

PRESENTS
ROBERT MCELROY'S
ON THE ORIGIN OF WHISTLE SPECIES
BY MEANS OF NATURAL SELECTION
OR THE PRESERVATION OF FAVOURED WHISTLES IN THE STRUGGLE FOR LIFE
(PENIGHWISTLIAN)

&
THE
ORIGINAL_{MOSTLY}
“BLOODY HAND” PENNYWHISTLE TUNABLE SET, 2ND
(NARROW BORE F_{NICELY}, EB, D, C, & BB_{NEARLY} AND WIDE BORE C, BB & A_{ALMOST})

FORWARD BY Dale Wisely

Robert McElroy has devised this wonderful project for the beginning whistle maker. It allows the beginner to bypass the nasty business of crafting a mouthpiece by using the highly respected, Mike Copeland-designed, Clarke Sweetone mouthpiece. We are proud to have Robert's terrific work as part of the [Chiff & Fipple website](#).

PART I

“I come from fields once tall with wheat, from pastures deep in fern and thistle; I come from vales of meadowsweet, and I love to whistle.”

IN THE BEGINNING, you purchase a Clark Sweetone “C” tinwhistle with the famous whistle maker Michael Copeland designed plastic mouthpiece for the lowest price possible. Don't bother with the “D” it's too small. Try Elderly Instruments at



www.elderly.com. They currently have the best price on the net for a natural finished Clark Sweetone for a mere \$3.60. Get a couple. Ever so gently, remove the mouthpiece. It comes off easier and with less damage to the interior walls when twisted clockwise (looking at it from the mouthpiece down). This is due to the way the tin is rolled and sealed. There is a lip along the tin that makes it easier to twist one direction. Feel the back of the Sweetone and you'll understand what I mean. Be firm but gentle, it will come off with clean dry hands and a little yank (no hardware).

Take your mouthpiece down to Lowe's (or a competing hardware store) and insert several pre-fabricated 1/2-inch copper couplings with stops (\$0.19) into the plastic mouthpiece from the open bin. The coupling itself should measure 1 1/8-inch in length. I prefer the coupling with the round stops. Find a pair that barely fit inside the mouthpiece. Next, pick up sixty inches of 1/2-inch **TYPE M** copper plumbing pipe while you're there (\$2.97). Mr. [Dave Parkhurst](#) recommends CTS (copper tube sized) CPVC 1/2" pipe for fans of plastic. Those whistlesmiths fabricating the wide bore C, Bb, & A

pennywhistles will also need three or more 1/2 x 12-inch repair couplings which slide over 1/2-inch nominal cooper tubing.

Line the stops up with the plastic mold seams of the mouthpiece and start pushing. If it won't go in put the copper coupling in the freezer, run some hot water over the mouthpiece, and try again quickly. Avoid the hammer and use a rubber mallet instead. As a last resort, roll up and insert medium-fine grit sandpaper into the mouthpiece and retry every couple of sandpaper twists.

When fully inserted the coupling stops should just touch the edge of the mouthpiece plastic. The copper portion should stick out 9/16 of an inch. If it's more than 9/16 of an inch, gently tap it in farther. The center of the fipple hole to the end of the copper coupling should be exactly two inches. When connecting the coupling to the whistle bodies make sure you have an airtight seal. A piece of lottery ticket or betting slip stuck inside the coupling works quite well. This is now your Bloody Hand Pennywhistle interchangeable mouthpiece.

PART II

"Don't tell mom I'm selling pennywhistles, she still thinks I play piano at the brothel."

First, put your OSHA-certified safety glasses and dust respirator with exhalation valve on.

Copper dust and filings are bad for lungs and eyes. Then it's time to cut your 60 inches of 1/2-inch copper plumbing pipe. Using the least expensive pipe cutter you can borrow cut and de-burr the following lengths of pipe for their respective whistle keys. ALWAYS error on the side of cutting slightly longer lengths. Measure twice and cut once. Don't worry there is plenty

of cheap extra pipe back at Lowe's. Use the following recommended lengths.

