Bringing Soundscapes Into the Everyday Classroom

by Michael Cumberland

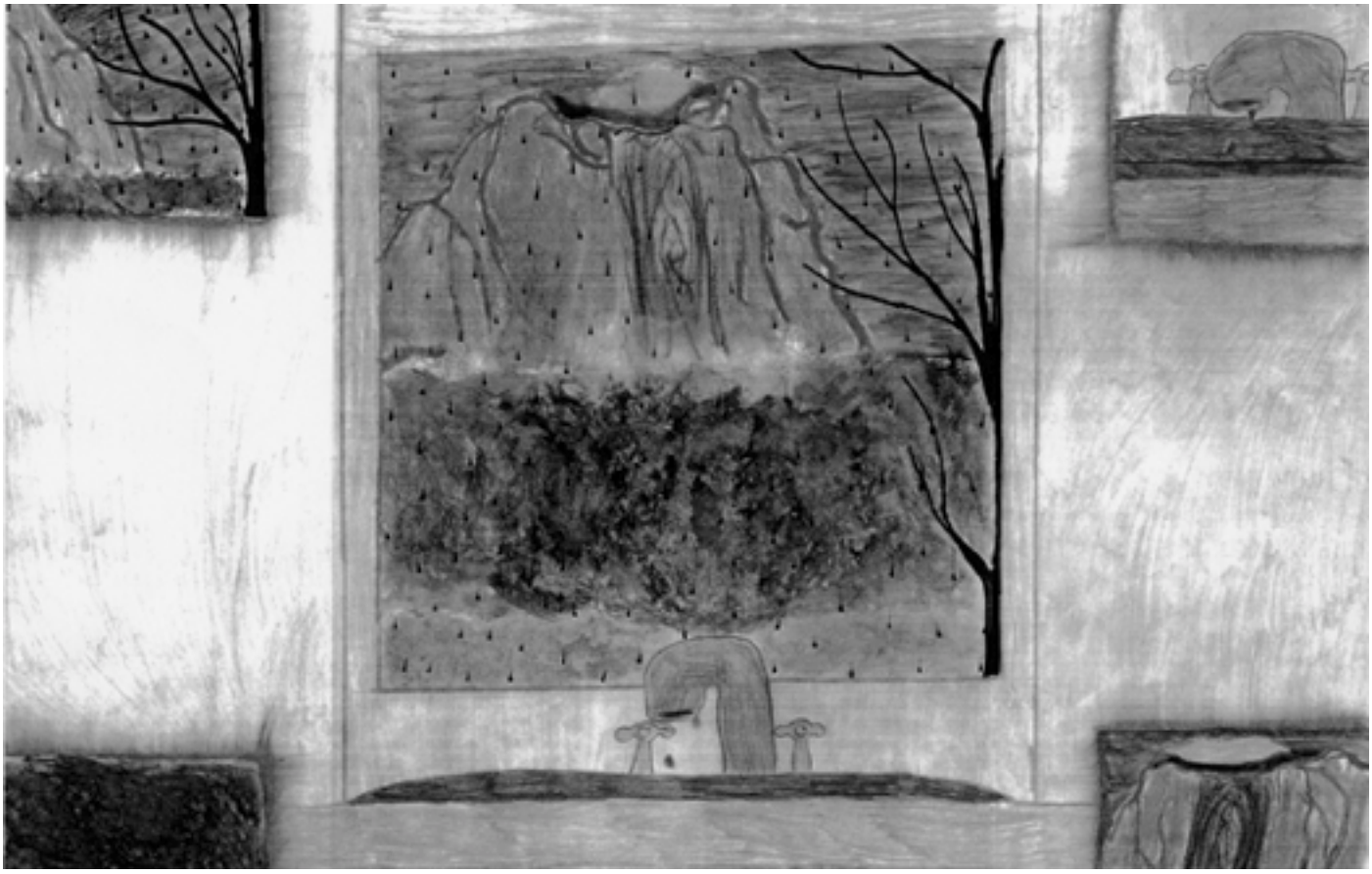

Figure 2: The Ganaraska River. Original size: 20"x32"

Every day the twenty-first century student is bombarded with noise—from the media, the environment, technology and far beyond that of even the later twentieth century. In the small-town Canadian classroom where I currently teach music to 300 middle-school students I see these societal trends resulting in poor listening skills. Students, and indeed all of us, need help in deepening our ability to listen and to hear. In my own classroom I accomplish this using soundscape education, sound ecology and the teachings of R. Murray Schafer. It should be noted that although this paper focuses on experiences with the eleven to fourteen year-old age groups, these methods have been used with success from early elementary years to later high-school age years.

