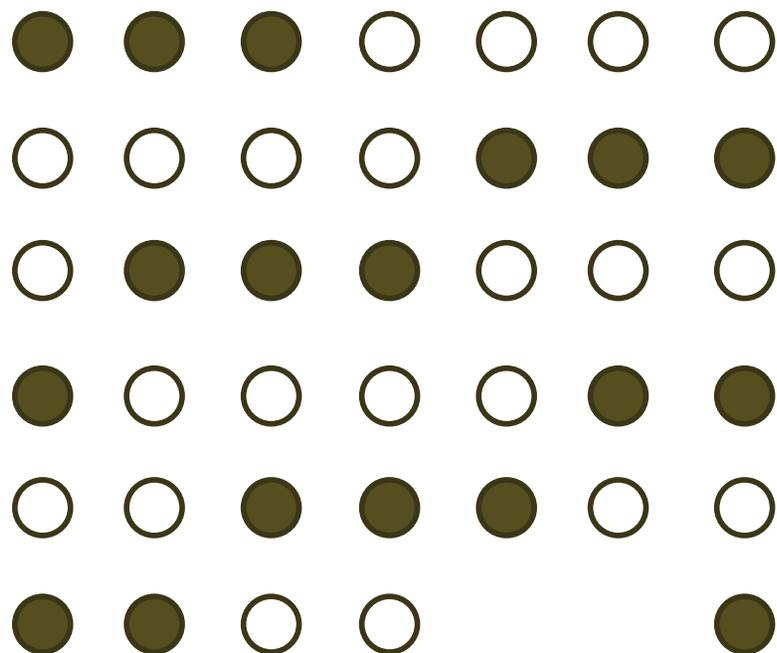


THE CHROMATIC TAMBURINO



The tambin, (also, *Fula flute*, *serdu* [Pulaar], *fle* [Malinke], *tokoro* [Wolof]) the traditional flute of Guinea, West-Africa, is a transverse flute that features a chambered embouchure and three finger-holes. It produces a diatonic scale over a one-and-a-half octave range. It is celebrated for its rich multiphonic sounds and the exuberant vocal/flute techniques used by its players. Its timbral characteristics can be described as “organic” and are very evocative, sometimes bringing listeners to tears.

Guinea is a multi-ethnic region, largely populated by Fulanis, Makinkes and Susus. Although the traditionally nomadic Fulanis are widely associated with flute playing they do not have that monopoly in Guinea. The tambin vine is plentiful and it is something that children universally play with in the countryside. There are, therefore, several playing styles but the Fulani and Malinke styles dominate.



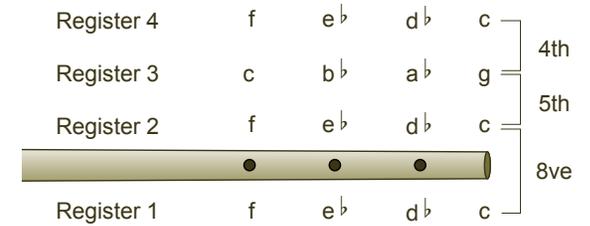
Guinea, on the coast of West Africa is one of the most well endowed countries in the world with abundant rains, rich agriculture, forests, mountains, and a plethora of mineral resources.

With notions of the physical laws of periodic sounds, we understand that most flutes rely on their fundamental and second harmonic levels to achieve playing a diatonic scale. Typically, a tube is pierced with a succession of six or seven finger-holes—using varying distances between them, representing half- and whole-steps—to produce the complete scale on the fundamental harmonic register. Then, by overblowing to the second register, the same scale is produced again an octave higher. A third iteration of the scale — complete or not—can be further produced using combination fingerings and overblowing, giving most flutes an effective two-and-a-half to three octaves range.

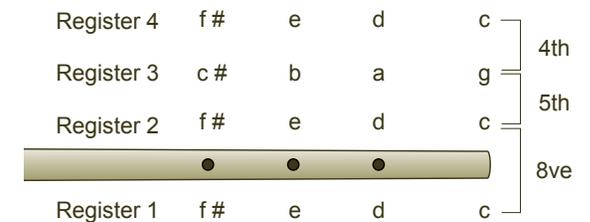
The tambin’s three finger-holes does not allow it to produce a full diatonic scale on a single register, therefore, the first register is discarded as an effective component. After playing the four notes on the second register, one can complete the scale on the third register, a perfect fifth higher, and continue to the fourth register with the octaves of the notes from the second register (see diagram). Some higher pitches can be attained with practice to a possible two-and-a-half octaves range.

Finally, tambins can be made in various lengths to play in different scales with bottom notes of as low as G, to as high as D.

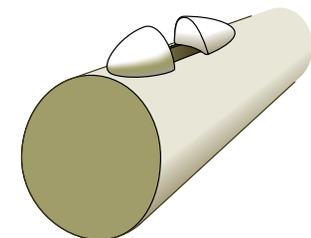
Scale for a A-flat traditional flute



Scale for a C-lydian traditional flute



Tuning of traditional instruments is rarely exact and can shift anywhere between the two poles above.