Narrow Bore Whistle Body

Lengths

F 7 1/4

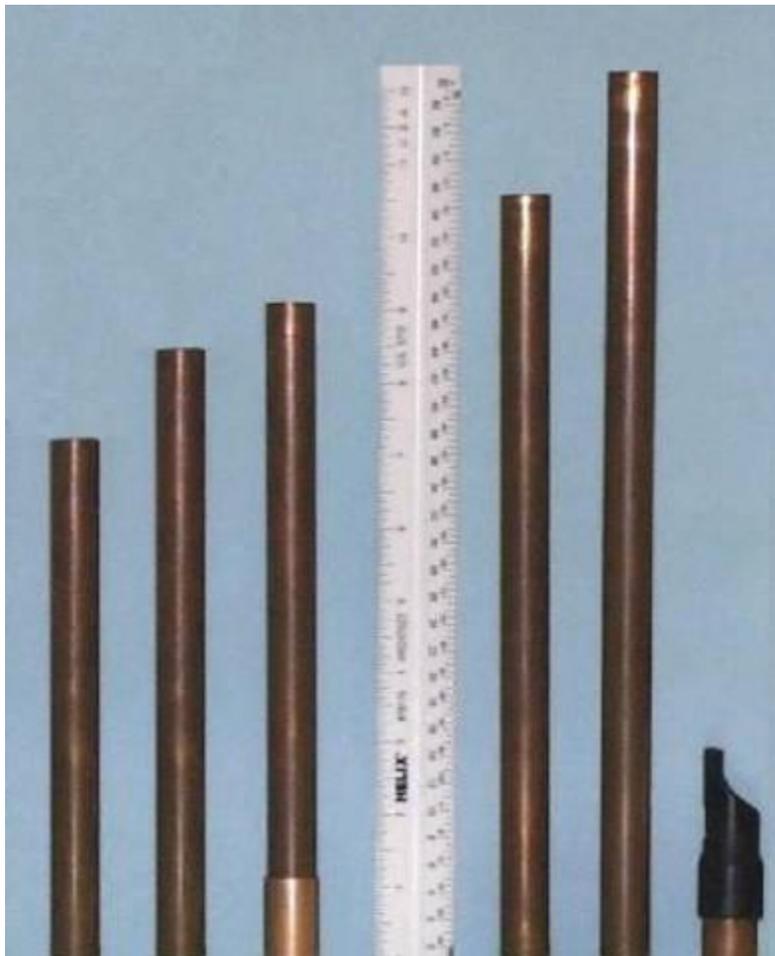
Eb 8 1/2

D 9 1/8

C 10 5/8

Bb 12 1/4

These predetermined lengths should correspond to their appropriate tone frequencies. Check your tone with the following shareware, [G-tune 1.22](#) or [TUNE!T 2.1](#). I highly recommend either for purchase or use them free for thirty days. Remember the shareware version only lasts 30 short days. Use one for 30 days and then the other. Review a primer on whistle physics by Torp-Olsen at www.geocities.com and fingering charts at www.stainedglass.org. To compose sheet music with whistle tablature try www.tabledit.com.



The establishment of your tonic note is crucial. Warm up the whistle before tuning. Check the tone in both octaves. You may have to compromise between the two. Generally, this compromise means a slightly sharper tonic note in the first octave (5-15%) and a slightly flatter one in the second (5-15%). Cut or file more off if you're too flat. If you're a wee sharp, slide the whistle body out of the coupling. If you're way sharp take one of your spare 1/2-inch copper couplings with stops and stick it on the end for a second tuning slide, trim if necessary. Trimming the coupling even with the whistle body bore produces a decorative bell piece only. My centers of fipple hole-to-whistle bore end distances and diatonic tone frequencies for the narrow bore F, Eb, D, C, & Bb whistles are as follows:

Narrow Bore Fipple Center-to-Whistle Bore End Length & Tone Frequency (Hz)

- F 8 11/16 (698.40)
- Eb 9 15/16 (622.20)
- D 10 9/16 (587.30)
- C 12 1/16 (523.20)
- Bb 13 11/16 (466.10)