I introduce my classes by saying that students will be doing one of the most difficult tasks—they will be learning to listen.

Relating listening to students' everyday lives and interpersonal relationships with family and peers is an important way to begin. I ask if anyone knows another student or adult who cuts them off when they talk—many hands go up. Then I ask if they know anyone who always has a better tale to tell and "one-ups" their own story—more hands go up. When I ask if those guilty are students, hands go up, fingers point, and whispering fills the classroom. When I ask if those guilty are adults, many more hands go up.

The stage is set for discussion and the students want to talk. I get comments like: "My mum never listens", "My boyfriend always has something better to say and never wants to hear my side

of the story". When I ask what this means the reply is, "They never listen." "Do you ever treat your friends or family that way?" I ask. Usually most hands slowly go up. The classroom is quiet now. I return to my first comment: "Today you will be doing one of the most difficult tasks you have ever done—you will listen." Now, even the most obstreperous of thirteen year olds is rapt with attention.

I ask for a volunteer to come up front. I whisper in the student's ear asking him or her to time one minute—after I have spoken to the class—and to tell the class when the minute is completed.[1] To the rest of the students I say we are going to sit silently for one minute and just listen. Having made sure windows or doors are open to allow for as many sounds as possible to be heard in the classroom I then say no more. I nod to the volunteer to commence timing. Sometimes there are giggles, but I have found the students pickup on my seriousness and act accordingly. When the minute is up I quietly ask the class, including the timer, to write down the words, Listening List #1, and quietly write down every sound heard. I make my own list, either written or mental.

This done, I ask for more volunteers, this time to tell the class what they heard. Students may give a response like: "I heard a foot tapping". I reply, "Great, when did the foot tap and how many times?" They are usually a little taken aback and often reply, "I don't know—I guess I wasn't listening." Then another student raises a hand and says, "I know, halfway through and three times." A keenly listening teacher will be able to corroborate the information. Under the title we can now write: halfway through the minute a foot tapped three times.

The students get the idea and when I ask for a second and third item I begin to get more detail. A teacher will notice that no matter how closely one listens to a soundscape, in the time lapse of listening and writing it is very difficult to remember all the details. Thus, having many ears to listen greatly helps in obtaining fuller details.

After a few minutes the students have created an ample list of sounds heard in their classroom soundscape. What follows is a list created by one of my classes in mid-September of this year. Listening List #1, in the classroom:

- two seagull cries at the beginning of the minute;
- 25 steps in the hallway outside the classroom;
- in the middle a student was whispering, "he told us to be quiet—not silent;" this occurred twice, and was followed by giggling;
- three-quarters of the way through a student yawned;
- the entire time the wall clock ticked;
- near the end a foot was tapping 10 - 15 times;
- the entire time there was a quiet computer buzzing;
- the entire time people were breathing.

Remembering to ask for detail such as number of times a sound was heard, and when it was heard is important as eventually the students will be creating a language(music) to record the sounds as symbols. This leads to much discussion as to whether or not they were aware of all the sounds in their class environment. For example, the hum of the computer is normally not noticed; yet when we listened, it was found to be a B-flat. Certainly there are obvious sounds, but how many of the less obvious did we notice—like breathing.

A student may say, "Giggling doesn't count. It wasn't one of the sounds—they did it on purpose." A debate ensues as to whether or not the sound counts. I guide the opposing students to ask themselves why it should not count. It was a sound, it was made and we heard it—what is wrong with a sound made by a person? When the student thinks about it, there is usually no good reason not to include the sound. For some reason sounds such as tapping feet and a person shuffling his feet seem to have legitimacy, whereas giggling, hiccups, burps, and flatulence seem to have less legitimacy. This always creates a lively discussion as to whether humans are part of nature or stand outside it.

