
Composing with the Soundscape of Jones Street*

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This article traces the audio production and soundscape composition for a multimedia work for any solo instrument, colour video, and digital sound. There is an account of earlier soundscape recordings of the Brooklyn Bridge. A description of the visual images of Jones Street is followed by a portrayal of the street life and consequent soundscape. There is a report on stereo recording techniques, the sounds that were gathered, and the sounds that were selected as source material. A discussion of philosophical and aesthetic considerations precedes a detailed explanation of the digital processing and composing methods.

1. INTRODUCTION

Hang Time on Jones Street is a work for any solo instrument, colour video, and digital sound. The video is an image-processed study of architectural details on a one-block residential street in the Greenwich Village district of Manhattan. Joyce Weidenaar and I recorded all of the camera-original video and DAT-original audio footage on this site. Then I created the processed video and audio and composed a live-performance instrumental part. The audio portion of the work and its production are described.

2. SOUNDSCAPES OF MOTOR TRAFFIC

Are there infinite riches in the sounds of the street? Hardly. It takes some tenacious mining to wrest anything out of them. Record an urban streetscape without motor traffic and most of what you take away is inchoate rumble. And if the street is busy with cars and trucks, the sharp snarl of close traffic and the dull roar of distant traffic are hardly interesting material.

Astonishingly, motor traffic in the right place and from the right perspective can generate a sound with marvellous inner life and complexity. In the early 1980s I recorded the sound of the Brooklyn Bridge, one hundred feet below the span, at the corner of New Dock and Water Streets in Brooklyn. I used a Nagra IV-SL and a pair of Wahrenbrock PZM microphones fifty feet apart, placed directly on the street pavement. It was after midnight and traffic in the street was not a factor. Traffic

on the bridge overhead was very much a factor, where late-night eighteen-wheelers hurtled like runaway trains across the span.

My microphones were situated directly below the edge of the bridge, which resolved and projected the whirring sound of the truck traffic more clearly than any other listening location. The soundscape metamorphosed wonderfully into the dense drone of a gigantic beehive. The long distance between the microphones was right for the enormous scale of the bridge. This material became the sonic basis for *Love of Line, of Light and Shadow: The Brooklyn Bridge*¹ (1982), for clarinet, video, and electronic sound. With the help of a Fairlight CMI and Brenda I. Hutchinson at the Harvestworks Public Access Synthesizer Studio in New York, the bridge sounds were looped, pitched, and played on a keyboard, as part of the creation of the electronic accompaniment.

That was then, and easy. A plain street is hard.

3. THE STREETScape

Jones Street runs from Bleecker Street to West 4th Street and is located between Sixth and Seventh Avenues. It is a few blocks west of New York University and two short blocks east of Sheridan Square. Most of the buildings on the street are five stories high; they predate the depression, hence there is a profusion of traditional New York ironwork. Formerly a commercial and manufacturing street, today it is almost completely residential. Several older buildings date from the early nineteenth century, federal-style town houses converted into apartments. There are also some late nineteenth-century railroad-style tenements (four rooms laid end-to-end) and a modern building that replaced several old buildings lost in a suspicious fire in the 1970s. Changes continue. The building housing the bar at the corner of West 4th was recently demolished and is now a construction site.

4. GATHERING VIDEO FOOTAGE

For twenty-one years this street was home. I moved into a railroad apartment at 5 Jones Street in August 1978

*The author would like to thank Judy Klein for her help with this article.

¹Magnetic Music Publishing Co. (ASCAP), <http://magneticmusic.ws>

and moved out on 17 July 1999. On moving-out day, the workmen expressed profound dissatisfaction at the inaccuracy of the written description of the job, which their own company estimator had prepared. Fearful that they might misdirect their wrath toward my possessions, I asked my new wife, the strangely beautiful Joyce Weidenaar, to take a camcorder and record some of the work where the movers were loading their truck.

