save for the sounds cutting through it.

There is no "land" in a soundscape.

## LECTURE FIVE

## EXERCISES, DISCUSSIONS, ASSIGNMENTS

(1) Take a single tone. Appoint a student conductor. The conductor works out hand signals to indicate to the class the different dynamic qualities of tone he desires. By means of dynamic shading — loud, soft, slow or rapid growth and decay, rapid changes, echo effects etc. — he shapes the tone creatively.

(2) It will be observed that the extremities of loudness and softness are rarely if ever heard. Everything is medium-loud to medium-soft. It is at this point that the playing of the famous single-tone crescendo from Alban Berg's *Wozzeck* will be helpful. A brief résumé of the dramatic situation may be desirable. *Wozzeck* has just murdered his mistress Marie for her unfaithfulness. The curtain comes down and in darkness a single tone is heard, growing, growing as the whole orchestra gradually joins in, still growing, until the listener is literally pulverized by the force of this single elemental sound — then it breaks suddenly, the curtain rises and we move immediately into a gay tavern scene. The effect of this exercise is immediately noticeable as the class returns to the production of their own single-note crescendos.

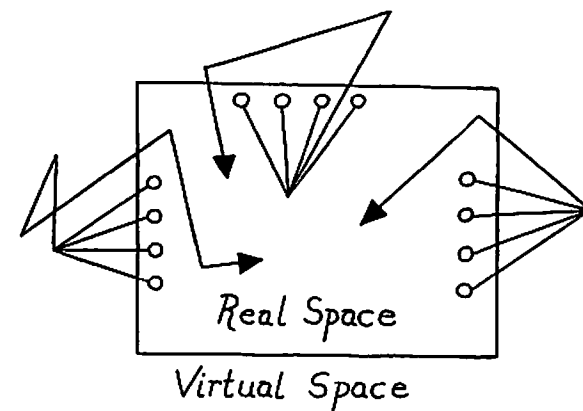
(3) So much for loudness. How soft can music be made to sound? Various students are called to the front of the class and asked to hum a note as softly as possible. The class closes their eyes. When they hear the note they put their hands up. The amplitude of the sound must now be progressively reduced until one by one the rows of hands stay down and only one or two students at the front directly before the singer raise their hands. This, then, is the effective limit to which a pianissimo may be pressed, the point just before the sound disappears over the acoustic horizon into silence.

(4) In music we usually recognize three grades of softness: *P*, *PP*, *PPP*, and three levels of loudness: *F*, *FF*, *FFF*. How many distinguishable grades of softness can you produce with your voice? With your instrument? How many of loudness?

(5) How interesting can the single-tone composition now be made by employing amplitude, timbre and silence as colouring and shaping devices? Several students are asked to try filling a one-minute container of silence with an interesting one-tone composition.

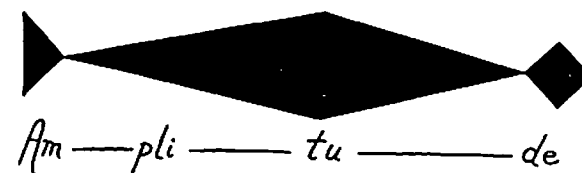
(6) Divide the class into three or four groups and separate them, each with its own conductor, in different parts of the room. Repeat the former exercise. This time each conductor must listen to the others in order to lead his own group in a contrasting manner. Maximum respect for silence must be encouraged as providing an opportunity for listening to what the others are doing.

*Note:* Bearing in mind the relationship that has been drawn between perspective and dynamics, it may be pointed out to the class that the



sonic tensions they are producing figuratively dissolve the walls of the classroom as they reach back to the horizon of sound (*pianissimo*) and even beyond the horizon to silence; and then plunge forward again (*fortissimo*). A distinction may be made here between what we call "real space" and "virtual space" — for the sonic tensions of a soundscape exist in a virtual space which pushes through the walls of the classroom and stretches back to the acoustic horizon in all directions.

(7) Problem: Illustrate the qualities of amplitude by setting the word "amplitude" to music as a one-tone composition. After much discussion the following was produced as showing many different features of amplitude — *pianissimo*, *fortissimo*, *sforzando*, *crescendo* and *decrescendo*.



## LECTURE SIX

## Melody

A melody, to paraphrase Paul Klee, is like taking a tone for a walk.

To achieve melody we must move the tone to different altitudes (frequencies). This is called changing the pitch.

A melody can be any combination of tones. There are beautiful melodies and unbeautiful melodies, depending on the purpose for which they are intended. Some melodies are free and others are rigidly organized but this does not make them any more or less beautiful.

Speech uses sound in a continuously gliding fashion, and we speak of the melody in speech as inflection.

Musical melodies are usually limited in their movement by fixed points (itches). Need they be?

When we indicate the general shape of a musical melody by a curved line we could be more precise and draw a series of horizontal lines (tones) moving to different altitudes (itches).

Amplitude, timbre and silence, to name but three things, can enhance a melody-line. For instance:

(1) A melody moving in freedom

(2) The same enhanced by amplitude

(3) The same broken by silence



Melodies may be made to move through the realms of the cosmos. Through custom, Western man has come to associate higher melodies with the heavens and lower melodies with the earth (or hell). This need not be so but many classical composers have felt this way. Thus we have the following examples:

(1) A melody falling from grace.

(2) A melody with a bold, aspiring spirit.

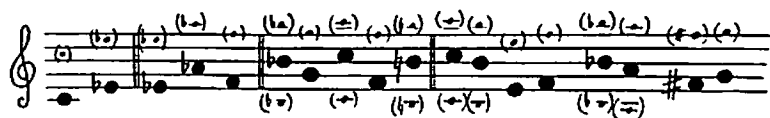
(3) A phlegmatic, unadventurous melody (bourgeois melody, wired background music, wallpaper music. The object of such melodies is not to interfere with one's digestion.)