Tambin embouchure

THE CHROMATIC TAMBIN

The Chromatic Tambin (CT) improves on the traditional tambin by the addition of three finger-holes—six altogether—rendering it fully chromatic.

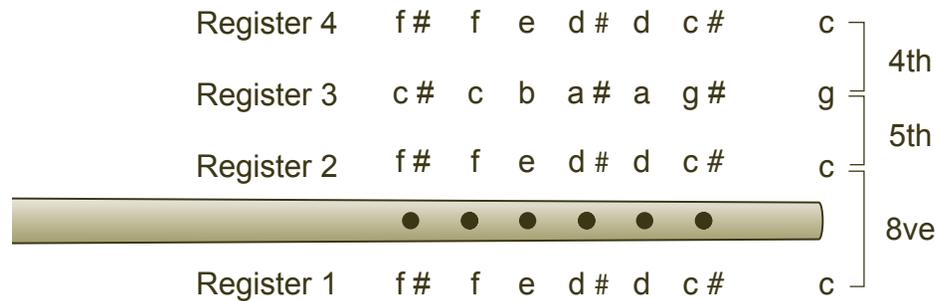
On the CT, as on the traditional tambin, the fundamental harmonic register remains isolated from the rest of the instrument. The complete chromatic scale starts on the the second harmonic register with the six finger-holes generating seven notes spanning a tritone (augmented fourth) which is followed with another tritone span on the next register. The fourth register reprises an octave higher all the notes from the second register (notice that two pitches are in common between the upper third and lower fourth registers). Beyond that, as many as six or seven notes, or even more, can be attained with combination fingerings and practice, extending the tambin’s range to as much as two-and-a-half octaves.

FINGERING TECHNIQUES

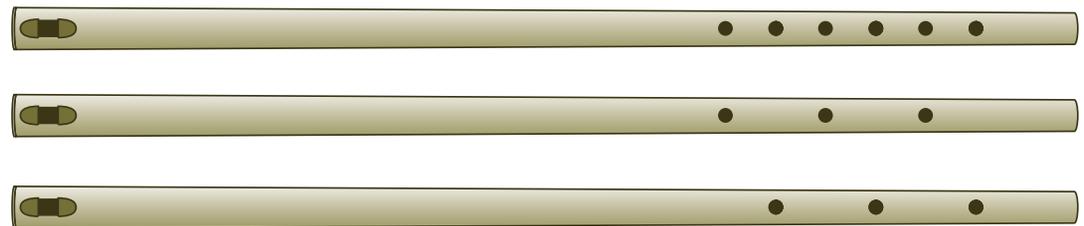
A characteristic of the CT is that there is no need to use alternate fingerings as each finger-hole represents a chromatic note, unlike other flutes where they are reached by covering only part of a finger-hole (as with the Indian bansuri), or by forking (ie, fingering holes below the open one, as with the recorder).

The CT has six finger-holes divided between first three fingers of the right and left hand. It uses an innovative fingering system based on the idea of “positions.” In this system, some fingers are

Scale for a “C” Chromatic Tambin



The Chromatic Tambin’s range can be extended upwards with practice.



Top to bottom: the new Chromatic Tambin, traditional tambins in C-lydian and A-flat.

Position	I	II	III	IV	V	VI	VII
left hand	×	×	×	○	○	○	○
	○	○	○	○	×	×	×
	○	×	×	×	○	○	○
right hand	×	○	○	○	○	×	×
	○	○	×	×	×	○	○
	×	×	○	○	⊙	⊙	×
	C	B flat or C dorian	A-flat or C phrygian (traditional)	C#	B or C# dorian	A or C# phrygian	G/D or C lydian (traditional)

LEGEND

- hole to play
- × keep hole closed
- ⊙ keep hole open

left down on the instrument, closing the corresponding finger-holes, leaving the remaining to move up and down as required by the music. For example, for a C major scale (on a “C” flute), finger 1 of the left hand and fingers 1 and 3 of the right hand are left down on the flute while right-hand finger 2 and left-hand fingers 2 and 3 open and close in succession to produce a complete C major scale over two registers.

Investigating the structure of the CT, we come to deduce seven fundamental positions representing the C, B-flat, A-flat, D-flat, B, A and G major scales. The remaining scales of F, E-flat, F-sharp, E and D can be produced by combining positions between registers. For example: the F major scale combines the C and the B-flat positions on the second and third registers respectively. *

AN EXPRESSIVE INSTRUMENT

What the tambin lacks in range is more than made up by its wide tonal palette and how it effectively interacts with the player’s voice. It is an instrument capable of great expressivity, from passionate outbursts to sweet and lovely phrases.

The CT retains ALL the sonic characteristics of its parent, the traditional tambin: multiphonics, voice/flute effects, “organic” sound, etc., but now this rich tonal palette can be put to the service of a wide range of music while retaining its ability to perform traditional African music to a connoisseur’s satisfaction.