There was no cause for alarm; the workmen were treating my possessions quite well. Joyce reassigned herself to the more inviting task of taping nearby iron railings, fire escapes, metal shutters, and other features of buildings. That evening we looked at the footage and decided that its strong graphic qualities might be well worthy of a piece, for which we would record video and audio together.

We returned to Jones Street on 7 August and 6 September 1999, methodically gathering handheld and tripod shots of graphic architectural features of every building on the street. We recorded over 150 shots, totalling 105 minutes of footage.

5. ASSESSING THE VIDEO FOOTAGE

Several months later I had gained enough distance from the footage to be able to approach it with a fresh yet jaundiced eye, and select acceptable segments for transfer to the computer. Gazing at the video screen, I become its audience.

What do we see? Structures, reflections in windows, keystones with faces, carvings on buildings (new, worn, damaged and retouched), aged and weathered masonry and wood, doorways with crazed, crackled paint, strikingly fatigued, and ironwork both ornamental and structural (railings, fences, spikes and fire escapes).

What do we understand about this? What do we sense? What are we aware of? We feel the enigma of humble existence: a respect for the qualities of pavement, fallen leaves, bricks, iron – a spiritual connection with them – at their most basic, fundamental level. We undertake a gentle and detailed exploration of the familiar. The multi-layered visual landscape of the street and its buildings illuminates the subtle beauty of everyday life. We are standing before a place of memory, loss and past identity.

There is a mystery to these layers as images. Nothing there is not commonplace, but with chosen framings and angles, we discover new views of locations and places. Sometimes there is inscrutability and the unexpected. Perhaps so inscrutable, we are powerless to decode it. It is a metaphor for the exploration of the soul, its many rooms; some elaborate, some simple, rooms we only dimly knew were there. Seeing them through video darkly is a ritual of stillness and repose, a sanctuary of light and shadow, an obsessive elegy all the more interesting for the sometimes disorderly rasp we may hear there.

As our eyes range the images of the streetscape, now and again they pause, a breath between phrases, a momentary stop of the pendulum. The eyes hover at one place, wait, then at another. Hang Time on Jones Street.

6. THE SOUNDSCAPE

Jones Street is quieter than most Manhattan streets, which is to say, not very quiet. The soundscape is active and full of life. There is a great deal of pedestrian traffic in this area where few people drive and shops are nearby. There are always sounds of young people walking together, talking, laughing, exclaiming. They seem happy to be together and overjoyed to be in Greenwich Village. Their animated, sometimes raucous conversation, punctuated by the clanks of many iron gates in front of apartment buildings, form the distinctive sonic sense of place of Jones Street.

In the evenings and especially on the weekends the activity intensifies. When the weather is nice, the two adjacent streets, Bleecker and West 4th, lure swarms of the 'bridge-and-tunnel crowd:' blue-collar teens and twenty-somethings from New Jersey visiting the Village for a night of carousing and light rampaging. These two streets, and neighbouring Sixth Avenue, are larded with all sorts of appropriate attractions for the youthful visitors: bars, boutiques, CD and record shops, souvenir shops, cigar and tobacco shops, head shops, porno and sex toy shops, leather shops, tattoo parlours, lingerie dealers, body-piercing artisans, handcuff and whip outlets, and the more usual array of delis (each with 800 brands of beer), restaurants and coffee shops. Every Monday morning, local residents find generous remnants of these youthful tourists' exuberance and high spirits, when the sidewalks are covered with fresh broken glass and splattered with vomit. Much must be envied of the young.

Some of this activity spills over to Jones Street, which has few attractions save for two record stores. The proprietor of one told me that his most profitable sales occur after midnight Saturday, when customers wander in under the influence and make impulse purchases of records and CDs, often nostalgia or 'collector's items' with dubiously extravagant mark-ups.

