

Exploring Flute Etudes

Etude 3

This etude is an exploration of intonation. Play this slow etude with different drones. Some of my favorites are cello, horn, and tanpura drones.

1. Explore the scale and how each interval fits to the tonic E and make your preferred intonation chart (compare it to the provided equal and harmonic intonation chart)
2. Play the etude with your chosen instrument drone (using harmonic intonation)
3. Record the piece with an equal intonation instrument such as a piano and play along the recording (How different does equal intonation feel from harmonic intonation? How can you apply this to chamber music?)

Comparing the Frequency Ratios for Equal Temperament and Pure Harmonic Series

Interval	Equal Temperament		Harmonic Series	
	Frequency Ratio	Approximate Difference	Frequency Ratio	
Unison	$(\sqrt[12]{2})^0 \approx 1.0000$	0.0	1.0000	$\approx 1/1$
Minor Second	$(\sqrt[12]{2})^1 \approx 1.0595$	0.0314	1.0909	$\approx 12/11$
Major Second	$(\sqrt[12]{2})^2 \approx 1.1225$	0.0025	1.1250	$\approx 9/8$
Minor Third	$(\sqrt[12]{2})^3 \approx 1.1892$	0.0108	1.2000	$\approx 6/5$
Major Third	$(\sqrt[12]{2})^4 \approx 1.2599$	0.0099	1.2500	$\approx 5/4$
Perfect Fourth	$(\sqrt[12]{2})^5 \approx 1.3348$	0.0015	1.3333	$\approx 4/3$
Tritone	$(\sqrt[12]{2})^6 \approx 1.4142$	0.0142	1.4000	$\approx 7/5$
Perfect Fifth	$(\sqrt[12]{2})^7 \approx 1.4983$	0.0017	1.5000	$\approx 3/2$
Minor Sixth	$(\sqrt[12]{2})^8 \approx 1.5874$	0.0126	1.6000	$\approx 8/5$
Major Sixth	$(\sqrt[12]{2})^9 \approx 1.6818$	0.0151	1.6667	$\approx 5/3$
Minor Seventh	$(\sqrt[12]{2})^{10} \approx 1.7818$	0.0318	1.7500	$\approx 7/4$
Major Seventh	$(\sqrt[12]{2})^{11} \approx 1.8897$	0.0564	1.8333	$\approx 11/6$
Octave	$(\sqrt[12]{2})^{12} \approx 2.0000$	0.0	2.0000	$\approx 2/1$

Schmidt-Jones, Catherine. "Open Textbooks for Hong Kong." *Open Textbooks for Hong Kong*, Feb. 2015, www.opentextbooks.org.hk/.

scale



