

The 19th-Century French Five-Key Flute and the Modern Boehm-System Flute in Cuban Charanga

by Jessica Valiente

Of interest to many flutists working in *charanga* is the kind of flute that is commonly associated with the genre. For those who are not familiar with the term, a *charanga* is a Cuban dance-music ensemble consisting of a solo flute lead, vocals, violins, piano, bass, congas, and timbales. It has a history that reaches back 100 years,¹ and it is most strongly associated with Cuban popular dance styles such as the *danzón*, the mambo, the *chachachá*, and the *pachanga*. This dance music ensemble achieved international popularity, beginning in the 1950's.

Charanga has a characteristic that distinguishes it from most other western music styles that utilize the flute today. Charanga flutists play in an extraordinarily high register, inhabiting the third and fourth octaves most of the time, seldom venturing down into the second octave. This is because charanga developed at a time before sound amplification. As the lead voice, the flute must be heard over a large ensemble that includes at least two (frequently three) percussionists. The high register cuts through the din. Unfortunately, many flutists today are not usually aware of the fingerings for notes more than a whole step into the fourth octave. Charanga flutists

¹ For more about charanga, there are graduate theses by John Murphy, Danilo Lozano, Ruth Witmer, myself, and a monograph by Sue Miller, listed in the Suggested Reading section at the end of this article.

have had to create the necessary technique via experimentation. Until recently, tutors with the fingerings covering the necessary range did not exist.²

The flute that is historically associated with the charanga is a wooden flute with five keys (figure 1). This is a design that was common in France in the 19th century. This design was invented possibly before 1800, and was the “standard” flute in France by the 1820’s. We can estimate that this flute was invented some 20 to 50 years before the modern system, or “Boehm system” flute made its first appearance in Europe. These five-keyed flutes continued to be made well into the 20th century and to be used by flutists in many arenas of music in both Europe and the Americas.

So far, the charanga literature says little about the history of these older flutes. Explanations for why charanga flutists prefer them are highly subjective and often speculative. Information that can be found in charanga or Cuban music studies is incomplete and occasionally inaccurate. Authors on charanga are usually accomplished charanga flutists, historians of Cuban music, or both, but they do not usually have a background in historical flutes. Experts in the field of historical flutes can tell us a great deal, but they tend to confine their interests to the music that was written at a time and place when these flutes were current (in this case, France in the first half of the 19th century). They may have a passing interest in charanga as a novelty, but for most of them, this has not resulted in any serious research.

² For performers on the modern (Boehm system) flute, prior to the digital age, adventurous flutists such as Robert Dick published fingering charts that extended the range up to F#4 or even G4. See Robert Dick, *The Other Flute, Volume 1* (New York: Edu-Tainment, 1978). Today, online fingering charts abound, with multiple fingering options up to G4 or G#4.

Occasional mentions of charanga in historical flute literature are nearly always inaccurate or incorrect. The one exception among historical flute experts would be Peter Noy, an historical flute maker residing in Seattle. He has spent a great deal of time studying historical flutes played by charanga flutists, and has designed a contemporary reproduction of the five-key flute, uniquely and specifically suited to the expectations of the genre.

Today, the great organological question about charanga is whether the five-key flute is actually more suited to the demands of the music, particularly the high tessitura, than the modern flute.

The modern, or “Boehm” flute (figure 2), which is now used in symphony orchestras, chamber music, jazz, contemporary popular music, etc., was invented in 1847 by the German flutist/engineer, Theobald Boehm. It is built on an acoustic principal that is entirely different from all previous European classical flutes, including the five-key flute. The 1847 Boehm flute has a cylindrical bore, and a separate tone hole drilled for each of the 12 chromatic pitches of the first octave (and a few extras for intonation in upper registers, see figure 3). Since we do not have enough fingers to cover them all, there is a complex system of closed and open keys, with rods, pins, springs, and levers to make it possible to activate all keys and open and close all holes.

While its initial reception was mixed, the Boehm flute became the instrument of choice among professional flutists in Paris around 1860, and in England shortly after that. However, it did not catch on so quickly everywhere. Germans resisted adopting

the Boehm flute well into the 20th century. At the turn of the 19th to 20th centuries, both older flutes and Boehm flutes were available in the Americas, including in Cuba, but the transition to Boehm flutes there happened at an uneven pace, depending on a few factors (economics, availability, patents, and others). The striking difference in price between Boehm flutes and older style flutes leads one to believe that if Boehm flutes were preferred by professional symphonic flutists and wealthy amateurs, professionals working in less high-brow spheres of music and middle-class amateurs continued to use the older style flutes for quite a long time.