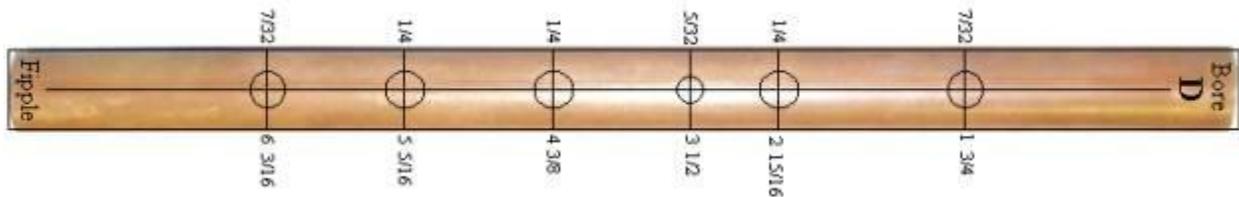
Check these distances and make sure they are equal to your own or the templates described in the next section will not properly work or adjust accordingly at your own risk.

PART III

“Drilling a finger hole in a pennywhistle is like making fine perfume, it is to be sniffed not swallowed.”

Until now, things have been easy. Now comes the difficult part made easy. Use the supplied templates for drilling your finger holes. Print, cut out, and scotch tape the templates to their corresponding whistle tube bodies. The F, Eb, & D templates are identical to their overall whistle body sizes. Please note the C & Bb templates are shorter than their overall whistle bodies. There is only one reason for this; I wanted to get the templates on a standard 8 1/2 x 11 sheet of paper.

Narrow D whistle body with Bloody Hand template



DO NOT DRILL THE FINGER HOLE DIMENSIONS WITH THE IDENTICAL SIZED DRILL BITS. Mistress Prudence demands drilling the holes 1/16-inch less than the printed template diameters and filing the holes larger as you tune. Increasing the size of the finger holes raises the pitch and reducing the size lowers the pitch. ALWAYS err on the side of drilling smaller fingers holes.

If you prefer smaller livelier finger holes and quieter notes, move the location of the finger holes down toward the bore end. Move the location of the finger holes toward the fipple end for larger holes and louder notes. Unfortunately, I have no calculations for these techniques (trial & error). The pennywhistle finger hole locations all measure from the bore end of the whistle bodies to the center of each hole. The narrow bore finger hole spacing distances are printed on the templates but are repeated herewith:

Table	1				1	2	3	4	5	6	
-------	---	--	--	--	---	---	---	---	---	---	--

		F		5 1/16	4 3/8	3 5/8	2 7/8	2 7/16	1 7/16	
		Eb		5 13/16	5	4 1/8	3 5/16	2 3/4	1 11/16	
Fipple	End	D		6 3/16	5 5/16	4 3/8	3 1/2	2 15/16	1 3/4	Bore
		C		7 1/16	6 1/16	5	4	3 3/8	2	
		Bb		8	6 7/8	5 11/16	4 9/16	3 13/16	2 5/16	

Use a pointed center punch to start the finger hole drilling. This is the eleventh commandment. If you don't have one, borrow one, or buy one and return it later with your receipt. Getting the finger-hole punches precisely lined up with each other is not an easy task even with the supplied templates, so put your reading glasses on. Just a fraction off-center and the finger holes won't be perfectly in line. Some right-handed whistlers actually prefer the number six finger hole right of center and the number three finger hole left of center. These folks swing both ways, vote Perot, and are generally undependable.

Now, put your OSHA certified safety glasses and dust respirator with exhalation valve back on. Mr. Parkhurst advises putting a wooden dowel in the whistle body when drilling. This prevents punching through with the drill and causing an outward dimple on the other side. Personally, I delight in dimpled backsides myself.