At this time I discuss the concept of soundscape and I refer to R. Murray Schafer's *The Tuning of the World* .

Soundscape: The sonic environment. Technically, any portion of the sonic environment regarded as a field of study. The term may refer to actual environments, or to abstract constructions such as musical compositions and tape montages, particularly when considered as an environment. [2]

Students are then dismissed with an assignment to do their own listening list, in their own favourite environment, and to be prepared to discuss this.

In the next class we talk about why they chose their location, what they heard, including pleasant or unpleasant sounds, and then we compare these soundscapes. Most students are very curious about this unusual kind of homework and love to relate their own thoughts. Many chose natural or quiet settings for their locations.

This elicits the overall topic of ecology, and the teacher can relate the preservation of lands and landscapes to correspondingly pleasant soundscapes. Although often neglected they make up a vital part of a person's experience. All students agree that the juxtaposition of an unpleasant soundscape upon a beautiful landscape would make the experience an unpleasant one. Here a simple imagining exercise, with students' eyes closed, helps to clarify the point: imagine a beautiful wilderness lake, surrounded by trees, with the early morning mist rising from it; chainsaws and heavy trucks are roaring nearby. I have even prepared some students to imitate these sounds and on my cue to create the cacophony which destroys the quiet exercise. The point is easily demonstrated and students can relate to it immediately.

At this time, I may also relate my own experiences traveling and recording with my alphorn in varying locations in the world, telling the students about the beautiful sounds, including echoes, I have experienced. I express the hope that someday sound preserves will be established to help maintain the natural sonic beauty of locations. Students usually think this is an interesting idea.

After our discussion we make our second listening list. We change the sonic environment, or soundscape. The teacher must have decided on an appropriate outdoor location. Beside our school is a small nature preserve with seating, and pergolas for shade. It is an ideal place for students to sit quietly and listen while comparing and contrasting the soundscape. After listening for one minute I ask them to write Listening List #2. Underneath the title, they are to list what they have heard. This time there is usually much more detail in their observations. From the same class that created the first listening list, here is their second one:

- for the entire time there were cricket chirps;
- there was a constant low rumble from Highway 401—a major four-lane highway about one kilometre north;
- there was wind in the beech, maple, and white pine trees;
- three times, students were heard playing on a nearby field;
- at the end a student whispered, "don't push me";
- at the end three loud metal bangs were heard from an open door in the nearby high-school auto shop.

Returning to the classroom we begin our discussion and comparison of the two different soundscapes. Here I adapt exercises 1, 2, and 3 from R. Murray Schafer's, *A Sound Education*. Students' are to assign the letters N for a nature sound, H for a

