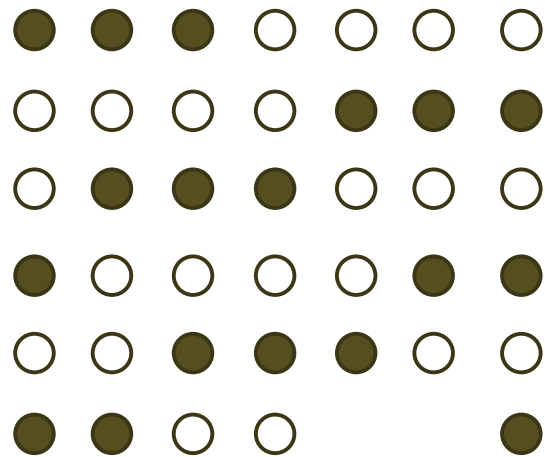


# THE QROMATICA



A flute for a Global Age

The Fula flute, (also, tambin or serdu [Pulaar], khule [Sussu], fle [Malinke], tokoro [Wolof]) the traditional flute from Guinea, West Africa, is a transverse flute that features a chambered embouchure (fig. 9) and three finger-holes that produces a complete diatonic scale over a one-and-a-half octave range. It is celebrated for its rich multiphonic sounds and exuberant voice/flute techniques; its timbral characteristics can be described as “organic” and are very evocative, sometimes bringing listeners to tears.

Guinea is populated by Fulani, Malinke, Sussu, Baga, Toma, Forrestier people, and more... Although traditionally nomadic, Fulanis are widely associated with flute playing throughout West Africa, however, they do not have a monopoly in Guinea as the instrument is shared with Malinkes who also claim a deep flute tradition.

As per the laws of periodic sound, we know that the vast majority of flutes around the world rely on their fundamental and second harmonic registers to achieve a diatonic scale. Typically, a tube is pierced with a succession of six finger holes—with varying distances between them representing half- and



Guinea, on the coast of West Africa, is one of the world’s most well endowed countries in natural resources.

whole-steps—to produce the complete scale on the fundamental register. Then, the same scale is reproduced an octave higher by overblowing to the second harmonic register. A third register iteration, complete or not, can be further produced by overblowing and using combination fingerings for an effective two-and-a-half to three-octave range (fig. 1).

Register 3*	b	a	g	f	e	d	c	8v
Register 2	b	a	g	f	e	d	c	
Register 1	b	a	g	f	e	d	c	



\*Combination fingerings

Fig. 1: Typical scale for a “classic” flute

Register 4	f	e <sup>b</sup>	d <sup>b</sup>	c	4tl	
Register 3	c	b <sup>b</sup>	a <sup>b</sup>	g		5tl
Register 2	f	e <sup>b</sup>	d <sup>b</sup>	c		
Register 1	f	e <sup>b</sup>	d <sup>b</sup>	c		8v



Fig. 2: Scale for a C-Phrygian Fula flute

Hole placement on traditional Fula flutes can vary resulting in Phrygian or Lydian modes.

Register 4	f#	e	d	c	4tl	
Register 3	c#	b	a	g		5tl
Register 2	f#	e	d	c		
Register 1	f#	e	d	c		8v



Fig. 3: Scale for a C-Lydian Fula flute

The Fula flute’s three finger holes does not allow it to produce a full diatonic scale on a single register, therefore, the first, fundamental register, is discarded and, starting on the second register, and after playing its first four notes the scale is completed on the third register, a perfect fifth above. The fourth register reprises the scale, an octave above the second register but does not complete it (fig. 2 & 3).

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The qromatica innovates by the addition of three finger-holes to the Fula flute's three—six altogether— rendering it fully chromatic.

On the qromatica, as on the traditional Fula flute, the fundamental harmonic register remains isolated from the rest of the instrument. The complete chromatic scale starts on the second harmonic register with the six finger holes generating seven notes spanning a tritone (augmented fourth) which is followed by 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 four notes, possibly more, can be attained with combination fingerings and practice, extending the effective range to as much as two octaves (fig 4–7).

## FINGERING TECHNIQUES

To produce the chromatic notes on its first three registers, the qromatica does not require alternate fingerings such as half-holes like the Indian bansuri, or forks like the baroque recorder as each hole represents a chromatic note.