I selected the relative calm of a weekend midday to record the soundscape of life along the street. Having lived there with two front windows that opened onto the street, I knew well that this was when pedestrian street life peaked and motor traffic intruded only occasionally.

7. THE SOUNDS AND APPROACHES TO GATHERING THEM

Just like the camera, the tape recorder never lies. But it tells only the truth permitted to it. By selecting the right equipment and location, some truths can be enhanced and others evaded.

Joyce and I set up a rig consisting of a Tascam DA-P1 DAT recorder with several pairs of microphones. We taped on a sunny summer Sunday, 24 June 2001. It was rather quiet. A Gay Pride Day parade nearby had drawn onlookers and participants from the street. Not long afterward, residents straggled back and street life became more active.

The plan that seemed most appealing as a first exploration was to suspend the microphones in two sewer openings at the corner of Jones and Bleecker Streets. Bad idea. I was hoping against all civil-engineering logic that there might be some stereophonically complex or resonant acoustic link between them, each located about eight feet from the corner. First, they had to be uncovered. The gastronomic guerrillas working at the restaurant across the sidewalk had tackled a quality-of-life issue for patrons seated at their outdoor sidewalk café by covering the sewer grates with old rugs. We removed the rugs and hung our most disposable omni dynamic mics, Electro-Voice 635As, about two feet below the grates. It would have been nice to use the Neumanns, but the newly uncovered sewer openings were releasing clouds of mighty rank and warm moisture. We started recording quickly, trying to get something on tape before the mics shorted out, corroded or drowned. Naturally what we recorded more than anything else was the conversation of curious onlookers. This was accompanied by the predictable traffic as cars drove along Bleecker Street, along with the clunks of some loose steel plates and manhole covers in the pavement. Over headphones, I heard no discernable stereo link between the two sewer openings, and not much of sonic interest. We retrieved our equipment and re-carpeted the sewers.

Next we put the mics under two parked cars, about twenty feet apart. The idea was to catch some resonance from the underbodies of the cars, and to obtain enough separation between the mics to create good stereophonic resolution. When sound objects are distant, or are large and move quickly, a close stereo pair yields a mostly mono signal. In this short street, cars drive slowly, generally about 15–20 mph. We recorded a genuine sonic streetscape – background ambience of the city, foreground sounds of car doors opening and closing, iron gate latches, bicycles riding past, and incessant birds.

Then we replaced the dynamic mics with two Neumann KM83 omni condenser mics under the parked cars. With their flat, extended low range and greater susceptibility to air movement and vibration, the soundtrack was more rumbly, but undeniably more realistic and crisper at the high end. Car burglar alarms went off, car doors slammed. Small groups of young people were walking through the vicinity. Here were the lively conversations so typical of Jones Street, soft and loud, even a whooping laugh that sounded like a cross between sol-fège and a scream.

Next we tried adding windscreens to the condensers

under the cars, which attenuated the high end and only made the rumble worse. As we were recording, a van drove by that was one single enormous rolling speaker, a deafening shockwave that briefly melted down all other sounds and sensations as if it were a sonic neutron bomb. A classic babe magnet. By the time I got my hands on the DAT pots to ride gain, it was too late – the immediate drive-by audio was clipped and fried to a frazzle. Listening later, the distant approach of the van did contribute one of the more evocative sounds of the project, a serendipitous found object. It happens as the van's stereo system becomes audible over the natural rumble of the street, just when there is a remote, vague establishment of the music. Thus the street served as a transfer mechanism to deliver to the listener a disoriented sound originating in some British recording studio and put into movement on wheels. The blend of hazy street ambience and a distant boyband is, if not exactly haunting, somewhat arresting and a little weird.