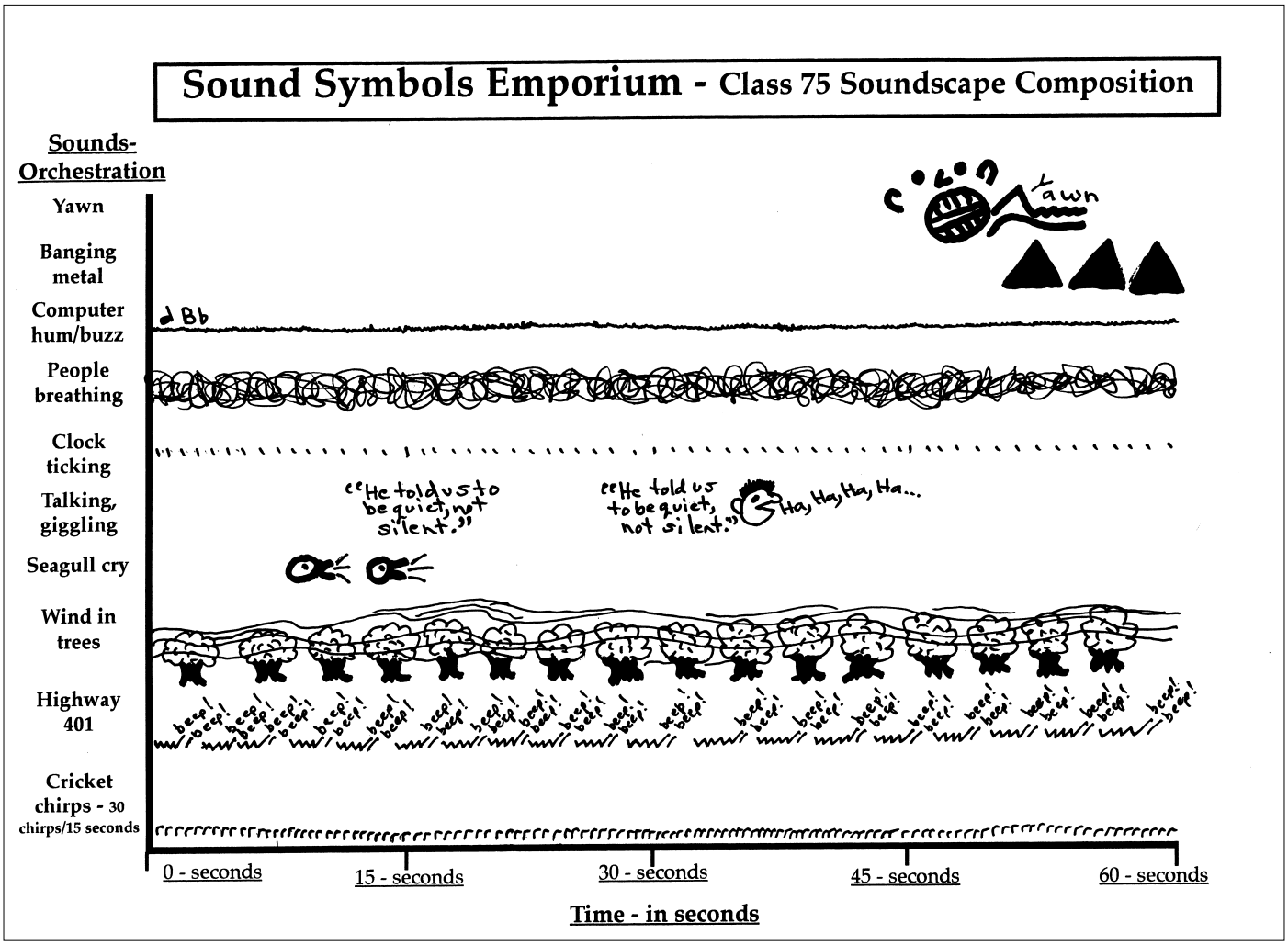

Figure 1: Sound Symbols Emporium. Original size: 24"x 36"

human sound, and T for a technological or machine sound. Then, in a different colour pen, they are to assign the letters U for a unique sound (one that was heard only once), R for a repetitive sound, and C for a continuous sound. [3]

A third list may also be created from having a class do a soundwalk as a follow-up unit. This develops a different set of listening skills. We usually walk through the nature preserve as well as past a busy street. Again, I use R. Murray Schafer's book, *A Sound Education*, following exercises 4, 6, and particularly, 13.

Then, as a class, we begin the creative task of graphing our sounds. I ask for two sounds from each category (N,H,T and U,R,and C) thereby using about a dozen sounds in all. It is my experience that when Listening List #1 and Listening List # 2 are combined there are an adequate number of choices from which the students may chose in order to complete the task. This also introduces a creative element. No longer are the students completely replicating a soundscape, but are beginning to make compositional choices when placing elements in the graph. Figure 1 is an example of a class-created soundscape graph. Though the teacher acts as facilitator it is important to understand that the choices and creation of the symbols must be student generated to give them ownership of the results. The vertical axis is used for the instrumentation/orchestration and the horizontal axis for the time—1 minute divided into four 15 second sections.