## EXERCISES, DISCUSSIONS, ASSIGNMENTS

(1) Instrumentalists or vocalists are given two tones and allowed freedom to treat them as expressively as possible in brief improvisations. Then three tones are given, then four etc. But every care must be taken in these initial stages to ensure that the full expressive potential of, say, two given notes is exploited before the student is given new notes. The full effects of amplitude, silence, rhythmic articulation, phrasing, etc., must be realized. The effects of timbre change may be obtained by giving the same two notes to two or three voices or instruments to improvise in consort.

Some typical note series:



(2) Individual students are asked to improvise, vocally or instrumentally, free melodies suggested by the following words: 1) high swinging 2) deep and sad 3) light tripping 4) "that strain . . . had a dying fall" 5) cold getting warmer 6) agony to laughter 7) heavy to light 8) it flees into the distance 9) thick 10) help!

Analyse the characteristics of the different melodies produced.

(3) Try combining some of these individual flights of expression with the foregoing exercises in which single tones are sustained and shaped expressively by the entire class.

(4) The class is asked to discuss how they would set each word of the following Latin sentence to music.

Deposuit potentes de sede et  
(He hath put down the mighty from their seats and  
exaltavit humiles.  
exalted the humble and meek.)

The phrase is rich in emotional qualities and each word demands special attention. The communal setting might be notated on the board in notes or merely by means of curved or angular lines. Only after the psychographic curve of each word has been discussed in detail does the instructor play a recording of Bach's setting of these words from the *Magnificat in D*. Compare the settings in relationship to the heaven-hell concepts introduced in the foregoing lecture.

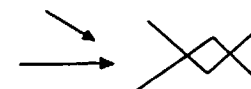
## Texture

The texture produced by a dialogue of lines is called counterpoint. *Punctus contra punctum* (point against point) is the original Latin term from which this word is derived, suggesting quite rightly that dynamic tensions are now in operation.

At first there was no counterpoint in music. Then there was parallel movement of lines (called *organum*).



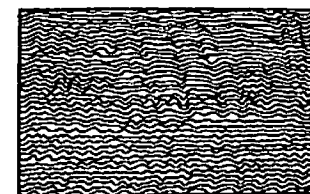
Perhaps the greatest single discovery in music was the discovery of oblique or contrary movement of lines. In the occident this happened around the end of the eleventh century.



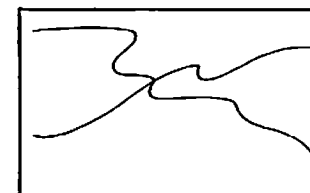
Counterpoint is like different speakers with opposing points of view. There is evident pugilism in all counterpoint, a delight in opposition for its own sake, but not at the expense of lucidity.

Perhaps it is more than coincidental that this development took place at a time when the independent power of the medieval cities and guilds was coming to challenge feudal fealty.

Many musical lines in combination (say 40) produce a dense texture (solid mass). You do not hear very much detail in such a texture.



Few lines (say 2) produce a clear texture — like a Matisse drawing.



Except for special effects, cleanliness is always desirable in music. The skilful composer tears away; the clumsy composer thickens up.

The object is that you should hear what is happening.

## LECTURE SEVEN

## EXERCISES, DISCUSSIONS, ASSIGNMENTS

(1) The class is asked: If we wanted to produce the most opaque texture possible, how would we do it? Many solutions are tried out before it is realized that if every student sings a different note the desired maximal thickness will result.

(2) And the most transparent texture possible? "One voice alone", someone says. But can one voice be a texture? What is the minimum number of voices required for a texture? Should the voices be close together or separated widely to produce the desired effect of maximal transparency? Experiment with different intervals.

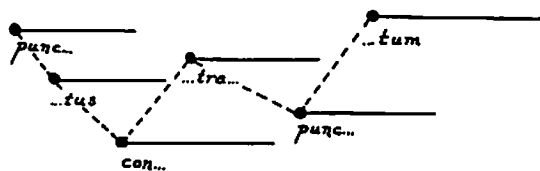
(3) Two texts are given which are to be set to music by the class in such a way that they illustrate the textures they express:

This is a very opaque texture

This is a very transparent texture

(4) Listen to some *organum*. Listen to some many-voiced renaissance choral music — for instance, Thomas Tallis's forty-part motet. Listen to a Wagner score. Listen to a Webern score. Comment on the textural differences.

(5) The text "punctus contra punctum" is given. Using different voices or groups of voices and dividing the phrase in any way desirable, work out an illustration of the contrapuntal tensions implied by the words.



## LECTURE EIGHT

## Rhythm

Rhythm is direction. Rhythm says: "I am here and I want to go there."

It is like the arrow in a Paul Klee painting. Paul Klee says of the arrow: "The father of the arrow is the thought: how do I expand my reach? Over this river? This lake? That mountain?"

Originally "rhythm" and "river" were etymologically related suggesting more the motion of a journey than its division into articulations.

In its broadest sense rhythm divides the whole into parts. Rhythm articulates a journey like footsteps (dividing the whole walk into parts) or any other arbitrary division of the journey. "Rhythm is form cut into TIME as design is determined SPACE." (Ezra Pound.)

There may be regular rhythms and nervous, irregular rhythms. Whether they are regular or not has nothing to do with their beauty. The rhythm of horseback riding may be irregular, but this form of travel is enjoyed by many.

Just as we have spoken of real space and virtual space, so we may speak of real time and virtual time.

A regular rhythm suggests the chronological divisions of real time — clocked time (ticks). It lives a mechanical existence.

An irregular rhythm stretches or compresses real time giving what we may call psychological or virtual time. It is more like the irrational rhythms of life.

Music may exist in either clocked or virtual time though it prefers the latter in order to avoid monotony.

A clock, says William Faulkner, slays time.

We do not have much polyrhythm in Western music because we are spell-bound by the audible ticking of the mechanical clock. It is possible, therefore, that those societies which show the greatest rhythmic aptitude (African, Arabian, Asian) are precisely those which have been left mostly out of touch with the mechanical clock.