The traditional charanga wood flute with five keys operates on a different principal from that of the Boehm flute: it is built on a much older design that was the basis for most flutes throughout the world until the 19th century. It has often been mistakenly referred to as a “Baroque” flute, which it is not. Among other differences, the Baroque flute has only one key (see figure 4). But the Baroque flute and the five-key flute have something very important in common: they are both “simple system” flutes. All European simple-system flutes have six primary open holes that are covered only by the flesh of the fingers (index, middle, and ring finger of each hand). When all holes are closed, the note sounded should be a D (flutists call this lowest D “D1,” for D in the first octave), and as the fingers are raised one at a time from the furthest end to nearest the embouchure, it should sound a D major scale.



Fig. 1: 19th-century French five-key flute used in charanga, contemporary reproduction by Peter Noy.



Fig. 2: modern Boehm-system flute.



Fig. 3: Boehm-system flute tone holes (body only).



Fig. 4: one-key Baroque flute, contemporary reproduction by Robert Turner.

A simple system flute may have any number of keys - from none to 13 or more - but none of those keys may close the six primary holes covered by the fingers. The keys exist to facilitate pitches outside the D major scale (although these are still possible without the keys via forked fingerings, half-holing, and manipulation of the embouchure), and they are also used to provide alternate fingerings and facilitate trills. In the case of the five-key flute used by charanga flutists, the keys are used for low D# (right-hand pinkie), Bb (left-hand thumb), G# (left-hand pinkie), F³ (right-hand ring finger), and a “trill” key⁴, or C2 key⁵. It is possible to play any simple system flute, including the charanga flute, without ever touching any of the keys. This is not possible on a Boehm flute. On simple system flutes, use of the keys is optional. This means that all keys on a simple system flute (if any) are closed-standing. This is also not the case with the Boehm flute. The Boehm flute has both open- and closed-standing keys.

As stated earlier, the flute known as a “Baroque flute” has a single key. This one-key flute is frequently referred to as “Baroque” because it first appeared in about

³ Lozano, “The Charanga Tradition in Cuba: History, Style, and Ideology,” (master’s thesis, University of California, Los Angeles, 1990), 145. Lozano refers to this key as an F# key. However, Peter Noy and other flute historians call the same key an “F” key (personal communication). The discrepancy in purpose and nomenclature likely results from the large number of alternate fingerings available for five-key flute players, as well as shifts in intonation that may result from the kinds of alterations that charanga performers make to the French instruments.

⁴ Ibid.

⁵ Ibid. This has also been confirmed by personal communication with Peter Noy. Although it is, indeed, a C2 key, its use for C2 is barely necessary (the simple system C2 fingering is a forked fingering that works well). The key does come in handy for trills, accounting for the difference in nomenclature.

1670,⁶ nearly three quarters of a century into the Baroque era. However, flutes with more keys began to appear as early as 1720⁷ (still at the height of the Baroque era), and conversely, one-key flutes continued to be the flute of choice for professionals well beyond end of the Baroque era⁸ (in fact, to the end of the 18th century, and among amateurs, beyond that). It is neither accurate nor sufficiently descriptive to refer to all one-key flutes as Baroque flutes 19th-century one-key flutes are quite different from Baroque era designs). The Baroque one-key flute does have other names, such as “one-key flute,” “flauto traverso,” and simply “traverso.” Actual Baroque one-key flutes have other features that distinguish them from one-key flutes from later periods: they come in a wide variety of pitches, but most often they are at a lower pitch than the modern standard (usually falling in a range of A=435 down to A=390) and have a wider bore than 19th-century French flutes (including the five-key “charanga” flute). The sound of Baroque one-key flutes is wholly different from the sound of later one-key flutes.

By the early 19th century, at the time of the Franco-Haitian migration to Santiago de Cuba, a variety of keyed flutes were available, many of them coming out of England and Germany, and most of them featuring a C foot joint (middle C as the lowest note, rather than D, which was the most common throughout the 17th and 18th centuries). But the French flutist François Devienne, professor of flute at the

⁶ Richard M. Wilson, "Baroque Flutes," *Rick Wilson's Historical Flutes Page*, accessed October 25, 2014, <http://www.oldflutes.com/baroq.htm>.