Beginning to put the symbolic representation of sounds onto paper is the difficult part of this exercise. Here, the teacher would be well advised to preview Schafer's *The Tuning of The World*, Chapters 8 and 9, as well as "The Composer in the Classroom", "Ear Cleaning" and "When Words Sing" from *The Thinking Ear* where Schafer describes converting sounds into written symbols. This material provides a large body of ideas from which to represent sounds accurately. Any teacher could carry out this technique with minimal knowledge of music.

Little prompting of students is needed. The class analyses the sounds and their constituent elements. We look for duration, if needed, referring back to the symbols U, R, and C; dynamic, or loudness of the sound; pitch, whether perceived as high or low; tempo, or the speed of the sound; tone colour; rhythm; and relation of each sound to the whole of the soundscape and its texture amongst the whole.

Classes often produce pictorial representations of sounds—the sound of wind through the trees may be represented by a picture of a tree with curvy lines going across and past the tree (see Figure 1). This is a simple idea; it works and students can understand it. Other times students may create onomatopoeic vocalizations of sounds—the buzzing of a fly or bee may be represented by the letters "bzzzzzzz." A discussion may ensue regarding the nature and origin of sounds in language. Next, I will give them two minutes to come up with a representation of their favourite sound on the list.

After doing these exercises for six years I have found that they are a time of a thousand discoveries. I could never hope to produce these things through a Socratic method of questions and answers. It is a time of creative discovery for me, the teacher, as much as for the students, and I am always continually amazed at

the solutions each class comes up with for solving what is basically the same problem. The intriguing and beautiful part of using the surrounding soundscapes—whether in a class, outside seated, or doing a soundwalk—is that the soundscape is never the same from hour to hour, day to day, and season to season. This is what makes the assignment magical for both the teacher and the student.

After the graph is completed volunteers are requested to produce a vocal rendition of the soundscape chart. We strive for accuracy of sound relating to written symbols, and experiment to see who can accomplish this vocalization best, whether it is a cricket chirp or an automobile changing gears. Sometimes classes are filled with hilarity as students discover their own vocal capabilities. It takes a couple of rehearsals before the class feels the task has been accomplished with much accuracy.

I then have the students produce a second version using Orff instruments such as xylophones, and metalophones. They really enjoy this kind of experimentation.

If the teacher can record the two versions and compare them with a recording of the original soundscape it leads to tremendous discussions. This is a perfect place for debate about the nature of music, the intention of music, and the legitimacy of music created from soundscapes. Are the two versions accurate representations of what we originally heard? How do our versions compare with music heard in settings such as a shopping mall, concert hall, and outdoors?

Students can then further develop their new skills. In groups of between two and four they create a short soundscape composition to demonstrate a musical story (a program) and use material from a soundscape of their choice. Beginning music students use binary (AB) and ternary (ABA) forms; while more advanced students use theme-and-variation (V, V1, V2, V3), and rondo form (ABACA).[4] The teacher must be prepared to guide initial problem solving within groups, but once on their way students thrive on the opportunity to create.

What follows are two examples developed from this unit. The first composition is of various states of water. The idea for this came about from Schafer's "When Words Sing", in *The Thinking Ear*, in the section regarding choric textures.

Exercise 1. Using voices [this group used percussion instruments as well as voices] create a choric texture to suggest mist; to suggest rain; to suggest a stream; a waterfall; a river; an ocean. Compose a piece of "water music" by looping this itinerary of water sounds.[5]

The Ganaraska River flows through the centre of the town of Port Hope in Southern Ontario and is a very prominent geographic, social, and soundscape feature of the town. In the hills on either side of the river its sound is discernible, especially during the spring floods, when the river roars and groans with massive chunks of ice making their way downstream.

A group of four students decided to record a couple of minutes of the sound of the river on a portable tape deck and use the result as the focal point of their composition. As an introduction to the theme they used vocalizations and onomatopoeic sounds of water dripping through a tap; they added to these the sounds from a rain-stick, to demonstrate rain. These moved into the recording of the Ganaraska River. The texture was increased with percussive sounds to create the sound of small waterfalls and the eventual leading of the river to Lake Ontario—and finally crashing waves on the shoreline, created by a wave drum. The pictorial score is given in Figure 2. In each corner of the score are one of the variations of the sound of water, while in the centre is the total sonic event played simultaneously. The original score is completed beautifully with watercolour paints and pastels.