Because rhythm is pointing an arrow in a certain direction, the object of any rhythm is to reach home (the final chord).

Some rhythms reach this destination and others do not.

Rhythmically interesting compositions keep us in suspense.



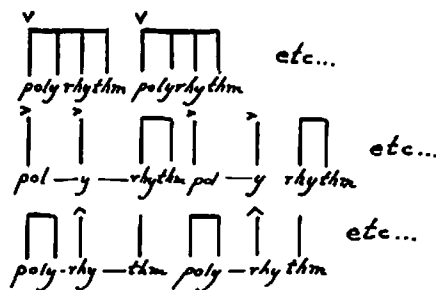
## LECTURE EIGHT

## EXERCISES, DISCUSSIONS, ASSIGNMENTS

(1) Reference has been made in the preceding lecture to the invention of the mechanical clock and the way in which it affected Western music. This is not an original idea, even if it has occurred to few people. The simple fact is that all previous means of measuring time (water clocks, sand clocks, sundials) were *silent*. The mechanical clock is audible. For the first time in history duration was divided into proportionate time-cells which *sounded*. Our traditional method of quantitative rhythmic notation — which came into existence with the so-called *Ars Nova* composers, who lived in the fourteenth century, shortly after the invention of the clock — divides notes into time-cells, each in a *proportionate* relationship to the others. It is quite otherwise with the qualitative rhythms which preceded the mechanical clock and the qualitative kinds of rhythmic notation beginning to be used in contemporary music, now that the clock has outlived its usefulness.

It is interesting that while we have always lived under the totalitarian spell of the clock, we make poor clocks ourselves. Man really aspires to the fluid concept of what we have called virtual time. This can be illustrated in a simple exercise which several students may be asked to perform: Moving your arm in a clockwise direction describe an absolutely steady circle of an arbitrary duration — say thirty seconds — arriving at the starting point on time! Can it be done? See our demonstration of this to follow in Transcript Two.

(2) The text "polyrhythm" is given to the class. By reciting the word in different ways, build up a chorus of polyrhythms. For instance:



Try adding the following body movements to emphasize the different rhythms:

- Snap fingers    ✓
- Clap hands:    >
- Stamp feet:    ^

(3) Rhythmic training in the West has lagged far behind melodic training. There are many excellent exercises by Hindemith and others designed to improve our puny rhythmic skills. Here is a good elementary exercise, suitable for class use, designed by Gabriel Charpentier — who, incidentally, must also be credited with the invention of the clock exercise.

First the exercise must be mastered by the class in unison. Then it may be treated canonically by different groups.

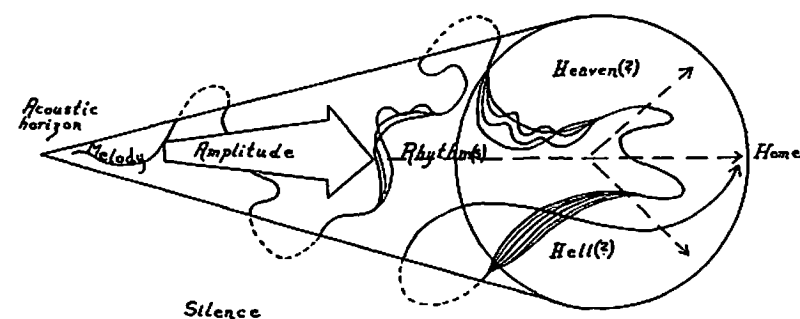
1 = "Ah" (voice)	1234	1324	1342
2 = 2 steps	2341	2314	2143
3 = 3 finger snaps	3412	3124	3142
4 = 4 hand claps	4123	4213	4312
	1432	2134	1423
	2431	1243	2413
	3421	3214	3241
	4231	4132	4321

(4) Another useful exercise in asymmetrical rhythm is to construct messages in Morse code which must then be clapped rapidly in unison. Each student may also make up a "signature rhythm" on his own name. Polyrrhythm can be created by coupling these "signature rhythms", some double speed, half speed etc.

## LECTURE NINE

## The Musical Soundscape

We can now combine all the expressive potentials of which we have spoken during the first eight lectures and think of them as interacting within a cone of tensions.

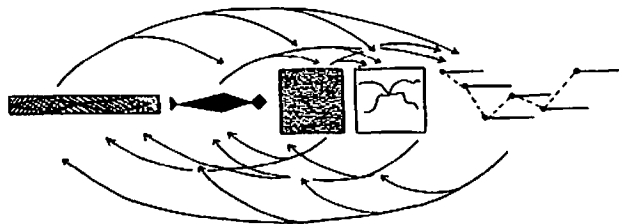


A musical composition is a journey back and forth through this cone of tensions.

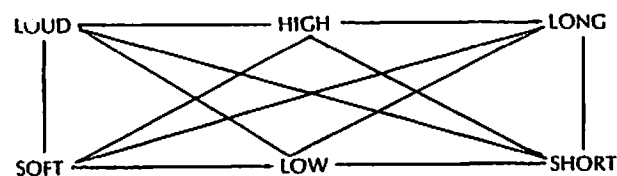
## LECTURE NINE

## EXERCISES, DISCUSSIONS, ASSIGNMENTS

(1) Take several of the preceding vocal exercises and try to fashion them into a little choral composition. Different groups may perform different exercises in different orders to create contrapuntal and formal interest.