⁷ Ibid

⁸ Richard M. Wilson, "Classical Flutes: The Additional Keys," *Rick Wilson's Historical Flutes Page*, accessed October 25, 2014, <http://www.oldflutes.com/classical.htm>. See also Ardal Powell, *The Flute* (New Haven: Yale University Press, 2002), 111-113.

Conservatoire de Paris, was dissatisfied with the tone of the C foot.⁹ Thus the C foot did not catch on in France during his tenure, nor was it taught under his successor, Jean Louis Tulou. A French-designed flute with a D foot and five keys remained the official flute of the Conservatoire de Paris until 1860, and the standard among professionals and amateurs throughout France for much of the 19th century. This feature of a D foot as opposed to a C foot is not only what distinguished the French flute from other popular European simple-system flute designs of the era, but it is also one of the most significant defining features of the flute of choice for charanga flutists. Although other five-key simple system configurations were more popular in Europe and the Americas, only the French five-key, D-foot design is acceptable to Cuban flutists.

So far, it is not possible to state with assurance precisely when this particular design of flute was invented,¹⁰ but charanga research can help flute historians establish its age. There is documented evidence another type of five-key flute of French design appeared in 1782, but it has a C foot,¹¹ so this is not the same flute. We can establish, via records from the Conservatoire de Paris, that the five-key D-foot flute was widely used in France by 1820. Upheaval from the French Revolution and the Napoleonic wars made evidence from prior to that date (the turn of the 18th and 19th centuries) difficult to locate; France was conspicuously absent from the European conversation on flute experimentation at that time, as a result of political conflict

⁹ Powell, *The Flute*, 124-125.

¹⁰ Peter Noy, personal communication.

¹¹ Powell, *The Flute*, 125.

and turmoil. Cuban history can be helpful here. These French-made, D-foot, five-key flutes were the flutes available for and used in the orchestras of French plantation owners in Haiti. At the time of the Haitian Revolution (1791 to 1804), there was a large exodus of French creole plantation owners from Haiti to the eastern parts of Cuba, particularly Santiago de Cuba. Most of these patrician refugees came to Santiago de Cuba in 1803. They brought as much as they could with them, including musical instruments and slaves to play them. In Cuba, as they continued to rely on European imports to maintain their lifestyle in their new land, flutes available from France continued to be the five-key type. In this light, flute historians can be reasonably confident that the origins of the five-key D-foot French flute go back at least as far as 1803.

Even after the Conservatoire de Paris officially adopted the Boehm flute in 1860, French manufacturers continued to make five-key flutes (and other simple system flutes) for many decades. Many professionals outside of Paris, and amateurs everywhere in France, did not make the switch so quickly. A catalog dated 1930 from the Parisian flute maker Couesnon (one of the French makers preferred by Cuban charanga flutists)¹² lists a variety of styles of five-key flutes, alongside one-key flutes, other early keyed flutes, and Boehm flutes. Price possibly played a role in the slow transition to Boehm flutes. This may have been the deciding factor for Cuban flutists hoping to buy a flute imported from France; for many, affordability could not be ignored. The same Couesnon catalog mentioned above offers 5-key flutes ranging

¹² Sue Miller, *Cuban Flute Style: Interpretation and Improvisation* (Lanham: Scarecrow Press, 2013), 30.

from 72 to 190 francs, and Boehm flutes from 760 to 2035 francs.¹³ Even the top charanga flutists in Havana, at the height of charanga's popularity, were paid very poorly.¹⁴ Most could not have bought a Boehm flute even if they wanted one (a small handful of symphonic flutists in Cuba were known to own them). The five-key flutes cost about one-tenth what the Boehm flutes cost, or even less. Add to this the factor that many budding charanga flutists in Cuba relied on the availability of previously-used, older flutes in order to be able to obtain one. Five-key flutes circulated, creating and perpetuating the tradition.

Some flutists say that the five-key flute's design makes it easier to achieve the notes in the fourth octave. On the surface, it seems that the five-key flutes used by charanga flutists can produce notes in the fourth octave a whole step to a minor third higher than the Boehm flute can. But this is not true of five-key French flutes off the rack. Charanga flutists are able to do this only by making drastic physical changes to the headjoint's design. They widen the embouchure hole a great deal, and they push in the head cork until it is extremely close to the embouchure hole. Similar adjustments to a Boehm flute can increase its high range as much as a whole step. It is worth noting that, with no adjustment whatsoever to either flute, the range of the Boehm flute is actually the higher of the two.