To conclude our recording project, we took the mics out from under the cars but kept the windscreens on, as there was some breeze, and put them right on the street pavement, about three feet from the curb. This set-up was a good way to ameliorate some of the rumble. Distant sounds of human activities – walking, playing radios – were more apparent. Now and then a dog barked. There were some penetrating clanks of iron gates. And lastly, down the sidewalk sauntered a few typically untypical denizens of the street: theatrically raffish refugees from the Gay Pride Day parade, one hailing another in a voice that would freeze-dry the hair of Ethel Merman, 'Excuse me! Excuse me! Where'd ya get that bod?'

8. PHILOSOPHICAL AND AESTHETIC ASPECTS

8.1. Transforming captured moments that reflect place

Video and audio recordings are captured moments, historical documents that reflect reality, environment and place. Good ones convey the essence and depth of the site. In the case of images, these recordings may also indicate that time past can be repeated. The picture's representation of physical corporeality tells us, as a photograph of a stationary and enduring structure, this has been and this will be. But the loudspeaker's flow of waves tells us only, this has been (though does a remnant still travel, lost in space, along the ambient void?).

I use video material for a re-expression, a bending or extraction, that takes it somewhere else, sometimes very far, and establishes an arresting intricacy or dichotomy, while maintaining grounding to its source. The final processed images are more or less abstracted to the point of usually – not always – being still recognisable. This identifiability is a parallel, or perhaps a tribute, to the structure's continued physical existence.

When I compose with soundscape material, I select and extract elements from it and shape expressive compressions and expansions of these elements. From these I sculpt a new sonic entity that refers to its originating sonic environment. This new entity is, in the words of composer Hildegard Westerkamp, an ‘artistic, sonic transmission of meanings about place, time, environment, and listening perception’.²

My use of sound material for re-expression is different in degree compared to video. Sound invites me to transform it much more flexibly and broadly. It is more minutely editable, more suitable for layering, and permits changes that are more extensive. And I take these freedoms with sound, with the result that the listener may often be unable to identify it as having come from a particular soundscape. Has it then lost its reflection of place? Absolutely not, because its clear sense of place led to artistic liberties being taken to capture its very essence. It was transformed. Art re-presents it in an altered form. The sound as a whole is rich with identifiers grounded in its site of origin.

8.2. Gesture

The sounds I work with are gestural, which means first that they have a beginning and an end. Then, that they are characterised by an almost innate intelligence, a sensibility. They say something with a voice, like people. They carry light and shadow. They have a power, they communicate. The composer has to hear the meanings, know the emotional meanings of the sounds, understand whether they utter messages to the listener.

These sounds stir the subjective memory. And the essence of my work as a soundscape composer is to relate transformation of the recorded sound to the shadows of subjective memory. And this memory may be of the place, the origin, the scene, but it also may sometimes range elsewhere. There can be no limitation here.

As the sounds undergo gestural transformation, my focus is the emotional meaning of the sound, not operations on parameters. To know this is to make sense of what we hear.

And what I might do with such a sound is suppress parts of it and magnify other elements at the same time. Information that is removed results in suppression: cutting out pitches, bands of frequencies, slices of time, ranges of loudness or emphasising certain frequencies at the expense of others. Similarly, other material in the sound is duplicated or slowed in some way to effect magnification: stretching time, slowing or repeating events, adding doubled or halved pitches, exaggerating dynamics. By applying both operations simultaneously,

I can strip away some of the realities of the sound and sharpen other realities – the gestures I want to bring out. The sound becomes posterised (loss of resolution), a strong graphic representation, yet has certain of its most important or interesting subtleties and atmosphere opened up, spun out or repeated (increased resolution). All this is overshadowed by subjective memory.

Photographs or video images of the real world have a parallel character. All of us are captivated by media representations of scenes we would never look at twice in real life. The graphic emphasis of certain lines or shapes that are limned by stripping away unimportant detail, the highlighting of content that provides a previously unnoticed angle or perspective, is a creation that turns the common into something uncommon.

The sound is still rooted in its time and environment. But it has been reshaped and sculpted, taken away from reality, into a meditation in continuous contact with its origin. Certain of its formative, gestural or emotional elements having been strengthened, the listener is given an expanded reimagination of the locale and its culture.