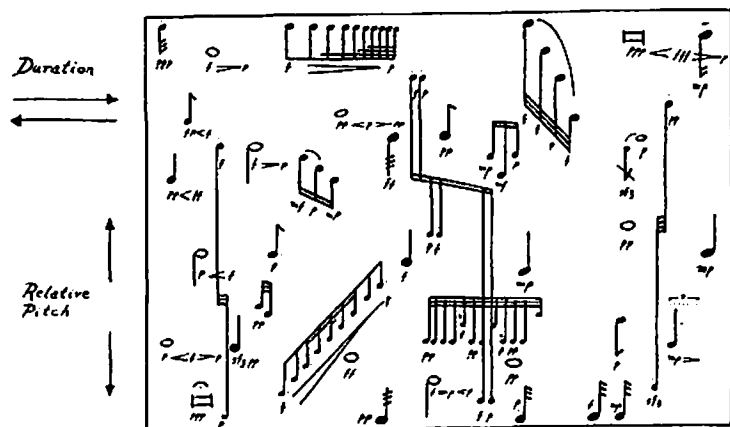


(2) Another way of seeing the dynamic tensions of a soundscape is to study the implications of a schema such as that shown below:



To create a mobility of expression try having different students sing or play little exercises combining these characteristic potentials in all possible ways, i.e. loud-high-long followed by short-low-soft, etc.

(3) A third way might be to read at random from a chart such as the following. Each effect should be clearly distinguishable from the others.



(4) Another way: To give the same groups or individuals verbal descriptions to interpret in sequence:

High piercing — long low notes, soft getting louder — suddenly loud and short — high notes getting lower and longer and softer — full melodious curve — dying, swelling, swelling and dying — driving and swinging upwards — now poised in calm serenity — very soft short notes repeated slowly, then faster — a line plunging to earth — a line aspiring to heaven — flamboyant gestures — long held note softly and slowly dying away — profound silence.

(5) For the painter Paul Klee a line drawing was like going for a walk. The following description is his. It is obvious that the walk with a pencil could also be a musical walk with an instrument and it is included here as providing a text which might be improvised by a number of instruments in solo and consort.

"... act of motion beyond the dead point (line). After a short time we pause to draw breath (broken line, or if repeated, rhythmically interrupted line). A backward look to see where we have gone (counter movement). A river ... (wavy movement). Higher up there is said to be a bridge (series of arches) ... We meet someone with the same ideas. At first we are united in joy (convergence). Then gradually differences intervene (two lines moving independently). A certain excitement on both sides (expression, dynamic and psyche of line). We cross ... a dense forest. Another river is lost in fog ... Basket weavers are going home with their cart (the wheel) ... Later it becomes muggy and nocturnal. A flash of lightning on the horizon (zigzag line). Over our heads the stars are still apparent (series of dots) ... Before we fall asleep much will recur in our memory, for even such a brief journey is full of impressions."

(6) Here is another unusual text which has been used as the basis for a composition (improvisation) by a group of instrumentalists and vocalists. The students were presented the text in segments and asked to work out a short section illustrating it; then the segments were joined together. In interpreting it an attempt should be made to make the calculated things *sound* calculated and the spontaneous and surprising things *sound* spontaneous and surprising. This implies that the completed composition may be a combination of ordered and unordered segments.

"Cold calculation, random spots of colour, mathematically exact construction, ... now silent and now strident, painstaking thoroughness, colours like a flourish of trumpets or a pianissimo on the violin, great, calm, oscillating, splintered surfaces."

Wassily Kandinsky: from a catalogue, 1910.

(7) A class of instrumentalists is divided into groups. As many as eight groups are possible if the class is large. Each group selects a leader who will act as its conductor. The following assignment is given to all groups:

### FIND AN INTERESTING SOUND

The groups are given ten minutes to experiment (preferably in separate rooms). No restrictions are placed on them, except that their sound should involve all the performers in the group. It may be consonant, dissonant, short, long — whatever they wish. The instructor may as well be warned to expect some very unusual sounds. On one occasion, for instance, brass players produced curious effects by removing some of the tubing from their instruments.

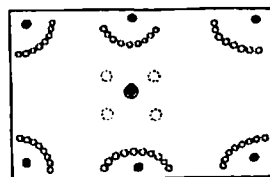
The groups return. They perform their sounds. The other groups act as critics. If the sound produced does not interest them, the group in question is sent out again to find a better one. When all the sounds have passed the acid test, the class is given a second assignment:

### FIND A CONTRASTING SOUND

This should be as complete a contrast as possible. Again no other restrictions. After ten minutes the second series of sounds is brought back to class and they are performed, discussed, criticized. Often it is felt they do not contrast sufficiently with the first sound and several groups are sent out to find better sounds.

The above exercise is repeated until each group has five sounds, each substantially different from all the others; for instance, one high loud sound, one low soft sound, one melodious sound, one harsh sound, etc.

The groups are now separated around the room with their backs to the centre as shown. The conductors stand before their respective groups facing the centre. The instructor, as master conductor, stands in the centre of the class.



The master conductor may now alert any of the sub-conductors with his left hand by indicating with raised fingers which sound he wishes produced (1 - 5). With his right hand he cues the sub-conductors to begin or to stop playing. As soon as the sub-conductors see these cues they communicate them to their respective groups. Any number of sounds may be piled up or stripped away. A mobility of sound should be created by constantly cuing different groups in and out. After a little practice the master conductor will soon learn which sounds go well together and which do not.

Stage two calls for a small group of three or four soloists to come forward and seat themselves around the master conductor facing him — that is, with their backs to all the other musicians. Now the original sounds are to be regarded as a harmonic background to solo improvisations. The master conductor signals a soloist to begin by tapping him on the shoulder and to stop by tapping him a second time. The soloists must produce sounds which contrast significantly with whatever ensemble sounds are sounding in order to preserve their identity as soloists. This does not mean, of course, that they should merely play louder than the others, but that they must produce sounds that are so strikingly contrasted with whatever they hear at a given instant that they will be heard without difficulty. Several times during the experiment the music is stopped. If everyone in the room does not hear the soloist(s) performing at that moment, something is wrong and discussion should determine what it is.

The object of the experiment is to keep the sound as fluid as possible. The ensembles and soloists must be in a state of constant interaction. At times everything may be stripped away and one soloist may have an unaccompanied *cadenza*; at other times the entire group may engage in a furious *tutti*.