¹³ Couesnon et Cie, *Catalogue Illustré 1930-31 Instruments à Vent en Bois* (Paris: Couesnon et Cie, 1930), on *Rick Wilson's Historical Flutes Page*, accessed October 25, 2014, <http://www.oldflutes.com/catalogs/index.htm>

¹⁴ Isabelle Leymarie, *Cuban Fire: The Saga of Salsa and Latin Jazz* (London: Continuum, 2002), 111.

Some flutists and charanga bandleaders say that the properties of the five-key flute (small, conical bore, wood, small tone holes) give it the “right” sound. Without doubt, acoustic factors such as the diameter of the bore, tone holes, and embouchure hole have a great impact on the volume and tone color of an instrument,¹⁵ but my research shows that the desired tone can be attributed much more to the flutist than to the flute, and flute makers concur.¹⁶ For Boehm flute charanga performers, tremendous control of embouchure and air pressure are required to mimic the sound of the charanga flute. Yet there are performers who do it. Today, many of the top Boehm flute charanga performers produce a tone that is indistinguishable from the sound of the wood flute, and some performers who are proficient on both have succeeded in matching the tones of their two flutes completely.

It has also been suggested that, in the earliest decades of charanga, Cubans perceived these five-key flutes as more desirable because they are French, and that there were certain social and cultural conditions that existed that made the performers wish to appear as “French” as possible (as opposed to “black”). This racial-social phenomenon is well-documented; Afro-Cubans from Santiago de Cuba refer to themselves and are referred to by others as *franceses*. But the Boehm system flutes available to Cuban flutists could also have been no less French than the five-key flutes, as they were available from the same makers who made their five-key flutes.¹⁷

¹⁵ Wilson, *Historical Flutes Page*.

¹⁶ Personal communication, several flute makers and historians of Yahoo Groups Early Flute group, including Rick Wilson and Terry McGee, 2001.

¹⁷ Couesnon et Cie, *Catalogue Illustré 1930-31*.

A preponderance of all these rationales, justified or not, have created a culture in which the traditional five-key flute is preferred, but the Boehm flute is accepted. Continuity, availability and affordability are the verifiable practical reasons. But many performers would cite advantages of tone and/or technique as their own reasons, even if these cannot be supported by evidence. Whatever the reasons, the fact remains that all charanga musicians, flutists, bandleaders, and fans, of every generation, consider the five-key flute to be more traditional and authentic.

Authenticity does not seem to be enough of a force, however, to halt the march of time. Over the last 40 years, in Cuba and elsewhere, the Boehm flute has been gradually replacing the five-key flute in charanga, because of the scarcity of the instruments. In fact, the list of five-key wooden flute players today is very short. As with any musical tradition, some of the younger musicians are committed to the more modern instruments. And even some of the senior charanga performers who began their careers on five-key flute transitioned to Boehm flute by choice (most notable, Richard Egües, the flutist who had, so far, the longest tenure in Cuba's seminal charanga band, Orquesta Aragón). Still, many of the notable contemporary Boehm-flute charanga performers would choose to play a five-key wood flute if they could find a good one.

The scarcity of the French five-key instruments is striking if we understand how recently these instruments were widely available.¹⁸ Because use of Boehm-style woodwind instruments in the United States became widespread to the nearly complete exclusion of all others in the 1920's,¹⁹ it can be difficult for American musicians to imagine that this was not the case everywhere, even very recently. Among the list of French flute manufacturers preferred by Cuban flutists - Tulou, Buffet, Couesnon, Thibouville, Martin Frères, Lefevre, Selmer, Prosper Colas, and Godfroy - a few of them continued to be manufactured into the middle of the 20th century. Although some of the best ones, such as Tulou or Godfroy, were not made beyond the 19th century and they command a high price, some manufacturers moved to mass production as industrialization increased, and thus prices decreased. Even in the 1940's, new five-key flutes were manufactured by some of these companies, and the price was always a fraction of the price of a Boehm flute. After the widespread manufacture of these flutes ceased in the mid-20th century, many of them came onto the market via auction houses, and with the exception of the most rare and high quality 19th century makes (Tulou and Godfroy), they went for very low prices. Some historical flute experts have quoted very low prices for five-key flutes that they purchased in the 1970's or later. These flutes were not always in good condition, so

¹⁸ I am very grateful to the members of the Early Flute chat group on Yahoo.com for their expertise and valuable insights regarding French five-key flutes and their availability in the 20th century, especially Daniel Deitch, Phillipe Alain-Duprés, Francis Dozin, Keith Freeman, Terry McGee, and Michael Lynn, Curator of Instruments Emeritus of the Oberlin Conservatory of Music.