Unholster your hand-held drill with your APPROPRIATELY REDUCED size drill bits and go smooth and steady. Use a drill press or bench vise if you have them, you bloody extravagant <stateside expletive deleted>. If not, hang on tight or lightly stand on the scorching tube. I discovered leather gloves and shoes don't catch on fire as quickly. You'll be surprised how often the holes are out-of-round. Use the next smallest drill bit if you don't have the exact size needed. Leave room to file and sand your finger holes to a silky sweet tone and touch, unless you want bloody hands all over your flat/sharp Bloody Hand Pennywhistle tunable set.

Insert some rolled paper into the whistle body to avoid scratching the opposite interior wall when filing. For fine-tuning and de-burring finger holes, use a rat-tail (round) file and fine grit sandpaper or fine grade plumbers sandpaper. A small cone shaped metal grinding bit works best. The conical bit files the vertical edges outward for a lovely counter-sunk look and feel. Check your tone in the first two octaves with the aforementioned handy-dandy shareware after every new hole. Again, you may have to compromise between the two octaves.

Remember some keys possess sharps or flats while others don't (see table 3). The nice thing is you alone are responsible for tuning your own instrument. Once properly tuned you can adjust your whistle to less exacting accompanists by using the tuning slide, tuning bell, or Tom Hastay's and Scott Stewart's perturbation technique (described later in Part IV).

The final stage narrow bore finger hole dimensions are approximately as follows:

Table	2			1	2	3	4	5	6	
		F		1/4	1/4	1/4	11/64	9/32	1/4	
		Eb		15/64	9/32	7/32	11/64	9/32	1/4	
Fipple	End	D		7/32	1/4	1/4	5/32	1/4	7/32	Bore
		C		3/16	3/16	13/64	5/32	7/32	13/64	
		Bb		5/32	11/64	11/64	5/32	13/64	3/16	

Here are your corresponding narrow bore finger hole diatonic tones:

Table	3			1	2	3	4	5	6	
		F		E	D	C	Bb	A	G	
		Eb		D	C	Bb	Ab	G	F	
Fipple	End	D		C#	B	A	G	F#	E	Bore
		C		B	A	G	F	E	D	
		Bb		A	G	F	Eb	D	C	

Finally, the corresponding narrow bore finger hole diatonic tone frequencies (Hz):

Table	4		1	2	3	4	5	6	
		F	1318.40	1174.60	1046.40	932.20	880.00	784.00	
		Eb	1174.60	1046.40	932.20	833.40	784.00	698.40	
Fipple	End	D	1108.60	987.60	880.00	784.00	740.00	659.20	Bore
		C	987.60	880.00	784.00	698.40	659.20	587.30	
		Bb	880.00	784.00	698.40	622.20	587.30	523.20	

PART IV

“A pint of sweat is worth a gallon of blood.”



Whistlesmithing the mouthpiece for the wide bore A, Bb, & C whistles requires a simple modification of the original Bloody Hand Pennywhistle interchangeable mouthpiece. Sever a 1-inch piece of **TYPE M** copper plumbing tube from some of your scrap and insert it into the mouthpiece. This is now your Bloody Hand Pennywhistle interchangeable mouthpiece modified for wide bore whistles. For a nice tight fit, slip a small piece of paper inside the mouthpiece coupling with the round stops before inserting the 1-inch cooper tube.

Bloody Hand Pennywhistle Modified Interchangeable Mouthpiece

There is no need to trim one of your three 1/2 x 12-inch repair couplings. The one unspoiled coupling is already the correct whistle body length for the A pennywhistle. Trim the other two couplings for the C and the Bb whistle bodies. The 1/2 x 12-inch cooper repair couplings have slightly thicker walls and are slightly more difficult to cut and drill.

Wide Bore Whistle Body Lengths

C 9 3/4

Bb 11 1/4

A 12

Now slide the repair coupling over the modified mouthpiece for a perfect joint, don't inhale or you'll never be President. Again, a piece of betting slip inside the whistle body joint will ensure a snug fit and shouldn't harm the tone. Then check the following lengths and tones.