The second student composition uses the sounds of a train as the main focal point. Trains have a long history in the town of Port Hope. At one point there were four train lines using Port Hope as a major terminus for goods on Lake Ontario going to the United States and to northern Ontario. There are two main lines still extant in the town, which has a population of roughly 12,500. Day and night, trains are in the soundscape.

This composition uses an incident in which a wayward cow was hit by a train. It uses the rondo form to create a light-hearted rendition of the event. See Figure 3.

The students took some creative licence, therefore the composition is based upon both actual and imagined sounds from the soundscape and passengers went on an unforgettable train journey. The A section begins with the conductor's whistle and the call, "All aboard." Next, the sound of the passengers' feet are heard climbing up the steps into the train. This is followed by the sounds of a floor-tom and a rain-stick, cleverly accelerating in tempo and imitating the sounds of engine pistons and steam being released as the train embarks upon its journey. At the same time a recorder sounds, bending its note upwards in imitation of the train whistle. As the train arrives at its first imaginary stop the B section commences and we hear the question frequently asked: "Are we there?" The sound of the steam and thundering pistons are heard once more, followed by the whistle blowing, a deceleration, a railroad crossing signal, and then another stop. The A section is repeated. In the C section we again hear the accelerating train, but suddenly this is interrupted by many vigorous blasts of the train whistle. The engineer hysterically calls out "Cow!" The cow "moos" in vain and chaos on the tracks ensues. Passengers get off the train to have a look as an ambulance arrives to help the cow. (A recorder playing a descending major third conjurs up the sonic imagery of the ambulance siren.) In the final return of the A section the passengers embark upon the train again and the train travels into the distance and quietly disappears into the sonic horizon. When the piece was performed students, parents and a superintendent of education loved it.

Each one of the student compositions is recorded on a DAT recorder. This allows for future analysis and class discussion about the soundscape represented. Often discussions ensue about the accuracy of representation of the particular soundscape and how much creative, or compositional liberty has taken place.

At the end of this unit there are about seventy student soundscape compositions. From these a concert, using the best student compositions, is arranged and performed for the public. The purpose of this concert is two-fold. Firstly, students are able to publicly demonstrate their knowledge, skills, and appreciation for a deeper listening of their sonic environment through a creative soundscape composition. Secondly, it helps to heighten soundscape and sound ecology awareness in the community in general and in the next generation of decision makers.

Since I initiated this program about 1,000 students have participated. I have also used some of this pedagogy and the sound ecology writings of R. Murray Schafer to speak to the local town council on soundscape and noise abatement issues. Some of my students have been present in the audience. Given time, some students may play a part in municipal politics and have political power.

At the outset I stated that it was my purpose to help students develop their listening skills. I believe this program is successful in two ways. Firstly, I can relate to its positive effects from my own personal experience of soundscape listening over the past eighteen years with R. Murray Schafer. Secondly, when listening is the prime activity for students and teacher—a different, possibly new, social situation results. It is radically different from the forced listening which is so prevalent in schools and the teacher-

