LIQUID STUDY 1

for string quartet and electronic sound

dedicated to Roger Reynolds

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2015

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CELLO
TIMBRE TECHNIQUES

SP – *sul ponticello* 
MSP – *molto sul ponticello* 
CL Bat – *col legno battuto*

ST – *sul tasto* 
MST – *molto sul tasto*

Each of these techniques applies only to the event over which they are written, unless extended by a horizontal bracket or additional text specifies how long they last.

REGULAR STAFF NOTEHEADS

1.) Mute strings with left hand resulting in an unpitched sound. Multiple fingers on the left hand should be in contact with each string at a different location, ensuring that the strings are deadened and will not produce pitches. Harmonic pressure should be used to avoid generating a fundamental pitch. Register indicates L.H. position - higher notes correspond to higher positions on the fingerboard.

2.) Scratch tone – high pressure and a slow bow speed. Use left-hand muting to avoid open string resonances.

3.) Scratch tone behind the bridge and on the string binding. Use left-hand muting to avoid open string resonances.

PERCUSSIVE STAFF NOTEHEADS

1.) A strike of the upper bout of the instrument using the flesh of the fingers. When indicated use the knuckles.

2.) Slap the strings against fingerboard with the R.H., muting with the L.H. to prevent open string resonances.

3.) Strike on the c-bout of the instrument using a single finger.

4.) A pizzicato on the bridge of the instrument. The resulting effect will be soft and all dynamic indications are written in quotes to prescribe effort. “pizz” will always accompany this technique.

5.) A strike on the chinrest of the instrument with single flat finger. For cello, the tailpiece should be used instead.
6.) A resonant percussive tap on the body. By default using the flesh of the fingers or, if indicated, use the knuckles. The addition of a staccato marking indicates to keep the fingers in contact with the instrument to slightly dampen the resonance.

**INTERPOLATE RHYTHM**

This indication modifies the performance of written rhythms in a given passage such that the changing speed of attacks is “blurred”. To the left is shown an example. Underneath the symbolic notation are two rows of dots corresponding to individual note attacks. The first line of dots shows the normal performed rhythm. The second row of dots shows the desired result of the “interpolate rhythm” instruction. Such modifications essentially ensure that, rather than abrupt changes in speed, the rate of successive notes is continually modified to achieve a fluid, continuous rhythm.

**GLISSANDI**

Long glissandi are always notated such that stems are shown to indicate the location of each beat in each bar. These stems *do not* indicate bow changes or accent patterns, but are present only to elucidate rhythm.

Furthermore, glissandi notated with a dotted line indicate that the rate of pitch change is coupled to the changing amplitude of the note. Thus, louder dynamics result in a faster glissando speed while softer dynamics indicate a slower glissando. As dynamics change, the speed of glissando should change in tandem. Consider the following examples that illustrate this coupling:

1. A static amplitude yields an even glissando, equivalent to an ordinary glissando.

2. However, a change in dynamic affects the slope of the glissando. In this case, the dynamic increase from p to mf creates a steeper pitch change towards the end of the note.

3. The slope of the change in dynamic affects the slope of the glissando. Here, the exponential hairpin creates a more sudden pitch change when compared to 2.

4. The intensity of dynamic change also affects the intensity of the glissando speed. A change from p – mp only creates a slight change in glissando slope...

5. …while a change from p to mf yields a more dramatic slope in pitch change when compared to 4.

6. Any change in amplitude, however notated, affects glissando speed. Shown here, an accent.
Liquid Study I
Off the string jeté-like iterations. Each staccato note is an individual bounce.
Off the string jeté-like iterations. Each staccato note is an individual bounce.
pizz.

SP until m. 101

Interp. rhythm

mfmp

m. 101

pitchless

Off the string jeté-like iterations. Each staccato note is an individual bounce.
farco IV
interpolate rhythm
and SP until m. 106

mf
p
mp
p
on binding

Try to minimize the timbral difference between arco jeté and pizz in m. 166, forming a single continuous gesture. Staccato pizz notes are to be muted. Achieve maximal timbral difference between pizz, muted pizz, nail pizz and Bartok pizz.
Continuous glissandi. Successive notes do not indicate bow changes. Accents done without changing the bow. Minimise the audibility of bow changes to create an uninterrupted, unified stream of sound.
leaving the string. These pulsations should become less and less loud towards the end of the passage.

"on the string" jeté, creating amplitude inflections with bow pressure patterns similar to jeté, but never

Over the course of this passage (until m. 249) gradually change from an off the string jete bounce to an

III

sempre

interpolate rhythm
Each percussive event until m. 305 is coupled to the termination of a glissando by vln1, vln2, or vla. Instrument names are shown in italics.