The qromatica has six finger holes divided between three fingers of the top and bottom hands and uses an innovative fingering system called **positions**. In this system, some fingers are left down on the instrument, closing the corresponding finger holes, leaving the remaining fingers to move up and down as required by the music. For example, for a C major scale (on a "C" flute), in the first position, finger 1 of the top hand and

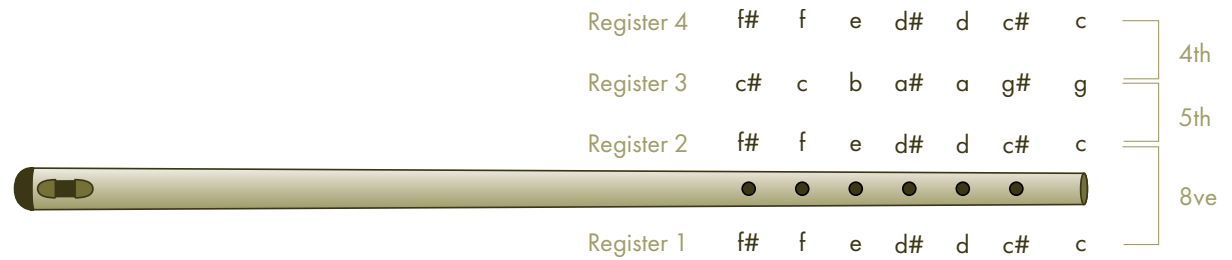


Fig. 4: Scale for a C\* qromatica

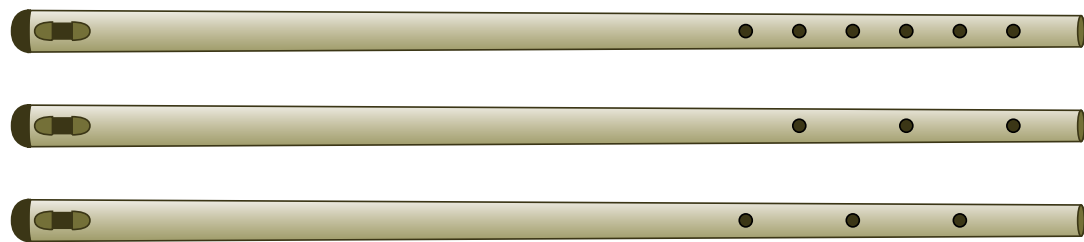


Fig. 5: The C qromatica (top) vs, Fula flutes in C-Phrygian and C-Lydian

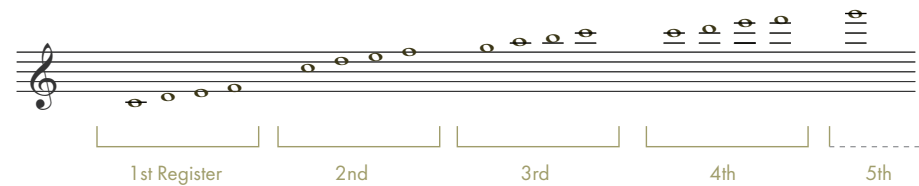


Fig. 6: Full range of the C-Phrygian Fula flute



Fig. 7: Full range of the C qromatica

\*Refers to the lowest note produced by the instrument

fingers 1 and 3 of the bottom hand are left down on the flute while top-hand fingers 2 and 3 and bottom-hand finger 2 open or close in succession to produce a complete C major scale over two registers (fig. 8).

Investigating the structure of the qromatica, we come to deduce seven fundamental positions representing (on a C qromatica) 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 are 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.

## EXPRESSIVE INSTRUMENT

What the Fula flute 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 qromatica retains ALL the sonic characteristics of its parent, the traditional Fula flute: 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 music to a connoisseur's satisfaction.

The qromatica is well suited to playing jazz, from traditional to avant-garde; classical music, from ancient to contemporary; as well as a wide variety of the world's music, its unique sound, unlike any other, has the power to evoke deep and timeless emotions.

Another, and most powerful, creative ability of this instrument is that, its unique embouchure design allows for a strong interaction

Position	I	II	III	IV	V	VI	VII
top hand*	1	✗	✗	✗	○	○	○
	2	○	○	○	○	✗	✗
	3	○	✗	✗	✗	○	○
bottom hand*	1	✗	○	○	○	✗	✗
	2	○	○	✗	✗	○	○
	3	✗	✗	○	○	⊙	⊙
	C	B $\flat$ or C Dorian	A $\flat$ or C Phrygian (traditional)	C $\sharp$	B or C $\sharp$ Dorian	A or C $\sharp$ Phrygian	G/D or C Lydian (traditional)

\*the qromatica can be played on either side of the body

Fig. 8: Finger positions for major scales.

LEGEND

- play this hole
- ✗ keep hole closed
- ⊙ keep hole open

between its sound and the player's voice to momentous effect (as famously used in the Black Panther movies); plus, the addition of intelligible words and/or short phrases opens the door to a form of minimalist poetry.

The qromatica is, undoubtedly, a challenging instrument to master as its structure defies the "normal" (meaning: Western Conservatory) approach to the study of an instrument, but the committed student who will strive to learn it will be rewarded with access to a boundless territory of creative possibilities.