By placing the musicians in different locations in space with their backs to one another, herd instincts are discouraged and the performers are encouraged to use their own minds and their ears.

## TWO TRANSCRIPTS

NOTE: Although the first of these transcripts originated not at Simon Fraser University but with a class of grade 11, 12 and 13 string players at the North York Summer Music School, it is included here for its relationship to some of the issues raised during the preceding lectures. It is similar to the kind of "bull sessions" that frequently punctuated our work in the "Ear-Cleaning" course, where ideas were pulled off the shelves and tested empirically.

## Charles Ives and Perspective

OBSERVATIONS: The class has just spent two or three sessions discussing Charles Ives, this remarkable man and his remarkable music. A lot of Ives music reflects the composer's life in New England. He was fond of incorporating the sounds of his native environment into his music — a country fiddle tune, a church choir, a village band. In the second movement of *Three Places in New England* — "Putnam's Camp" — Ives incorporates not one but several bands. The atmosphere is one of a Fourth of July picnic, with all the bands from miles around out in festive garb and in sporting competition with one another. The scene can be imagined easily enough. The class has just listened to a recording of "Putnam's Camp".

Schafer: Well, what did you think of that?

A Student: Very exhilarating.

Another Student: I enjoyed it. At times it was awfully confused, but there were a lot of tunes I recognized in it and I could follow them along quite easily.

A Third Student: At first I thought it was rather funny — like Haydn's *Toy Symphony*. What appealed to me most were the rhythms; they were very complex and very modern. The whole thing sounded so fresh. I liked it.

Another Student: At the end the sounds were so clashing and confused that they seemed to cancel one another out. Instead of everybody coming together at the end the opposite thing happened. It seemed as if everybody was playing something different.

Schafer: They were. Ives was once in the audience when this piece was played. Afterwards someone apologized for the scrambled effect, which they assumed was the fault of the orchestra. But Ives said: "Wonderful how it came out! Every man for himself — just like a town meeting."\*  
(Laughter)

Student: But that's just what I disliked in the music. Everything was so complicated that you couldn't sort anything out. I just thought it was funny.

\*From: Henry Cowell, *Charles Ives and his Music*, New York, 1955, p. 106. The next quote, *ibid*, p. 66n.



Schafer: Is there anything wrong with humour?

Student: No, but when a thing is that confused no one can understand it.

Schafer: First of all, let's be careful when we say *no one*. You are perfectly entitled to dislike any piece of music you wish as long as you don't pretend you are speaking for all of us. Only music critics are arrogant enough to think they can do this. We should be more humble. We speak for ourselves only.

If you prefer clarity in music so that you can understand everything that is happening, you are perfectly entitled to this preference. I admire your intellectual curiosity. Others, however, are content to simply listen to a piece of music, perhaps letting themselves become immersed in it completely, understanding nothing, just experiencing sound. I am inclined to think that what goes on in a piece of music is the composer's business and that although you may understand very little, it will be enough for you to know how to respond. Let me try to give you an analogy. For instance,

(taking a telephone bill on a punched IBM card from his pocket)  
can anyone tell me what the holes in this card mean?

(Heads shake)

I can't even tell myself, yet to the telephone company quite literally a whole wealth of information is contained here. It is enough for me to know that I have to pay the bill. It is true that in Charles Ives compositions a lot is happening at once and his music seems to be in constant collision with itself. Perhaps he doesn't want you to concentrate on anything in particular, but just to be smothered in textures of sound.

But let us look more closely at this confusion. How is this sensation of total chaos produced? Did Ives just take half a dozen different marches, tear them up and paste them on top of each other, and then have them all played together?

Student: *It's not that confused! I didn't know that several different pieces of music could go so well together. If I chose three or four marches it would sound like a complete mess all the way through. There were points in the piece where everything seemed to come together and then they separated again. Sometimes we heard only one or two bands and we could tell which was which.*

Schafer: What happened to the others?

Student: *I don't know. I guess they went around the corner!*  
(Laughter)

Schafer: That's not such a crazy idea as you may think. You're on the right track.

Student: *Well, if you were standing at one place, say, at an intersection and the bands were marching all around, the sounds would be fading in*

*and out. At the very end it seemed as if all the bands converged on the intersection right under your nose...*

Another Student: *... and had to play all the louder to try and keep from getting lost.*

(Laughter)

Schafer: You make it very descriptive, and I think you are absolutely right. This is a picturesque piece of music. Can you think of a word that would describe the situation we have in this piece of music with some things going on in the foreground and other things going on in the distance?

Student: *Perspective.*

Schafer: Exactly. And how does a composer create this illusion of perspective? By...?

Student: *... volume control.*

Schafer: This is a very important device in music isn't it? When a composer wants something to come out he makes it louder than the rest of the music. In a sense we might say it is like putting something in the foreground where it will be noticed. A soft sound is placed in the background where it will not be apprehended so clearly. It was the renaissance painters who discovered perspective as a device for distinguishing between important and unimportant events in their paintings. If you look at a medieval painting it is often very difficult to decide which are the important things and which are unimportant because they all seem to exist together in the foreground. In music if we make something loud we thrust it forward and if we make it soft we draw it back into the distance where it will be less conspicuous. Do you think all music possesses perspective?

Student: *Almost every piece of music has loud and soft passages.*

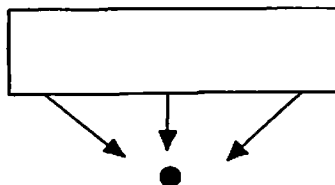
Schafer: Let me play you another piece of music. This one is a march for band dating from the time of Napoleon.  
(The record is played. As a military march it is almost consistently loud from start to finish)

Schafer: Now about this question of perspective — present or not?

