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From the Five-Key Flute to the Boehm Flute: Exploring Structural Differences and Recreating Idiomatic Performance Practices in Cuban Charanga-Based Genres.

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FROM THE FIVE-KEY FLUTE TO THE BOEHM FLUTE:
EXPLORING STRUCTURAL DIFFERENCES AND RECREATING IDIOMATIC PERFORMANCE PRACTICES IN CUBAN CHARANGA-BASED GENRES

By

Ernesto Fernandez

A DOCTORAL ESSAY

Submitted to the Faculty
of the University of Miami
in partial fulfillment of the requirements for
the degree of Doctor of Musical Arts

Coral Gables, Florida

May 2016
UNIVERSITY OF MIAMI

A doctoral essay submitted in partial fulfillment of the requirements for the degree of Doctor of Musical Arts

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Ernesto Fernandez

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(D.M.A., Instrumental Performance)  
(May 2016)

From the Five-Key Flute to the Boehm Flute: 
Exploring Structural Differences and Recreating 
Idiomatic Performance Practices in 
Cuban Charanga-Based Genres.

Abstract of a doctoral essay at the University of Miami.

Doctoral essay supervised by Professor Trudy Kane. 
No. of pages in text. (141)

A historical background of the Cuban charanga dance genres and the Cuban flute 
tradition of the wooden five-key flute are explored, including musical terminology, 
instrumentation, and prominent charanga flutists. The structural differences between the 
nineteenth-century wooden five-key flute and the Boehm metal system flute are 
examined using specific measurements and diagrams. The stylistic and idiomatic 
consequences of these structural differences were considered. It was considered that the 
Boehm system flute provides more musical resources through its ease of use and 
mechanical facility. Professional flutists from different generations with years of 
experience in the style were consulted; multiple recordings were analyzed, and the 
author’s experience performing the style also influenced this writing. A methodology for 
learning to play in the charanga style was provided with specific exercises and musical 
examples. It was concluded that the musical possibilities in charanga are similar with 
either flute, and that the flutist’s abilities make a bigger impact in the style than the 
instrument used. A recommendation for further study is enclosed.
To my mother Maria Reboredo for being the embodiment of sacrifice, and to my father Clemente Fernández, the first doctor in the family. I am now the second thanks to your invaluable support.
ACKNOWLEDGEMENTS

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In conjunction with this work, I produced a final doctoral concert with the collaboration of wonderful musicians who shared their talents: Liván Mesa, José
“Majito” Aguilera, Reinier Guerra, Tony Columbie, Chad Bernstein, William Paredes, Muriel Reinoso, and Jorge Carlos Oviedo. Of special significance was the help of Yorgis Goiricelaya with the musical arrangements, Aymee Nuviola and her magnificent vocal talent, Omer Pardillo-Cid, and Paulo Simeon, all of which made this concert truly memorable. Thank you for your professionalism, guidance, and input.

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LIST OF ABBREVIATIONS

CHC- Cuban Heritage Collection (University of Miami)
CLAS- Center of Latin American Studies (University of Miami)
DAC- Díaz Ayala Collection (Florida International University)
DCM- Dayton C. Miller Collection (Library of Congress)
GL- Green Library (Florida International University)
LAC- Latin American Collection (University of Florida)
WML- Marta and Austin Weeks Music Library (University of Miami)
CHAPTER ONE
INTRODUCTION

Cuba is often the topic of conversation or debate, and it almost always involves politics or culture. The island is particularly known and respected for its musical contributions to the world, including a gamut of traditional dance genres that shaped its musical identity in the twentieth century. Although this study has been realized from a performer’s point of view, it is important to understand the historical and ethnomusicological background that brought us to our present situation. Notwithstanding, this study is meant for the performer, more so the flutist interested in learning, appreciating, and comprehending Cuban charanga music and the iconic role of the flute as it developed in charanga-based genres.

BACKGROUND

In its simplest definition, charanga as we know it today is a Cuban musical ensemble. The word has been used in different contexts. We can refer to charanga music, which includes the different dance genres played by such an ensemble. Musicians can use it as a verb when they invite others to charanguear, or play charanga music together, and the person who plays in the ensemble is referred to as the charanguero. The arguably standard instrumentation and repertoire we see from charanga ensembles today is the product of an evolutionary process that took decades, driven partly by sociopolitical factors and by musical changes and adaptations. Despite most Cubans being able to define charanga and agree on its importance in the formation of Cuban national identity, there are always minor disagreements over musical and cultural details. These
disagreements come as a result of charanga’s long evolutionary timeline involving multiple social groups and musical influences that coexisted and blended to create the contemporary ensemble and genres we associate the term charanga with.