8.3. Message sequencing

After characterising the ‘messages’ that inhere in the soundfiles, understanding them, I can work out some sort of organisation. This is building a coherent stream of experience out of the melding of movement, actions, life. The emotional meaning, the aesthetic impact of each message, each phrase, have to be understood and characterised. These may be combined as if to form a journey, a path through associative and hierarchical time. The impact, more or less, of each fleeting moment is held in the perceiver’s memory. From moment to moment, there are responses that eventually build up in the perceiver’s memory to some kind of structure, a virtual place that the perceiver inhabits, built of reactions to sights and sounds that flow through perceptual faculties to evoke memories of emotional experiences, places, transitions, personal associations, cultural baggage. The creation of a new place, a site of architecture and life, from recordings of a street of apartment buildings. It has everything to do with Jones Street but also everything to do with the apparatus of the perceiver.

9. SELECTING AND ISOLATING SOUNDS

‘Interesting’ would be an excessively sunny characterisation of the best sounds of the day. They all had loud background noise and at first none save the neutron van seemed to have much intrinsic liveliness and complexity. Nevertheless, for better or for worse, they were the actual sounds of Jones Street and some would be the material, but only raw material, for this piece.

I proceeded to select segments that reflected a sense of the street and might have potential for transformation and development, putting the sounds into ProTools. I

²Hildegard Westerkamp, Soundscape composition: linking inner and outer worlds, <http://www.omroep.nl/nps/radio/supplement/99/soundscapes/westerkamp.html#lecture>

extracted some twenty-five short soundfiles (from half a second to 15 seconds). Because of the high level of rumble I rolled off more or less bass for the sounds: women's and men's conversations with a woman's squeal (up a perfect fourth), gate clanks, the neutron van, a man's laugh, dog barks, rumble with birds, a car driving by, a car alarm, and 'Excuse me!'

In production, I employed most often the first of these sounds, a 3.5-second recording, or parts of it. This short soundfile began with a gate clank, followed by young women's conversation (very expressive with pronounced voice modulation), followed by the perfect-fourth squeal, this last accompanied by a background of young men's conversation drifting downward in pitch. Wedged into a scant few seconds was a rich, exuberant, authentic expression, so typical of Jones Street. It had a depth of multiple pitches and rhythms. There were percussion, happiness, intensity. I used the whole of it and some short files edited therefrom. This soundfile, plus that of a gate clank three-quarters of a second long, plus that of the approaching van playing the boyband, lasting 7.5 seconds, constitute the entire source material for the 10-minute piece: a total of nearly 12 seconds. By comparison the other sounds became ordinary and pedestrian. The 'excuse me' was a hilarious exception, but its specificity and intensity overwhelmed all the other material and it had to go.

At the end of *Hang Time on Jones Street*, during the credits, the original sound segments are played back on the soundtrack, the short ones repeated several times, with a text explanation to the viewer that these are the sources for the entire preceding nine minutes of audio.

10. PROCESSING SOUND AND COMPOSING, FIRST STAGE

10.1. Use of sampling software

Early soundscape composers and their predecessors in *musique concrète* recorded sounds onto magnetic tape, which has been supplanted by recording software such as ProTools. The comparative ease of production today can lull the composer into overly relying on its model of cut-and-paste linear chopping, which poses limitations in working with musical forms of expression. Building flowing gestures and musical contours across regions sometimes requires a certain tenacity in the ProTools environment.

I decided to begin the process of converting location samples into musically progressive processed sounds by performing on a keyboard controlling a sampler. Even though that meant giving up the idealised control over all parameters characteristic of code-based general-purpose instrumental musical software – Csound and SuperCollider – I could sculpt the sound expressively in real time and productivity was rapid. A keyboard and the panel controls of software modules provided means

of expressive control or emphasis, with flexibility of length and intensity. And the sound retained its liveliness and richness.