Modified Interchangeable Mouthpiece 1/2 x 12-Inch Repair Coupling Sleeve



Wide Bore Fipple Center-to-Whistle Bore End Length & Tone Frequency (Hz)

C 11 3/4 (523.20)

Bb 13 1/4 (466.10)

A 14 (440.00)

The wide bore finger hole spacing distances are printed on the templates and repeated below:

Table	5			1	2	3	4	5	6	
		C		6 7/8	5 7/8	4 7/8	3 15/16	3 1/4	1 15/16	
Fipple	End	Bb		7 3/4	6 5/8	5 1/2	4 7/16	3 11/16	2 3/16	Bore
		A		8 3/16	7	5 13/16	4 11/16	3 7/8	2 5/16	

The final stage wide bore finger hole dimensions are approximately as follows:

Table	6			1	2	3	4	5	6	
		C		15/64	1/4	1/4	11/64	9/32	1/4	
Fipple	End	Bb		13/64	7/32	7/32	9/64	1/4	13/64	Bore
		A		11/64	13/64	3/16	9/64	1/4	11/64	

Here are your corresponding wide bore finger hole diatonic tones:

Table	7			1	2	3	4	5	6	
		C		B	A	G	F	E	D	
Fipple	End	Bb		A	G	F	Eb	D	C	Bore
		A		G#	F#	E	D	C#	B	

Finally, the corresponding wide bore finger hole diatonic tone frequencies (Hz):

Table	8			1	2	3	4	5	6	
		C		987.60	880.00	784.00	698.40	659.20	587.30	
Fipple	End	Bb		880.00	784.00	698.40	622.20	587.30	523.20	Bore
		A		830.60	740.00	659.20	587.30	554.40	493.80	

Please note the wide bore C, Bb, & A templates are also shorter than their overall whistle bodies, the old one page thing. Follow the same drilling instructions as found in Part III for your three wide bore pennywhistles. Remember the finger hole drilling and filing will be more difficult with the thicker repair coupling walls.

Regretfully, the narrow bore Bb & wide bore A are a wee weak, low wind requirement and volume, in the first octave due to their non-optimal whistle length-to-bore ratios (N-OWL-T-BR). There is no known cure by this author. I open the solution to the entire whistle community. Narrow Bb and Wide A fix or "On the Origin of the Species: Revisited"

By [Tom Hastay](#)

You can "fool" your whistle bore into believing it's longer by reducing the bore end hole 20-30%. The bore end is also a playing hole and is adaptable. This will work on the dreaded Generation Bb as well. If you want to try it (below) without tools, use beeswax internal "ring" at the bore end to reduce it.

By reducing the bore end size with a "plug" drilled to the reduced size and adjusted up or down the bore (slightly), you will improve frequency response in the upper octaves. This is a fancy term called "acoustic capacitance" and allows greater "push-pull/pressure-vacuum oscillations.

Narrow Bb and Wide A fix or "On the Origin of the Species: Revisited: Revisited:"

By [Scott Stewart](#)

Another possible tip. The bore can be reduced by cutting a piece of the copper pipe 1/4" to 1/2" long, then cutting a piece out of that piece lengthwise so that the piece can be compressed and fit into the whistle body. Solder into place if it is near the bore end. Michael Burke uses this perturbation technique on his composite whistle.

Finally, buff up all of your pieces with a scouring pad and then steel wool or leave the plumbing manufacturers ink stamps right on them. If you never buff them, again they will darken evenly except around the industrious little finger holes. Mr. Stewart suggests using a product called Nevr-Dull to polish the whistle to a bright shine, and spray lacquer to keep the shine. Apparently, brass musical instruments are spray lacquered. You can also try using carnuaba wax to maintain the finish. Personally, I'm a traditionalist, too lazy and cheap to do any of the above. Get it engraved with your initials or a Celtic design at the trophy shop. You can even gild it with gold or silver leafing. The estimated time to completion for each whistle is about an hour.