The word charanga is originally Spanish and was first used in the sixteenth century to refer to military brass bands in Spain. These bands were comprised of brass and percussion instruments with several woodwinds.

The main woodwind instrument in the regimental charanga bands was the clarinet. Other woodwinds included fifes, piccolos, and flutes. In Cuba it initially implied a low-status street band made up of poor and mostly black Cubans. These bands performed dance music at guateques or informal parties at the end of the nineteenth century as well as on the streets. Such groups were also known as bungas, and the terms were intertwined at the time. Meanwhile, the African slaves on the island and their French landowners all influenced the musical landscape during the eighteenth and nineteenth centuries. After the addition of creole percussion and European string instruments to the Spanish charangas, these ensembles became known as orquestas típicas (typical orchestras), and the term charanga ceased to be used for some time to refer to this type of ensemble.

Orquestas Típicas

Orquestas típicas were the precursor of charanga ensembles of the twentieth century with an instrumentation consisting of two C clarinets, two violins, a cornet, timpani, guiro, ophicleide, double bass, and valve trombone. French colonialists fled

---


2 Sue Miller, Cuban Flute Style: Interpretation and Improvisation (Lanham: Scarecrow Press, 2014), 3.
Haiti with their African slaves after the Haitian revolution of 1791 and settled in eastern Cuba. Once there, French landowners of sugar plantations employed African musicians to perform. The French and African populations in Cuba mixed and moved westward throughout much of the nineteenth century, thus developing the *orquestas típicas* in the late 1800s. *Típicas* were particularly favored as musical groups in Cuba at the turn of the twentieth century, and their repertoire consisted mainly of *danzones*.

### Danzón

*Danzón* is a musical genre that developed from the French *contra* (country) *danza* (dance), and is considered to this day the national music of Cuba. The English delighted French courts with their country-dance during the eighteenth century. By the end of the century French planters fleeing the rebellion of their slaves in Santo Domingo brought it to Cuba. With the mixing of ethnic groups, the genre became creolized and known as *danza*.

As Witmer explains, “The *danza* follows the *contradanza* in the development of Cuban popular dance music and is the precursor to the *danzón*.”

In Cuba, couples improvised dances to the *contradanza*. As time passed, this grew in length to become the *danzón*.

Miguel Failde Pérez (1851-1922) is credited with composing the first *danzón* in 1879, although there are conflicting reports about the accuracy of this. Titled *Las Alturas de Simpson*, it was the first of a long list of graceful *danzones* written by Failde at the

---

3 Miller, 4.


5 Witmer, 140.
The form of the danzón consists of an A section with four measures of introduction and four measures of paseo, where the dancing couple walks around the floor as if greeting each other. Both the introduction and paseo are repeated and followed by a 16-measure melody or B section. The most distinctive musical characteristic of the danzón is its rhythmic structure based on a rhythmic cell known as cinquillo (Example 1.1).

![Example 1.1. Cinquillo rhythmic cell. Notated by author.]

An even more important rhythmic structure that serves as the foundation for almost all of Cuban dance music is the clave pattern. This pattern is expressed in two measures, the antecedent and the consequent. Depending on which measure is played first, the pattern is referred to as the 3/2 clave or the 2/3 clave (Examples 1.2 and 1.3).

![3/2 Clave Pattern](image)

Example 1.2. Cuban 3/2 son clave pattern. Notated by author.
Composer and clarinetist José Urfé (1879-1957) expanded the form of the danzón in his composition *El Bombín de Barreto* (1910) to include a montuno section in which the clarinets of the orquestas típicas would improvise. This became a common practice, giving the danzón an extra section with more syncopation in which the underlying rhythm was the clave instead of the cinquillo. The idea of having an open section as part of the estribillo (refrain) to improvise would provide in later decades the musical space for the flutists to shine.