The software package Reaktor 2.3.3 includes a sampling application called Transformator that contains various sample processing modules. Some are optimised for various uses (percussive samples, imitating acoustic instruments, etc.) and some include resynthesis functions.

I worked with more than fifty sample processors that could handle stereo samples, all those that came with Reaktor and a number that had been designed by users and posted to the Native Instruments Web site. Many were intelligently crafted and produced interesting results. In the end there turned out to be but two that worked for this project, 'Plasma.ens' and 'Kompressor.ens.'

Plasma.ens had a good selection of musically useful controls: pitch randomisation, resynthesis frequency (grain length), smoothing, resynthesis randomisation, sample position control, and sample position randomisation. There were also standard features: a bandpass filter, stereo distribution, and diffusion (reverb). Plasma.ens enabled me to stretch a sample without changing pitch, to freeze it in time at any point, to adjust panel controls for a very slow random playback of a chopped-up sample, to set the position pointer in the middle and get only part of a soundfile, and to build unison voices controlled by a series of random modulations to increase subjective density of sound.

Kompressor.ens was a multi-sample re-synthesizer with control over pitch, sample selection, and speed of sample traversal. Although it was designed for percussive sounds, it produced many interesting results from long, non-percussive soundfiles. It was only necessary that the soundfile end in a decay. The period (grain length) of resynthesis could be set – shorter values gave smoother, less realistic sound. Sample playback position could be randomised so that it no longer came out as just sounding like a stretched sample. This could also be used to eliminate tonal or digital repetition artifacts (grain distortion). Add too much and it would put hash and fuzz into the sound. There were 'time warp' controls to define the readout speeds of the sample during a note hold and after it was released, up to the point of freezing the sound. The curve of the sample readout could be set – a faster readout at the beginning or the end of a sample. There was no need for an amplitude envelope, as the length of the sound was defined by real-time shortening or stretching of the grain length. Quite a menu.

With the time-warp controls, I stretched the sound of an iron gate shutting into multiple slowing, speeding, slowing motoric sounds, sometimes chugging, sometimes changing in pitch, sometimes with distinctive new emphases in timbre. I also used the gate sounds for percussive, rhythmic figures. And I drew out the sample of

a clacking sound followed by human conversation into the most amazing sequence of vocalisation, choralisation, and voice sighing, concluding in a sound reminiscent of that hoariest of *musique-concrète* chestnuts, an oil-starved door creak. A further result was a stretched series of soft screams, followed by pitch bends as conversation went on, morphing into a long ‘ahhh’. Later I morphed this same soundfile into a very different extended sequence of a whoosh-up in pitch, a classic amplitude-modulation sound, a guiro, another damned groaning door, an ‘ahhh’ voice, an ‘oohh’ chorus, some high chatter with a bit of flanging, ending in a half-second of digital noise (edited out).

Using these techniques, I created Part A of *Hang Time*, which has seven sections and contains about 2 minutes and 36 seconds of material. Nearly all of the sounds were made in Reaktor (I used SoundHack 0.890b15 to produce a few sounds near the end of Part A).

10.2. Technical problems and challenges

Reaktor had, despite the vaunted dependability and replicability of digital production, a certain occasional retro flakeyness reminiscent of early analogue synths. Far from a liability, this unpredictability added some edge to work sessions and provided new resources. Sounds would hang in unpredictable ways, and once in a while, Reaktor would weirdly layer some earlier sound from yesterday’s setting onto the current sound. Perhaps this was artfully programmed into the software to please greybeard electroacoustic composers nostalgic for their Moogs and ARPs.

Working with a particular sample, it was important to test different grain period settings. A short period resulted in smoother, less realistic sound. Often there would be a pronounced resonance with the frequency material in the sample at one particular grain length. Lowpass or bandpass filter resonances could be added to enhance this resonance or layer additional ones onto the sound, with filter decays sometimes creating great rushes of movement.