Here's a recipe for making a simple PVC case from [Jim Mc](#). First, buy a length of 1" or 1 1/4" PVC, two matching caps and a sheet of air conditioner filter foam. Cut the pipe to a little more than the length of the whistle and smooth out the cut end with some sandpaper. Cut a strip of foam as long as the pipe and wide enough to line the pipe when rolled into the pipe. Cut two circular pieces of foam to line the caps. Affix one of the caps with PVC pipe solvent. Wax the inside wall of the other cap with your whistle tweaking beeswax.

PART V

"We few, we happy few, we band of whistle makers; for he today that sheds his blood with me shall be my brother."

If you've made it this far, we did it ***baby***. We ain't got no stinking wooden fipple plugs, no stinking copper poisoning, and by-Molly they're cousins to the mighty Copeland built with your very own shamrock stained hands two years early. Take your leftover \$187.90 and lose it on a mortal lock at the track. Send me your losing gambling receipts.

Narrow Bore Bloody Hand Tunable Pennywhistle in Eb



Wide Bore Bloody Hand Tunable Pennywhistle in A



I hope your Bloody Hand Pennywhistle tunable narrow and wide bore sets come out wonderfully and you are extremely proud of the hard work and countless hours we have put into this handsome partially handmade pennywhistle set. If you're no a Scot like me, please send my attorney a Gary Larson thank you with ten bucks inside and I'll have a full-blooded Copeland on y'all.

Honestly, I'm half-Scot and half-Irish, forget the bloodsucker and card, and send the \$10.00 to the Children's Friendship Project of Northern Ireland and/or the Rape Response Center on behalf of CHIFF & FIPPLE. Be sure and tell all your friends to keep their bloody hands off and build their bloody own Bloody Hand Pennywhistle tunable set. I'm looking forward to my very own bloody CHIFF & FIPPLE interview.

NEMO ME IMPUNE LACESSIT,



Bloody Hand

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According to Irish Legend, first told before the time of Christ, an O'Neill found himself in a bitter struggle against another Gaelic Lord over land and title. The stakes were high, the vast fertile region of Northern Ireland that would become the Kingdom of Ulster. Such disputes were

common in ancient Irish culture. Power and land changed hands by contest, not by conveyance or inheritance. For thousands of years, the Irish clans selected their leaders for their bravery and strength. Contests for power and territory were often brutal and violent, resolved with the spilling of much blood. In Gaelic Ireland, clan fought clan; brother fought brother, in a continual chaotic struggle for dominance and privilege. According to this legend, O'Neill and his rival agreed to settle their dispute not with weapons but with a boat race. In ancient times, the Irish were superb seamen, amphibious marauders who plundered much of northwest Europe. O'Neill and his opponent agreed the first to touch the far shore would win both the race and all of Ulster. From the start the race was close, the outcome uncertain, and the boats surged side-by-side toward the finish. Nearing shore, O'Neill fell behind and it was apparent he would lose by the narrowest of margins. Just before his rival landed, O'Neill leapt up, grabbed his sword, and with a powerful stroke cut off his own hand at the wrist. Dropping the sword, he quickly seized his severed hand and hurled it forward. The bloody hand touched the shore the instant before his opponent landed. From that day forward, according to legend, the O'Neill clan ruled Ulster and went on to dominate all of Irish history. They chose as their motto the words 'Lamh Dearg Eirinn,' Gaelic for 'the Red Hand of Ireland.' For scores of generations, the O'Neills would charge confidently into battle yelling 'Lamh Dearg Abu,' the Red Hand Forever!

Tools: Materials:

Tape measure (1) Clark Sweetone "C" Tinwhistle

Rubber mallet (2) 1/2-inch copper couplings with

Hand-drill round stops

Drill bits with 1/64-inch increments 60 inches of **TYPE M** 1/2-inch

Flat sided metal file copper plumbing pipe

Round metal file and/or conical grinding bit (3) 1/2 x 12-inch cooper repair Medium-fine grit or plumbers sandpaper couplings

Center punch Finger hole templates

Pipe cutter or hacksaw Patience

Scouring pad & steel wool Perseverance



Tuning shareware Port

1/2 x 12" Repair Coupling by Prairie Home Products 1-800-367-1568 Completely Slides Over
Nominal Copper Tube