The arrival of the 1920s saw the emergence of another genre called son, which gained international acclaim and overshadowed the danzón. Son uses the clave pattern as its main rhythmic foundation and was performed at the time by groups called sextetos and septetos, referring to the number of performers in the group (six or seven). Leymarie explains, “From the 1920s on, with the development of radio and the growing interest of the American record industry in Cuban music, the son... and other rhythms spread abroad and began to attract international notice.” British charanga flutist Sue Miller adds, “Whilst the orquesta típica did not disappear entirely, it never reached the levels of popularity of the son or the charanga bands of the twentieth century. This was perhaps due to orquesta típica players abandoning [those groups] to join the newer trumpet-led

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6 Leymarie, 44.
son ensembles.” Nonetheless, the típicas and their danzones continued to exist while less popular, and an evolutionary process through those years helped revive charanga ensembles in the mid-1900s.

**Charangas Francesas**

The orquestas típicas went through a gradual transition in which the instrumentation was augmented to meet the musical changes of the time. At the beginning of the twentieth century there was a similar type of small ensemble known as charanguita. Their instrumentation consisted of piano, a wooden five-key flute, violin, and double bass. According to Ezequiel Rodriguez in his *Iconografía del Danzón*, this type of ensemble became known as charanga francesa with the addition of the güiro and the pailas or timbales. He explains,

La noche del 31 de Julio de 1890…apareció un nuevo tipo de agrupación instrumental llamada “Unión Armónica.” Este grupo era pequeño y estaba integrado por los siguientes instrumentos: Piano, Flauta, Violín y Contrabajo. Por ese año, esa composición instrumental era denominada “Bunga.” Veinte años más tarde, con la inclusión de los Timbalitos (pailas chicas) y el Güiro, se le llamó Charanga u Orquesta Francesa.

[On the night of July 31st, 1890…a new instrumental ensemble was born called Unión Harmónica. This group was small and comprised of the following instruments: piano, flute, violin, and double bass. Around that year, this type of instrumental group was called a bunga. Twenty years later, with the inclusion of small timbales and guiro, the name changed to Charanga Francesa.]

Charangas francesas gained popularity at the turn of the 20th century and nearly replaced the orquestas típicas completely, substituting the brass and woodwind sections of the típicas with a piano and a wooden five-key flute. Due to innovations to the danzón

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7 Miller, 2.

over time, the instrumentation of the *charangas francesas* gradually expanded from one violin to a string section of three or four violins, and the addition of vocals.9 The standard instrumentation of a *charanga* ensemble in the twentieth century eventually became the wooden five-key flute, violins, piano, bass, timbales or *paila* (replacing the timpani of the original military *charangas*), guiro, congas or *tumbadoras*, and vocals.

The term *francesa* in this version of the *charanga* had to do with the prestige of performing for the French elite class present in Cuba since the end of the eighteenth century. While the *típicas* performed mostly at informal parties and gatherings, *charangas francesas* were used indoors for elegant events of the French aristocracy. This also justifies the change in instrument, for the brass instruments of the *típicas* were much too loud to play in such a setting. Thus, more mellow-sounding instruments such as the flute and piano found their way into the instrument lineup. Isabelle Leymarie attests to this in her book *Cuban Fire*, stating that *típicas* “were superseded by the smaller and more flexible *charangas ‘a la francesa’* - so called because both the *danzón* they played and the flute they used [five-key wooden flute] were of French origin.”10 Ironically, the flute style used in *charangas* would evolve later in the twentieth century into a powerful and virtuosic way of playing thanks to the contributions of a few flute masters that will be discussed later. Regardless of the name, these musical groups were Cuban and not French, as was the music they performed.

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9 Miller, 1.

10 Leymarie, 69.
Charanga Post-1930s

Tipicas and charangas francesas coexisted during the 1930s, although charangas were definitely more popular. Due to the purely instrumental repertory, the flute became the most important instrument in the ensemble, carrying the main melody of the danzones. With time, the role of the flute developed to a more improvisational role. However, flutists owe this addition of open improvisation sections to pianist Antonio Maria Romeu (1876-1955). Antonio Maria Romeu led one of the first charangas known as early as 1911. Initially known as Leopoldo Cervantes’ orquesta típica, the ensemble would later become a true charanga with the addition of the piano. Shortly after composing his famous danzón Tres Lindas Cubanas (1926), Romeu recorded it with a lengthy piano solo that remained unchanged by other bands that later performed the piece.