Student: *I don't think so. It was pretty well always loud.*

Schafer: Rather like a high-school band? (Laughter) Everybody out for himself. Everybody determined he is going to be heard regardless of whether he has a leading role to play or not. Listening to that last recording you probably had the impression that the whole band was

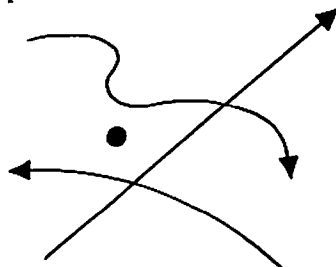
standing square in front of you, almost on top of you. Like this:



What about the Ives?

*Student: There is movement, marching about, into the distance and then back again.*

Schafer: More like this, perhaps:



*Student: But they weren't really marching about were they? This was only the impression they gave because different sections appeared to get louder and softer at different times.*

Schafer: It is just an illusion, of course, created by an intelligent use of dynamics. You know, however, from some of our previous experiments that sounds could quite literally be moved around the room by transferring them from one musician to another. Perhaps one might even have the musicians move about themselves. Ives only suggested possibilities along these lines and it has been up to other composers to experiment more fully with them.

With these things in mind I'd like to try an experiment with you. It has a double relationship to the things we have been discussing, which you will see presently. We are going to compose a little piece of descriptive music. Here is a text which will paint the scene for you:

*"A Sunday morning walk. . . We walked in the meadows along the River and heard the distant singing from the Church across the River. The mist had not entirely left the river bed, and the colours, the running water, the banks and trees were something that one would always remember."*

What are the points of interest in the description?

*Student: The river with the mist rising, the church on the other side, the colours in the morning light.*

Schafer: Suppose we were to reconstruct the geography of the scene in this classroom and then set it to music. I will be the narrator walking by the river. The front of the classroom will be my side of the river. Where could the church be?

*Student: At the back of the room.*

Schafer: Good. What does that make of the rest of you?

*Students (whimsically): We're the river!*

Schafer: You have no choice, unfortunately. Now how do you suggest we fill in the sounds of this scene?

*Student: It's simple to represent the church and the choir. We could just play hymns.*

(A couple of hymnbooks are located and Schafer suggests a string quartet be chosen to play the four-part harmony. They are asked to leave the room, choose a hymn, practice it, and come back ten minutes later ready to perform it.)

Schafer: Now as for the river; how do you think we could imitate this lazy river with the mist rising?

*Student: Obviously we should play something slow — soft murmuring sounds. Everybody might take two different notes and play them softly like slow wavy figures.*

Schafer: Let's try it.

(They do. Afterwards Schafer asks them if they are satisfied with the sound or whether they feel they can improve it in any way.)

*Student: I think the violins could play very high and slow sliding effects to give the impression that the mist is slowly rising and curling around. The lower strings could continue to produce those slow trills to represent the deep water of the river.*

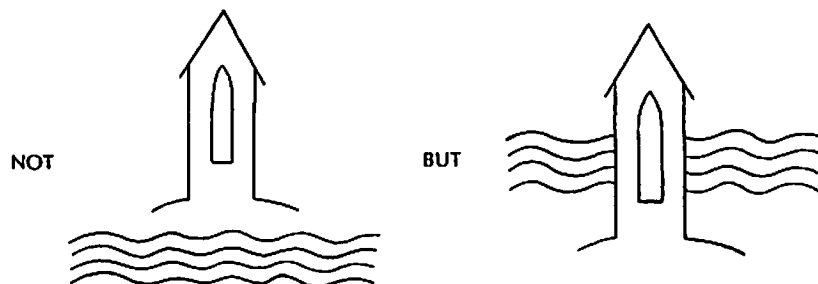
(They repeat the sound observing these suggestions. The soft veil of the strings does indeed seem to suggest the misty river. Meanwhile the other students have returned with their hymn.)

Schafer: I'm sure you are all curious, as I am, to put it together now.

(They begin. The river flows. Then the quartet is cued to begin the hymn. After the performance comments are solicited.)

*Student: The hymn was too loud. If it was really coming from across the river it should sound as though it were in the distance.*

Schafer: Yes, the quartet *was* too loud. The impression I had was not that the river separated me from the church but that the church separated me from the river.



**Student:** Wouldn't it be better too if the strings on the one side of the class began and then gradually the others were added to give the impression of the river flowing across the scene?

**Schafer:** That's a good idea. Let's do it again that way. I will move my arm slowly across the class and you can begin as I point to you. And remember, in the string quartet, you are on the other side of the river, not my side. Play with a full tone, but quietly.

(The experiment is repeated. The sensation is a curious one indeed. The muted lethargic dissonances of the river through which are heard the filtered harmonies of a distant diatonic hymn. Everyone is impressed with the sound as an atmospheric illustration of the text.)

**Schafer:** Now I think I should identify the text for you. It is by Charles Ives. It is the way he described the inspiration he had for the third of his *Three Places in New England* entitled "The Housatonic at Stockbridge". The Housatonic is the river; Stockbridge is the little town with its church. You have just orchestrated this scene for yourselves. It's time to see what Ives does with it.

(Schafer takes out the record and puts it on the turntable as the class waits with curiosity for the music to begin . . .)

## Music for Paper and Wood

**OBSERVATIONS:** One begins by listening to sounds. The world is full of sounds and they can be heard anywhere. The most obvious kinds of sounds are the most frequently missed, and the ear-cleaning operation, therefore, concentrates on them. Once students have cleaned out their ears enough to hear the sounds around them, they can go a stage further and begin to analyse what they hear. It should be possible to reconstruct synthetically, or at least effectively imitate, a sound one has heard, provided the analysis has been accurate. This is the point where ear cleaning gives way to ear training.

(Several sheets of paper are given to each student. Schafer begins to write a meaningless message on the board.

XOMYBAF ABND FERITOOM YBLLL ZIVP . . .

At least one student will have invariably begun to copy it down. Schafer suddenly whirls around.)