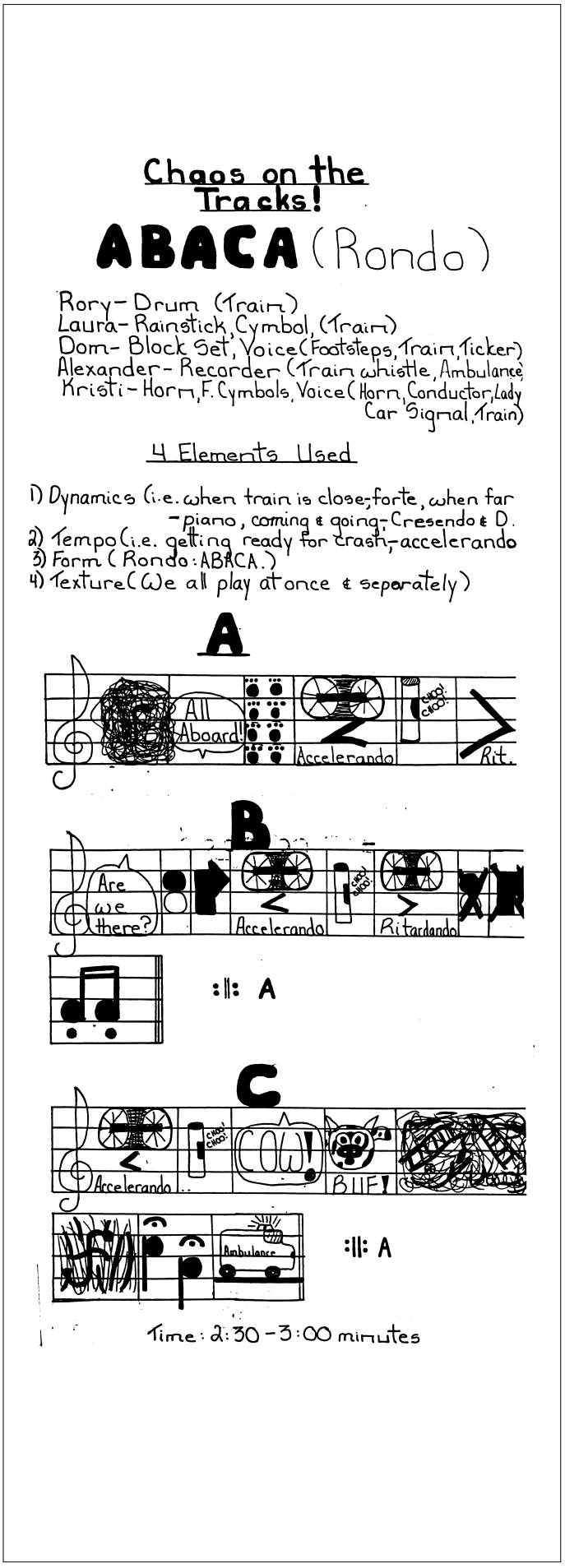

Figure 3: Chaos on the Tracks, Railroad composition.

student hierarchy. Here students are not being forced to listen; they want to.

R. Murray Schafer's works and teachings are needed in the everyday classroom today. They deal with concepts that are understandable for all ages and can be undertaken with minimal background knowledge and equipment from the teacher. Over the long-term many generations will become not only better listeners but also more sensitive decision makers. The main ingredients needed from the teacher are confidence, caring, and enthusiasm.

Nothing is more important than raising a generation well—teaching our children the best values, the noblest ideals, and the highest levels of integrity. When we, as communities of learners, do this, we entrust the future to good.

Any questions or further elaboration of curriculum issues, details for assignments, classroom management technique for large numbers of students and evaluation explanations for the classroom may be addressed to: Michael Cumberland, 347 Lakeshore Road, Port Hope, Ontario L1A 1R2, Canada. Fax: (905)885-9177, e-mail: dunain@eagle.ca

Michael Cumberland teaches at Dr. M.S. Hawkins Sr. P.S. in Ontario. He freelances on tuba and alphorn and has traveled extensively in Canada, the United States and Europe recording unique natural soundscapes and echoes with his alphorn. His field studies regarding the "natural pitch-resonance properties" of the alphorn were presented at the Sound Escape International Conference in June of 2000. He received his Bachelor of Music Degree in Performance from The University of Toronto and his Master of Music Degree in Performance from the University of British Columbia. He continued his studies at McGill University and most recently in Switzerland.

Endnotes:

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2. Schafer, R. Murray. *The Tuning of The World.* Toronto: McCelland and Stewart, 1977, p. 274-75.
3. Schafer, R. Murray. *A Sound Education.* p. 15-16.
4. *The Ontario Curriculum, Grades 1 - 8: The Arts, 1998.* Toronto: Ministry of Education and Training, 1998, p. 24-25.
5. Schafer, R. Murray. *The Thinking Ear.* Indian River, Ontario: Arcana Editions, 1986, p. 215.

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