¹⁹ Paul H. Giroux, "The History of the Flute and Its Music in the United States," *Journal of Research in Music Education* Vol. 1, No. 1 (Spring, 1953), 68-73.

the price of repair had to be factored into the expense of acquiring a playable instrument. But the cost of repair would also have been folded into the cost of alterations to make the instrument ready for the demands of charanga. That these instruments quickly became very scarce in a couple of decades is a testament to the multiple vogues that charanga enjoyed in the second half of the 20th century.

In New York City's professional Latin music scene, many new charanga flutists come into this world from careers as classical flutists. If they intend to perform on the five-key flute, after acquiring one, the challenge is to adapt to the differences between the instruments. A 19th-century tutor designed for the fingering system and particular challenges of the instrument is the best way to begin. The most common method of study used by five-key charanga flutists has always been the *Méthode de flûte*,²⁰ written in 1835 by one of the strongest advocates of the simple system flute in the 19th century, Jean-Louis Tulou. Tulou was François Devienne's successor, professor of flute at the Conservatoire de Paris from 1829-1856. He was also a partner in a flute manufacturing business, and it has been mentioned above that he made some of the highest quality flutes that are the most sought-after by charanga flutists. A Spanish translation of Tulou's method, *Método de Flauta*, published in 1910 by Henri Lemoine, is used by flutists in Cuba.

Tulou made some "improvements" in keyed flutes himself, and so it is important to be sure to have the right edition. Tulou's first edition, published in 1835, was written for our five-key flute, and is available at IMSLP.org. Editions published in 1842 and

²⁰ Jean-Louis Tulou, *Méthode de flûte progressive et raisonnée* (Mainz: Schott, n.d. 1835?)

afterwards were written for his 12-key “flute perfectionnée,” which he introduced in 1840.²¹ The exercises and etudes contained in the later editions are still useful, but certain things in the fingering charts do not apply.

In either case, the fingering charts found in all editions of Tulou’s *Méthode de Flûte* end with C4 at the top extreme. Obviously, charanga flutists cannot rely on it for fingerings for notes in the all-important 4th octave. Through the 19th century, the repertoire performed by French flutists only required them to play up to B3. Fingerings for the remaining upper range for charanga have supposedly been worked out by the Cuban flutist Octavio Alfonso (1886-1960).²² But this supposition must be qualified. Simple system flutists have always had a preponderance of alternate fingerings available to them, and a great willingness to experiment. It is a concept that is difficult for most modern-day woodwind players to imagine. Simple system flutists will keep trying fingering options until they find something that works. This is essential because there is great variety from one maker to another, and even from one flute to another by the same maker. Fingerings from one chart may not all work for the flute at hand, and often they must be worked out individually by the performer. Simple system flutes vary.

Interestingly, although most 18th-century (Baroque and Classical) flute fingering charts stop at A3, and most 19th century simple system flute fingering charts stop at B3, there are a couple of fingering charts from the 18th and early 19th centuries for one-key and five-key flutes that go as high as D4, D#4, and even E4. Given the era,

²¹ Wilson, *Historical Flutes Page*.

²² Miller, *Cuban Flute Style*, 35.

we can assume that these should work without the widening of the embouchure or driving in of the head cork, the way charanga flutists do to prepare a French flute to play Cuban music. This may change a lot of what we know about what instrument is suitable for the music. As the rule goes, a solid E4 is high enough to work in charanga. Charanga performed on the one-key flute would be quite a feat!

Some Boehm flutists in charanga can produce a reliable F4, and today, five-key flutists are expected to produce an F#4. Quite a few can play G4. Michele Smith, a student of Panamanian Boehm flutist Mauricio Smith (no relation) reported that he was able to produce the G4, as he had a custom-designed headjoint with a specially cut embouchure.²³

²³ Personal communication.

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