**Schafer:** Why are you copying it down?

**Student:** I don't know. I just thought that . . .

**Schafer:** . . . You just thought it natural that a sheet of paper should be covered with writing, however meaningless. But supposing I told you that this piece of paper (holding it up) was not meant to be covered with words at all. This piece of paper is a musical instrument.

**Class:** ?

**Schafer:** Have you ever thought of a piece of paper as a sound-producing mechanism?

**Student:** No, not exactly.

**Schafer:** Here's your chance. Everybody take a sheet of paper and experiment with it as sound. How many different ways can you think of to make sounds with it?

(Many different ways are discovered. Some students crush their paper slowly, others quickly, some tear it slowly or quickly, some fold it, some blow across it or flick it with a finger or pencil, others stroke it, etc., etc. The class is given several minutes of liberty to discover paper as sound.)

**Schafer:** I think I could hear some very ingenious sounds there, but of course, as all of you were experimenting at once, it was rather confused. Suppose we take another sheet and each of you produce your own sound independently.

(The class repeats the sounds one at a time. One of the sounds — a stroking of the paper with the fingertips — is exceedingly subtle.)

**Schafer** (To students at far side of room): Could you hear that?

**Students:** No.

Schafer: Then that's your own fault; you weren't quiet enough. Stop breathing if necessary; close off everything but your ears. Try again.

(The girl's fingertips stroke the paper with seismographic delicacy.)

Schafer: Hear it now?

Student: I can just make it out; it's very quiet.

Schafer: Indeed! But so is a whisper. All the more reason for trying to hear it. A whisper is secret and privileged information. That is why we strain our ears to overhear it. It is a similar privilege to hear any delicate sound; most people never do.

Now could we try an improvisation with our paper instruments? As I point to you at random I want you to make a sound with your paper that is substantially different than that produced by the preceding person. This will tax your ingenuity and alertness more because you won't know what your predecessor is going to do until he does it.

(This improvisatory exercise is performed with a kind of amused solemnity for several minutes until the class runs out of paper.)

Schafer: By giving the paper a voice we have exposed its sound-soul. Every object on the earth has a sound-soul — or at least every object that moves, sounds. This is not to say that every sound is enchanting, but merely that it can be heard if we put our ears to work. I want now to introduce you to another fairly simple sound. (A set of bamboo wind chimes are produced from a brief case.) Do you know what these are?



Student: They are Japanese wind chimes. You hang them outside somewhere and the wind blows through them producing a clattering sound.

Another Student: Weren't they originally used to ward off evil spirits?

Schafer: You may be right about that. It would certainly seem possible, because if one strikes them hard the clattering sound is really rather frightening.

(The wind chimes are struck rapidly with the hand and then held suspended allowing them to strike against one another until they return to a calm position.)



Schafer: It's a rather interesting sound isn't it? Now I have a request to make of you. I want you as a class to imitate the sound of these chimes with your voices. How are you going to do it?

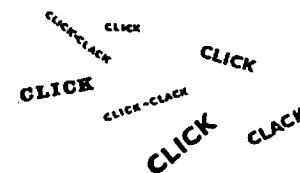
Student: It's hard. The sounds have no clear pitch. I don't think we could imitate them exactly.

Schafer: As closely as possible then.

Student: Well, it's a very dry sound, kind of hollow. We could probably make clicking sounds with our tongues.

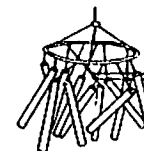
Schafer: That's a start. Would you like to come up and try it out with the class? Just tell them what you want to do and let's hear it.

(The student comes up and instructs the class to make clicking and clacking sounds with their tongues. He signals them to begin:



The clacking disintegrates into laughter.)

Schafer: Did the chimes laugh? If not, your laughter is spurious. Just imitate the chimes. Can't you come any closer than that? Here, listen again to the original sound.



Student: I think there are some sounds of speech that come close to that, for instance the sound of "k".

Schafer: Yes, you really mean "k" as a phoneme and not as a letter of the alphabet, don't you?

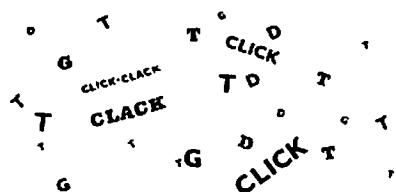
Student: Yes, "k" as it might appear in "kick".

Schafer: Interesting. (Writing the phonetic alphabet on the board). Which of these sounds do you think come closest to the bamboo chimes?

Class: "d"  
... "g"  
... "t" ...

Schafer: Again as phonemes, that is the way they might appear in words such as "did", "got" or "tack". What would happen if you added these to your clacking sounds?

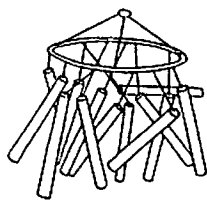
(A new conductor comes to the front. He asks some of the students to continue with the clacking while others add the phonemes.)



Schafer: Well?

Student: *I think it's an improvement. It gives more variety just as the bamboo produces a variety of different sounds depending on which rods are striking together.*

Schafer: We're beginning to get somewhere then. But we've only begun. Listen to the sound again and think of some of its other characteristics. What is missing in our interpretation?



Student: *After you hit it the sound gradually dies away until there are just a few faint clicks at the end.*

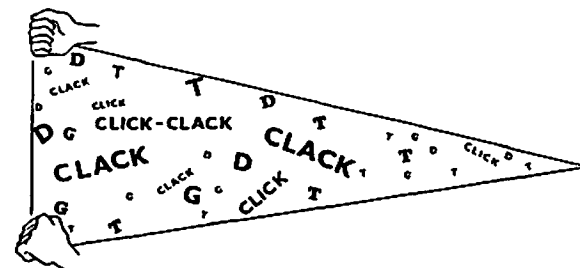
Schafer: The sound decays gradually until it dies away completely. What about the beginning?