11. PROCESSING SOUND AND COMPOSING, SECOND STAGE

I created parts B and C entirely with SoundHack, a widely used and admired software package by Tom Erbe with extensive documentation. Without discussing its principles completely, I can provide some comments about how it was used in this piece. I selected about twenty-five sounds from Part A for further processing and combining. Some were individual files and others were short mixes of up to three or four tracks (there were seven stereo audio tracks in the ProTools mix). The first six sections of Part B are reworkings of the corresponding sections in Part A.

11.1. Convolution

In the DSP world, convolution is a well-known process of combining two sounds. Their FFT-analysed spectra are multiplied and the product is resynthesised. Common frequencies are reinforced while unlike frequencies are attenuated. The practical effect is that one sound is used to filter another sound. And since an acoustic space can be considered a filter, a short soundfile – called the impulse response file – recorded in a particular space (this works best if it has noise content and thus is active in the entire audible frequency range; gunshots are good) imparts the acoustic reflection characteristics (the reverb) of that space to another, usually longer soundfile. If broadband noise is not present, the result is a kind of hybrid or cross-synthesis that takes on the characteristics of both sounds.

I found that convolution could sometimes impart huge volume swells. It could also easily make a long resonant wash. With practice I learned to control more or less of certain elements, including crisp articulation of short or rhythmic figures, clarity of the original material, smoothness, reverberation and pumping. Sometimes the results were exciting – a motor solfègeing, a boyband burbling underwater, a warped conversation raining steel pellets, a squeal chugging, a rattle haunted by voices, band boys stuttering, squealing soft screams with cymbals, and conversation fluttering like a scraping leaf. A file could even be convolved with a copy of itself, which created an ethereal, rushed or expressive quality.

One endeavour that did not pan out was convolving files with impulse response files created from head-related transfer function files downloaded from MIT.³ These files represent the impulse response of the human outer and inner ears. They are made by playing a sound through headphones and recording with microphones located in the ears of a dummy head. Used properly, which I did not, they can be used to build a 3D audio system. A few had an unusual hollow quality and were incorporated into the piece, but most sounded harsh, tinny or peaky.

11.2. Spectral mutation

A different way to combine two files, this produced a timbral crossfade between them. The program worked by assigning some combination of the phase and amplitude of each frequency band of the two files to the output file.

Not as tightly organic as convolution, spectral mutation produced sounds usually unshaped but nevertheless occasionally with unpredictable and pronounced character. A motoric sound mutated with a squeal acquired, inexplicably, a series of slow chugs. A stretched-out

³Bill Gardner and Keith Martin, Frequently asked questions about KEMAR HRTF data, 27 January 1997, <http://sound.media.mit.edu/KEMAR/KEMAR-FAQ.txt>

conversation mutated with the boyband morphed into an interesting sequence of gentle textures without much connection to either soundfile. An iron-gate rhythmic file mutated with squeals became brushes on a cymbal.

11.3. Phase vocoder

Used in SoundHack for pitch or duration change, the result was often not overly faithful to the original sound quality (but more so than time compression–expansion in ProTools); nevertheless, it could be interesting. A stretch of time slightly longer than double could turn into a metallic wash of strange harmonies and off-beat notes. A valuable feature was resynthesis gating, whereby a few prominent spectra only were resynthesised, creating a very pure whistly or organ-like sound often with much ebb and flow of volume. Sometimes the technique elicited fascinating, ethereal blue notes. Another time it yielded a phrase of euphoniously drifting major thirds.

11.4. Spectral dynamics

The gate-duck feature of this hack required files with extreme ranges of dynamics, and extreme settings, to provide good results. The ability to operate on selected frequency ranges permitted unusual timbres to emerge. Little sub-tone rattles (sometimes reminiscent of pigeons or horn-like chickens) and soft decays could be brought to the forefront.