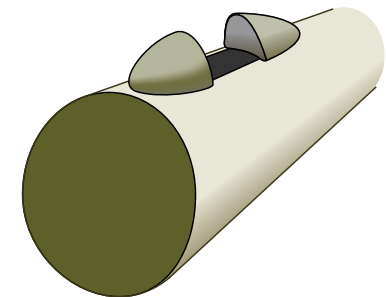


Fig. 9: Fula flute embouchure

## CONCLUSION

The qromatica is capable of explosive performance as well as infusing delicate sweetness to the simplest melody.

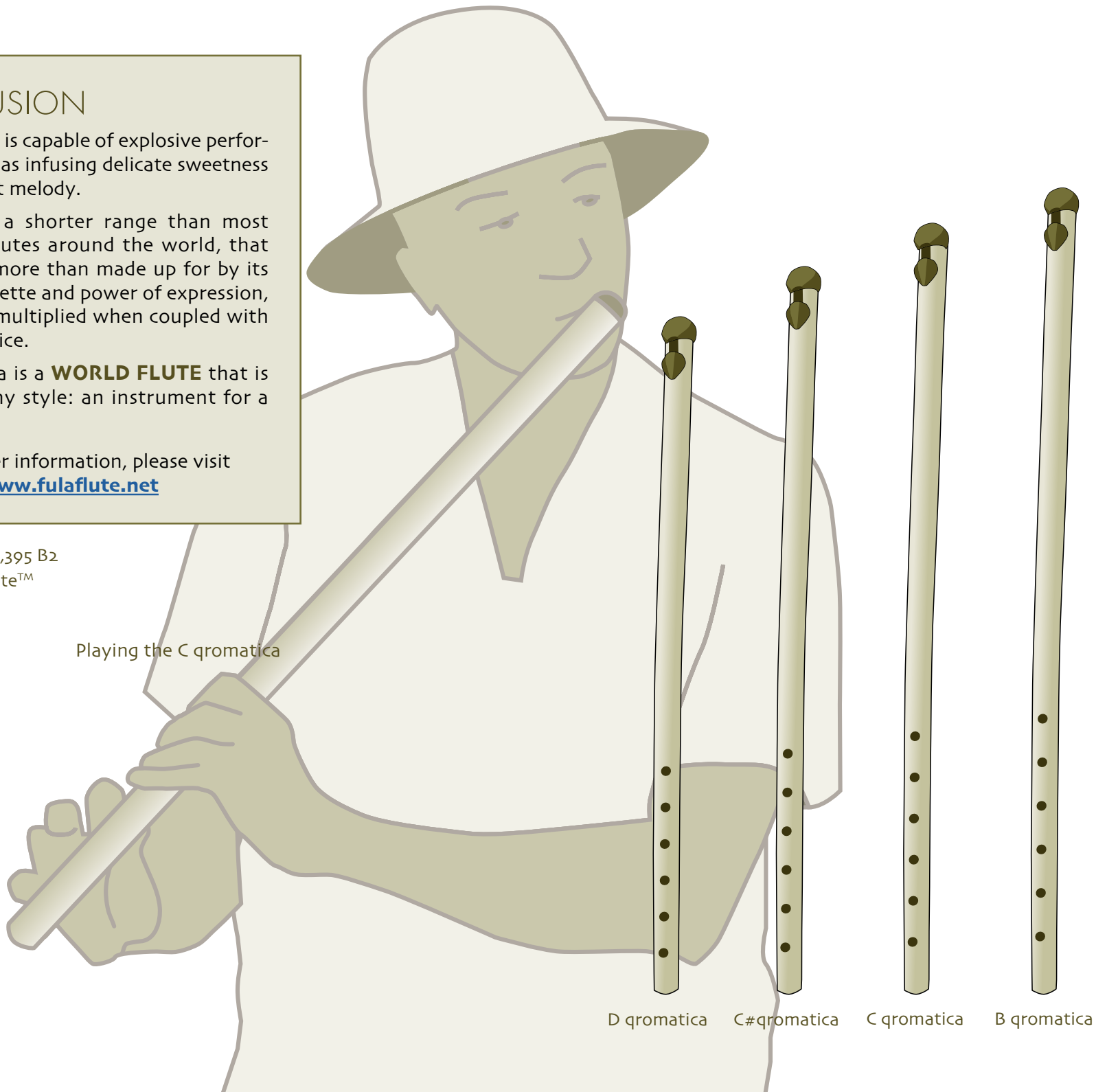
While it has a shorter range than most of its sister flutes around the world, that limitation is more than made up for by its wide tonal palette and power of expression, which are all multiplied when coupled with the human voice.

The qromatica is a **WORLD FLUTE** that is at home in any style: an instrument for a Global Age.

For further information, please visit  
[www.fulaflute.net](http://www.fulaflute.net)

US Patent 8,618,395 B2  
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Playing the C qromatica



D qromatica C# qromatica C qromatica B qromatica