Marbles
for the Crash Ensemble

Dan Trueman
2014
Instrumentation
Piccolo
Bass Clarinet
Trombone
Percussion (list below)
Piano
Prepared Digital Piano (information below)
Violin
Viola
Cello
Double Bass

Percussion List
Glockenspiel
Xylophone
Brake Drum
Concert Bass Drum
The Prepared Digital Piano

This instrument requires a standard 88-key MIDI keyboard controller (with sustain pedal) and custom software, running on an Apple Macbook or similar OSX computer. While the built-in sound on the computer can be used, a dedicated USB or Firewire/Thunderbolt audio interface is preferable, simply because the sound is better. Finally, a keyboard speaker (the Roland KC-350, for example) should be placed near the player, and that should suffice for the sound; a PA system should be used only if the entire ensemble is also being amplified. The instrument should blend with the acoustic instruments as naturally as possible.

Here’s the step-by-step, after having downloaded the “Nostalgic Synchronic Piano” software:

1. plug the MIDI keyboard into the computer (probably via USB).
2. plug in the audio interface, if you are using one in place of the built-in sound.
3. in the System Preferences:Sound panel, set the Output to your audio interface (or the built-in sound, if that’s what you are using).
4. NOTE: it is important that steps 1–3 happen before step 5...
5. double click on the Nostalgic Synchronic Piano. two windows should open:

6. it may take a minute or two for the application to finish loading all the samples, so wait until you see the “done loading Piano samples: READY” message in the white window. Also, sometimes it’s just not happy the first time it opens, in which case you should quit both windows and reopen.

7. choose “read” from small menu in the “presets” part of the main application (see ‘7’ in the image below) and open the “NSP.json” file
that is included with the application. (this menu may say “default” when you first open the application; just click on it and choose “read” from the menu)

8. select preset “4 Etude4-Marbles-1” in the main preset window (see ‘8’ in the image below; in place of “25 Palimpsest1,” which is for a different piece, it should read “4 Etude4-Marbles-1” to start this piece) to set the opening preset for the piece (this one may say “25 Blank” or some such when first opening).

9. play!

When playing the piece from beginning to end, the presets will change automatically, based on the notes played. During rehearsal, you will need to manually choose the appropriate preset depending on where in the piece you are starting; preset changes are indicated in the part and score, so you should be able to figure out what preset is needed for any particular part of the piece. In the score, the presets are marked P1, P2, etc..., with p1 => Etude4-Marbles-1; p1C => Etude4-Marbles-1C; p2 => Etude4-Marbles-2; p2C => Etude4-Marbles-2C.

Note that when quitting this application you have to quit BOTH windows; these are actually two separate applications that are talking to one another.

This part is quite virtuosic, and requires substantial piano skills, more than with the conventional piano part for this piece.

Questions/problems? email me: dantruemanmusic@gmail.com
A Note about the Microtones

_Marbles_ uses overtone-inspired tuning oscillating between two fundamentals, C and Db. This results in roughly two primary types of microtones, approximated by quarter-tones and sixth tones, though other more subtle microtones (like those resulting from just 3rds and 6ths are also present, if not always indicated). These microtones are articulated by the prepared digital piano part, and so it should always be possible to get a precise reference for any particular microtone from the piano, though some thinking may be required to determine which fundamental is at work at any particular moment in the piece (more on this in a moment). That said, I expect the tuning in practice to more variable, and I recognize that there is a range of tolerances for these sorts of tunings, so aiming for precision shouldn’t overwhelm the proceedings; a certain amount of crunchiness is expected and desirable.

There are five scale degrees that are primarily affected by this tuning:

- the raised fourth, or tritone, is 49c flat relative to equal temperament (ET), so basically a quarter-tone flat. This is derived from the 11th partial, with ratio 11/8.
- the major-7th is 51c flat relative to ET, with ratio 11/6
- the minor-6th is 41c sharp relative to ET, derived from the 13th partial, with ratio 13/8.
- the minor 7th is 31c flat relative to ET, from the 7th partial 7/4
- the minor 3rd is 33c flat relative to ET, with ratio 7/6

The major thirds and major sixths are just-tuned, so ratios 5/4 and 5/3. These are sometimes indicated, mostly for the information of the players so they know what the prepared digital piano will be doing, but I expect those to mostly be tuned intuitively.

I use a fairly simple notation for these, illustrated here:
Those with 11 indicate a quarter-tone up or down (ratios 11/8 and 11/6, as described above) and those with a 7 indicate a 6th-tone up or down (ratios 7/4 and 7/6, also described above). The 13 is nearly a quarter-tone, but not quite, and it is enough different that I like to give it a slightly different symbol.

So, to belabor a bit…. The E-flat over C-fundamental (7/6) is 6th-tone lower than the ET E-flat, and the B-flat over C-fundamental (7/4) is similarly a 6th-tone lower than ET B-flat, so I indicate both with the flat the 7 below, indicating the flavor/ratio and direction of the microtuning. Similarly the G-natural over D-flat fundamental (11/8) is a quarter-tone lower than ET, as is the major-seventh C-natural (11/6), so both get the natural sign with the flat-11 indication. Finally, the Ab over C-fundamental (13/8) and the A-natural over D-flat fundamental are both nearly a quarter sharp relative to ET, so they get accidentals with the 13 above, to indicate the raised pitch. Sometimes notes are spelled differently depending on the context, but the rationale is the same. Also, I sometimes indicate just 3rds and 6ths with the 5 above or below the accidental, again, just to give the player information about what the digital piano is playing.

In order to practice this with the prepared digital piano, or simply to check the tuning, ask the digital pianist to go to the specific bar in question and set their preset accordingly (this should put the instrument in the appropriate tuning, relative to C or D-flat), and then to play the note in question. So, to tune the E-flat over C-fundamental, the digital pianist makes sure the piano is in C-fundamental tuning and simply plays an E-flat.

I think once everyone is oriented with all this, it should be fairly straightforward. In fact, I suggest that the group warm up by playing a C chromatic scale in unison with the digital piano tuned to C-fundamental (presets p1C or p2C) and then a D-flat scale with the digital piano tuned to D-flat (presets p1 or p2), perhaps isolating the five special scale degrees to really them in the ears/hands/embouchures.
all artificial harmonics, stopped at the fourth
(incidental flats. for left-out some of the touched accidentals)

all artificial harmonics, stopped at the fourth
(to avoid clutter, i've left out some of the touched accidentals)

all artificial harmonics, stopped at the fourth
(to avoid clutter, i've left out some of the touched accidentals)
speed phase to in sync...  slow phase out of phase...  then fast in again...