This practice of improvising solos was later transferred to the flute thanks to the work of flutist Miguel Vázquez Tuero (1889-1925), also known as “El Moro.” Leymarie explains, “The flautist ‘El Moro’ was another imaginative improviser, and he too brought in the habit of soloing at length, backed by the rhythm section, on the coda of danzones, inspiring other flautists to do likewise.” Playing on the wooden five-key flute, flutists had to suddenly deal with the more physical demands that came with taking lengthy solos. “The trilling French flute sounded wonderful, but it had to soar high above the percussion, greatly taxing the flautists’ stamina,” says Leymarie. It is not a surprise then that as instrument manufacturing continued to develop and as flutists continued to age

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11 Leymarie, 69.

12 Ibid.

13 Ibid.
they decided to switch to the metal Boehm-system flute. However, flutist Martha Councell-Vargas clarifies that, “Its difficulty notwithstanding, meeting the flute’s projection demands also created a particular and signature style of playing.”\textsuperscript{14} In the following chapters, both flutes will be explored in depth to determine their idiomatic differences and idiomatic implications of playing \textit{charanga} genres.

With the addition of lyrics to some \textit{danzones}, as well as the rise of new styles in the mid-1900s such as \textit{mambo} and \textit{chachachá}, the flute continued its soloistic role and a new school of flute playing was born. Cuban musicians and historians would agree that from the numerous flutists playing in twentieth-century \textit{charangas}, there were three who are considered the flute masters and are credited with cementing the instrument as a symbol of Cuban national identity. They were Antonio Arcaño (1911-1994), José Antonio Fajardo (1919-2001), and Richard Egües (1923-2006). For a look at their individual styles and contributions to the evolution of \textit{charanga} flute playing, I recommend Sue Miller’s book \textit{Cuban Flute Style: Interpretation and Improvisation}.

Turn-of-the-century \textit{charanga} orchestras such as \textit{Orquesta Francesa Reverón}, \textit{Orquesta Tata Pereira}, \textit{Orquesta Casas}, and \textit{La Charanga de Tata Alfonso} featured flute players on the wooden five-key flute. These flutists laid the foundation for the improvisatory \textit{charanga} style that flourished in the Golden Age of the 1950s.\textsuperscript{15} Not only did the five-key flute become the virtuosic solo instrument in the ensemble and idiomatic representation of the \textit{charanga} style, but according to Ruth M. Witmer, analysis of this

\textsuperscript{14} Councell-Vargas, 23.

\textsuperscript{15} Miller, 5.
type of flute “yields insights regarding the notion of tradition versus modernity and progress, a critical element in the construction of national identity.”

The Golden Age of Cuban Charanga

Cuba was inundated with charanga ensembles during the ‘30s, ‘40s, and ‘50s, and many musicians played in multiple groups throughout their career, sharing influences and further developing the charanga genres. That was the case of flutists José Antonio Fajardo and Belisario López (1903-1969), both credited with leading the transition of charanga repertoire to new genres such as mambo and chachachá. The musical landscape in Cuba received immense international acclaim, due in great part to the advent of the radio. Witmer cites musicologist Robin Moore, who states, “The radio also helped to foster the popularity of the music played by the charangas. The charanga’s suitability for broadcast fidelity increased their popularity while the demand for the more unrefined, horn-dominated típicas disappeared.”

Around the 1930s, flutist Antonio Arcaño played in the charanga Las Maravillas del Siglo, one of the most popular at the time. From there he formed his own group Arcaño y Sus Maravillas (Figure 1.1). Two of his musicians in the group, pianist Orestes López and his brother Israel López “Cachao” on the contrabass, are credited with the development of the mambo genre that flourished in the ‘40s and ‘50s.

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16 Witmer, 27.

17 Witmer, 169-170.
A more syncopated, rhythmic section initially added as a *montuno* to the *danzón*, it was known as the *nuevo ritmo* (new rhythm) and attained international fame as a genre of its own thanks to performers Dámaso Pérez Prado (1916-1989) and Beny Moré (1919-1963).  

18 Leymarie details the development:

Eager to modernize the *danzón*, Orestes and Cachao López modified its structure. Around 1935, the *danzón* consisted of an introduction, a main theme, and a final trio or *montuno* on which the musicians could improvise. After the flute solo [by Arcaño], the piano generally concluded the piece. Gradually, the final trio section was subdivided into the *montuno* proper, on which the musicians soloed while the rhythm section maintained a steady accompaniment, and the *mambo*—a short passage consisting of unison riffs, with the cowbell accenting the strong beats.  

