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# CAVES

*for Piano and SuperCollider*

*(2013)*



## PROGRAM NOTE

Caves present an incredibly interesting space – acoustically, visually, and psychologically. The underground environment is much more affecting than the outdoors, from the smell of the air to the faintest of sounds and even the slightest of sights. They are a rare place in which one can experience a complete lack of certain stimuli while others are amplified. While it's a strange and beautiful sensation, it's also a bit unnerving; hearing the endless reflections of sound within the caverns and the inability to see anything with open eyes and are unlike anything encountered in day-to-day life. In *Caves*, as the performer gets “deeper and deeper” into the piece, he or she becomes more and more aware of and amazed by the surroundings, but not without moments of fear and uncertainty.

*DURATION: ca. 6 minutes*

## SETUP REQUIREMENTS

*Caves* is a piece for piano and live electronics which uses the program *SuperCollider* to generate the electronic part. *SuperCollider* is a programming language for real-time audio synthesis and is available for free on Mac, Windows, and Linux operating systems. Installing and configuring the program to work with this piece is very straightforward; if you're unsure of how to get started, you'll be guided through the process when you double-click the Launch file.

*This piece can be performed with between 2 and 8 speakers.* You can select the number of output channels to use upon opening the patch. Eight is best, of course, but because some venues will not have that many speakers, you are given the option to work with a more limited setup. The speakers should be arranged circularly around the performance space. You will also want a monitor for the performer.

You should also have one or two microphones set up near the piano during the performance. This is simply to blend the piano into the mix via gain and reverb, as well as apply some effects in parts of the piece. Feel free to play with the placement of the microphones as well as the gain and reverb levels to achieve the best result.

The computer that is operating the patch should be on stage during the performance. Throughout the piece, the patch will display the status of the electronic part as well as other relevant information. You will be able to change input and output levels as well as a number of other settings directly from the patch, and you can also save presets to expedite the setup process during a performance.

While you are playing the piece, you'll cue electronic events using a MIDI pedal or a USB pedal configured to trigger the space bar whenever it's pressed. When the pedal is pressed, it sends a signal to *SuperCollider* to cue the next event. There are a number of other ways to navigate the events during rehearsal – be sure to see the Help file in the Troubleshooting menu when you load the patch for a number of useful tricks.

Finally, you'll need an audio interface with one or two inputs (depending on how many microphones are used for the piano) and a number of outputs. If you're using 4 speakers and 2 microphones, for example, you might want 4 outputs designated for the computer and 2 for the performer, which can be blended together at the mixing console. Your audio interface should be able to supply phantom power to the microphones, and balanced XLR connectors are ideal for both the inputs and outputs.

## PERFORMANCE NOTE

From the beginning to Event 5, and from Event 13 to Event 15, the tempo can be flexible. During these sections, the electronic part is mostly arrhythmic, so liberties in tempo will not cause anything to become out-of-sync.

At times, there are crescendos in the electronic part building to a certain measure while there is a ritardando in the acoustic part; when this happens, the *Supercollider* patch will show exactly at what point the electronic part is relative to the arrival point. In these cases, however, the arrival in the electronic part is intentionally blurred, so feel free to take these ritardandos at your own pace.

The spacing between Events 5 and 10 can be relatively flexible, but the tempo is not. Be sure to listen to the computer part at Event 5 for the tempo. Events 10 through 13 are rather inflexible and should be cued by the performer exactly as indicated.

Measures 51, 56, 62, and 68 are moments featuring certain extended techniques in the piano; feel free to improvise around the suggested material, and feel free to use extended techniques not mentioned in the score.

Between Event 13 and Event 14, there is a very long, gradual ritardando; you should slow down at a faster rate earlier on. The rate of change of tempo should become much slower as you get closer to Event 14.

# CAVES

for Piano and SuperCollider

**1** A ghostly ambient texture enters

$\text{♩} = 72$

*ppp* eerie; somewhat freely

*poco rit.* *a tempo* *poco rit.*

*poco* *p* *pp* *sfz* *sfz* *sfz* *p* *sfz* *sfz* *sfz*

*pedal liberally*

*fff subito*

Computer *n* *p*

Adding occasional low rumbles and high glassy sounds



**3**

*poco rit.* Slightly faster,  $\text{♩} = 76$

15 *sfz* *mf* *sfz* *sfz*

*fff subito*

\*8 7 6 5 4 3 2 1 GO!

CPU *n* *f*

More frequent high, glassy sounds; texture building slightly

\*These numbers indicate the countdown the performer will see in the SuperCollider patch.

25 *poco rit.* **4** Slightly faster, ♩ = 80 *f* *sempre cresc.*

4 3 2 1 GO!

||

35 *poco rit.* **5**

8 7 6 5 4 3 2 1

Piano part delayed electronically by a 16th note until event 9

6

46  $\text{♩} = 120$

*somewhat freely*

46  $\text{♩} = 120$

*f* *cresc.* *ff* *ffff*

GO!

*ffff* *Red.*

7

*in tempo*

8

53 *somewhat freely* *f* *ff* *ffff*

*freely*

[improvise freely]

57.1 57.2 BAM!

To Pno.

4 3 2 1

*p*

*in tempo* *poco rit.*

62 *f* *mp* *pluck the upper strings (ad lib.)*

*Led.* *mp* *p*

4 3 2 1

randomized rhythm

CPU

70 *piu p* *p* *mp* *pluck the upper strings (ad lib.)*

*Led.* *mp* *p* *f*

Building to... ...nothing

randomized rhythm

CPU

79 *fff wild!* 6 6 6 6 6 6 6 6 6 6 6 6

CPU

PLAY!

High sparkles →

Very rapid sweeps →



82 **11**

*sempre fff* 6 6 6 6 6 6 6 6 6 6 6 6

CPU

4 3 2 1

randomized rhythm

Extremely chaotic →



86 9

**12**

4 3 2 1

*p*

(not specific notes)

Chaotic texture continues



90

Let CPU fade a little before triggering Event 13

**13** Extremely fast and agitated, ♩ = ♩

*f* *p* *cresc.* *ff* *p* *fff*

Smooth, falling sound

8 7 6 5 4 3 2 1

CPU

*poco a poco rit.*

stay loud, even as electronics begin to fade!

8va

96

*sempre ff*

*pedal liberally*

CPU

GO!

Very chaotic

*f*

==

106

114

Very slow, ♩ = 72

*rit.*

==

121

**14**

Let the busier parts fade a little so that ethereal texture is all that is left

♩ = 80

**15**

*f*

8 7 6 5 4 3 2 1

Ethereal texture enters

*p*

*ffff*

4 + 3 + 2 + 1 + GO!

(not specific notes)

CPU

*p*

*f*