Student: *Very abrupt. From absolute silence there is a sudden explosion of sound.*

Schafer (pointing): Would you like to repeat the sound observing these facts?  
(The new student comes to the front and explains that as he shapes a tapering envelope with his hands the class is to let the sound fade away. But the opening attack? The student stands with his arms outstretched and pokes at the air. Nothing happens.)

Schafer: Are you measuring something or conducting? Excuse me for interrupting, but I feel I must draw your attention to the relationship that exists between the mind and the body. A good conductor is always aware of the precise effect his gestures will have on the psychological responses of his performers. A calm, flowing passage is introduced with a lyrical gesture of the hands. A sudden brusque sound is introduced with real flourish. Above all, don't forget to obtain the attention of your performers before you begin. You have told us that the opening was explosive, percussive. Don't introduce it as if you were poking the air. Be prepared, be firm, attack it.

(The student comprehends. He signals the class to attack the sound with his fists clenched; and then with a tapering movement of the arms he allows the sound to decay into silence.)



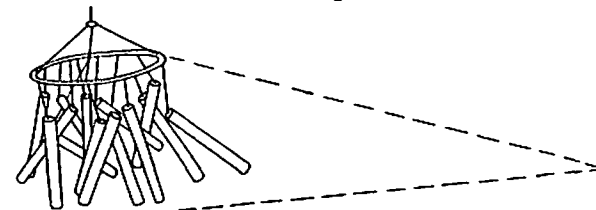
Schafer: Bravo! Now listen to the original sound again and see if you notice anything more specific about this decay.

(The chimes are clashed again. Everyone listens. Nothing is noticed. Schafer asks the conductor to repeat the imitative sound and the class does so.)

Schafer (observing his watch): Eleven seconds from start to finish. How long was the original sound, did anybody notice?

(No one noticed.)

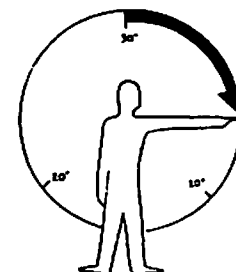
Schafer: Would you care to time it as I strike it again?



Schafer: How long?

Student: *Twenty-three seconds.*

Schafer: Interesting. In our eagerness to get the opening flourish right we diminished the duration of the original sound by more than half. In the heat of our performance we thought we had duplicated the duration of the original sound, but you can see how inaccurate we were. This is the difference between real time or clocked time and virtual time, that is time as it appears to us. When it comes to the accurate measurement of time we are often careless and inconsistent. The truth is as human beings we make very bad clocks. I think I can illustrate this for you. Here is a problem: With your arm moving in a clockwise direction describe an absolutely steady circle of an arbitrary duration (say, 30 seconds) arriving at the starting point on time! Anyone care to try it?





## FOUR POSTSCRIPTS

## OBSERVATIONS:

Everything we did in the course was calculated either to sharpen the ears, or to release latent creative energy, or both. Conciseness has been thought more desirable than verbosity in the preparation of this booklet. Here are some brief notes on a few more things we did and discussed in class. The reader will be able to fit them into context easily enough.

## I

When the class was told of John Cage's statement to the effect that there is no such thing as silence, everyone was quiet. They were listening for silence. The only sound to be heard was the swish of one student's pencil as he copied down: "There is no such thing as silence".

## II

One day an assignment was given: Bring an interesting sound to class. Some students are flustered. Schafer: "If I asked you to bring an interesting book to school you could do that couldn't you? Well, just go home and find an interesting sound. It's a lot lighter than a book."

One student brings a balloon, fills it up with air, then lets it out gradually — zzzzzzzzzzhzhzhzhheeeeeessssssshshshsh. When asked why it was interesting she said it was so because it was unpredictable. One never knew when it was going to go zhzhzhzh and when shshshsh.

A boy brought a metal clacker. He said it was interesting because all his life he had been hearing it but this was the first time he actually had ever been asked to listen to it.

Another girl brought a music box. It was interesting to her because the sounds were so mysterious; she had always marvelled that so many sounds could get locked up in such a tiny box.

A boy got up and said "animal" about a dozen times. He explained that it was interesting because the more often you repeated it the less it seemed to fit the thing it was supposed to represent. The sense was lulled to sleep and only a curious sound-object remained from which all meaning had vanished.

## III

Everyone knows that our attitude towards music — the sounds we feel are significant and worth recording — is conditioned by the environmental sounds of our century, generation and geographical position in the world. An interesting study could be made of the environmental sounds of different centuries, generations and geographical areas.

One day the class was asked to look at a painting by Peter Breugel the Elder — "The Battle Between Carnival and Lent" — and to record all

the sounds and potential sounds in it — everything from the lame man's crutch on the cobblestones to the sound of the lute.

Secondly, they were asked to go down to the corner, set up a tape recorder and tape ten minutes of contemporary environmental sounds.

Then they were asked to compare the sounds to be heard in the sixteenth century with those to be heard in the twentieth century, for instance, the number of human sounds and the number of mechanical sounds.

(The same experiment could be worked with any number of paintings, poems or dramas from different periods in history or from different civilizations.)

#### IV

One day someone wrote a poem which gave the class something to think about:

#### SOUND-POEM

If there is silence and sound —

*Silence emptied of silence is sound  
Silence filled with sound is sound  
Sound emptied of sound is silence  
Sound emptied of silence is sound  
Silence emptied of sound is silence  
Sound filled with sound is sound  
Sound filled with silence is silence  
Silence filled with silence is silence  
Silence emptied of sound is sound  
Sound filled with silence is silence*

If there is no such thing as silence —

*Silence emptied of silence is sound  
Silence filled with sound is sound  
Sound emptied of sound is sound  
Sound emptied of silence is sound  
Silence emptied of sound is sound  
Sound filled with sound is sound  
Sound filled with silence is sound  
Silence filled with silence is sound  
Silence emptied of sound is sound  
Sound filled with silence is sound*

And a final question:

*"Why do men hear less when they  
are yawning?"*

(Aristotle, Problems Book I, XI.)