11.5. Voicing and orchestration

I found it musically interesting to hack a soundfile in several different ways and align the several files, sometimes along with the original, in close or exact sync in ProTools. Here I was in control of an orchestral section with individual voices that could be varied in volume, allowing for great life in the balancing and gestural progression of the sound.

12. SONIC CHARACTERISTICS AND FORMAL ORGANISATION

Notwithstanding the wealth of source material and processing possibilities, only five resulting sonic characteristics were sufficiently useful musically to include in the piece. These are the dynamic forces of the work. The listener participates in the conflict of these events.

- Motoric sounds (from the iron gate).
- Rhythmic percussive figures (from the iron gate).
- Rapid vocalisations (from the male and female conversation).
- Slow vocalisations (from the high-pitched female voice squeal).
- Airy, diffuse vocal music (from the boyband).

These are all the sounds of *Hang Time* and they are introduced during the first twenty-five seconds of the piece.

The architecture of the piece, with an indication of the dominant content of each section, is:

Part A

- 0:00 Section 1 (:25) Introducing all sonic elements.
- 0:25 Section 2 (:17) Stretching out the squeal, fast rhythms.
- 0:41 Section 3 (:21) Twisting the boyband, squeal, and motor sounds.
- 1:02 Section 4 (:09) Strong short rhythms.
- 1:11 Section 5 (:23) Long complex stretching of conversations with motoric background.
- 1:34 Section 6 (:14) Thick boyband, slowed motors and squeals.
- 1:48 Section 7 (47) Long stretching and twisting of squeals and conversations with grainy texture.

Part B

- 2:37 Section 8 (:27) Rework Section 1; thicker orchestration, more animated sounds with complex intermodulations.
- 3:04 Section 9 (:18) Rework Section 2; higher pitches, subtle variations in soft fast rhythms.
- 3:23 Section 10: (:34) Rework Section 3; complex fast-varying conversations and vocalisations, repeat twisted boyband.
- 3:57 Section 11: (:40) Rework Section 4; multiple short rhythms of vocalisations and motors, pitched slowed vocalised motors.
- 4:37 Section 12: (:24) Rework Section 5; sudden volume changes, somewhat chaotic quality.
- 5:01 Section 13: (:39) Rework Section 6; boyband with blue notes, pumping and chugging sounds, strongly rhythmic phrases, some isolated.

Part C

- 5:41 Section 14: (:50) Wobbly burbles and washes, blue notes, and soft metallic brushes.
- 6:32 Section 15: (:35) Short spurts of rhythms and metal brushes, rhythms interspersed with vocalisations, percussive, increased tension.
- 7:07 Section 16: (1:50) Weightless vocalisations, soft racing motors and brushes, long suspended gender-bending vocalisations, placid bouncing slabs of wuffy burbles and rattles, and a grand very fast scream.
- 8:57 End.

13. CONCLUSION

I began this soundscape composition after I had completed some five minutes of video footage. The latter was not a fine cut, but sixteen separate sequences of processed images. At that point I felt I had developed the visual look for the piece and was ready to compose

the music with this unseen but in mind. I neither produced nor screened any visuals while creating the music. I knew the quality, the presence, the sensibility of the visuals, and this awareness was enough to create the music that would support them or that they would support. In addition, during this process I sketched out an optional live-performance part for any instrument (not included in the CD which will appear with *Organised Sound* vol. 7 no. 3, so as to present here only the soundscape portion of the work). The completed work exists

in two versions – soundscape and concert performance – with slightly different video, as the solo part changes the character of the music sometimes considerably, and with this the relationship of the music to the picture. In two sections, about fifteen seconds in the middle and thirty-five seconds near the end, I altered the video to make it work better with the music. There were minor changes in content and drastic changes in colour and brightness. *Hang Time on Jones Street* is thus two parallel versions of images and sounds that portray one place.