* In the fourth register and above, positions cannot be strictly kept because combination and fork fingerings are required for the high notes to sound.

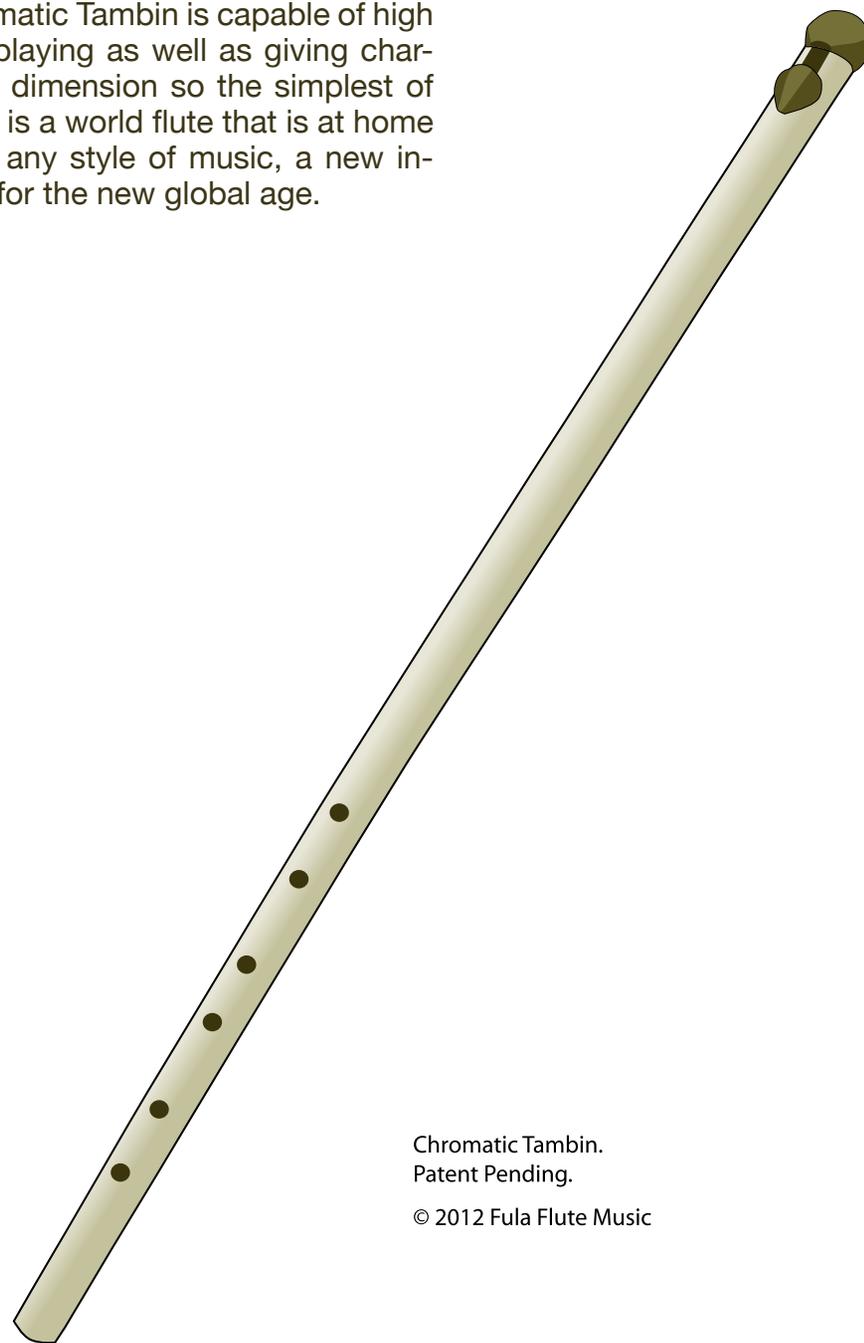
The Chromatic Tambin is well suited to jazz, from traditional to avant-guard; to classical music, from ancient music to contemporary as well as to a wide variety of World Music. (No instrument can quite convey the feeling of eons like the tambin... that is why it was used in the animated 2005 movie "Teenage Mutant Ninja Turtles" to evoke just that sentiment...)

Another powerful creative advantage is the ability the tambin has to work in conjunction with the player's voice to powerful effect. A voice is highly personal and individual and, if we make words out of the sounds vocalized, we get a form of minimalist poetry. There is no limit on what can be done except the player's abilities and imagination and inspiration.

The voice can also help extend downward the range of the tambin to a surprising four octaves and more. To do so, one can sing the melody downwards diatonically below the second harmonic register but the tube will resonate with clashing vibrations because the ratios of those notes to their respective resonances are large. If one can tolerate these dissonances, one will be rewarded with a range limited only by one's vocal abilities.

CONCLUSION

The Chromatic Tambin is capable of high virtuosic playing as well as giving character and dimension so the simplest of melody. It is a world flute that is at home in almost any style of music, a new instrument for the new global age.



Chromatic Tambin.
Patent Pending.

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