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18 Miller, 8.
Leymarie then adds, “It is Dámaso Pérez Prado, however, in the early 1950s, who truly invented the mambo as a distinct musical genre.20

Meanwhile, flutist José Antonio Fajardo formed his own charanga called Fajardo y Sus Estrellas after playing for two years in Arcaño y Sus Maravillas (1947-1949).21 He also reached worldwide recognition during the 1950s when a new dancing genre, chachachá, was developed. The invention of chachachá is without a doubt credited to Enrique Jorrín, violinist for the charanga Orquesta América at the time. The genre was born out of the complexity of danzón-mambo (or nuevo ritmo) in an effort by Jorrín to simplify the rhythmic figures for the dancers.22 The term chachachá is onomatopoeic of the shuffling of the feet when dancing to the genre (Example 1.4).

![Example 1.4. Chachachá rhythmic pattern. Notated by author.](image)

The first major hit song of this new genre was Jorrín’s La Engañadora (1950). With the rise of chachachá the number of charanga orchestras and their popularity around the world increased like never before. “The 1950s were boom years for musicians in Cuba and the international chachachá craze propelled bands such as Orquesta

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19 Leymarie, 113.
20 Leymarie, 115.
21 Miller, 15.
América, Fajardo y Sus Estrellas, and Orquesta Aragón to worldwide fame,” says Sue Miller. It was not just the virtuosic flute playing of Arcaño, Fajardo, or the other flutists of the time. It was the dancing routines, the choreographic coordination of the musicians, and their interaction with the audiences that raised Cuba’s musical landscape to new heights and allowed bands to tour constantly throughout Europe and the Americas.

Of utmost importance in the Golden Age of Cuban charanga was the work of the Orquesta Aragón. Formed in 1939 by the double bass player Orestes Aragón Cantero and originally named La Rítmica del 39, the musical group positioned the five-key flute at its forefront from the very beginning. Later led by violinist Rafael Lay, the orchestra became the image of charanga in mid-century, and a school for flutists in the style. Throughout its long history, there have been five flutists in the group: founder Efraín Loyola (member from 1939-1952), Rolando Lozano (1952-1954), Richard Egües (1954-1984), René Lorente (1984-1990), and Eduardo Rubio who remains in the group today. The most influential and recognized flutist was Richard Egües, whose style became a model for future flutists. Egües was also one of the first to switch from the five-key flute to the metal Boehm flute, showing excellent proficiency in both (Figure 1.2).

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23 Miller, 8.
24 Miller, 9.

Aragón is a name that still resonates today given the immense success they enjoyed during the Golden Age of *charangas* and years after that. Hector Ulloque Germán explains why the orchestra was so successful:

Hay que destacar, en primer lugar, que el reconocimiento que tiene la orquesta en este ciclo de su vida se debe a la temprana contratación como artistas exclusivos de la casa RCA Victor, pues este sello discográfico requería urgentemente tener una orquesta de las características de la Aragón, para oponerse comercialmente a la PANART, que había firmado contrato con la Orquesta América, que gozaba de gran popularidad entre los bailadores. El segundo aspecto a tener en cuenta fue la conformación del binomio Lay-Egües, en el aspecto artístico-musical, sus arreglos y composiciones para la orquesta fueron decisivos. El tercero fue el contrato que firmaron con Radio Progreso, que le aseguraba audiencia, y difusión de sus interpretaciones, y el cuarto, el haber escogido y divulgado el chachachá, que se adaptaba perfectamente a las ideas y al esquema musical que había diseñado la orquesta.25

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[It must be noted; firstly, that the recognition the orchestra has at this stage of its life (1950s) is due to their early signing as exclusive artists of the RCA Victor label. This company was in urgent need of an orchestra with the musical characteristics Aragón had in order to commercially compete with PANART, another record label who had a contract with Orquesta Amérıca, who enjoyed great popularity at the time. The second aspect to keep in mind is the combination Lay-Égües, in the artistic-musical aspect, since their compositions and arrangements for the orchestra were decisive. Thirdly, the contract they signed with Radio Progreso ensured them an audience and distribution of their music, and lastly, having chosen and spread the chachachá, which adapted perfectly to the ideas and musical scheme of the orchestra.]

The orchestra has remained musically active until today, playing the traditional classics that made them famous while adapting their repertoire to the changes of each decade (Figure 1.3).


Cuba’s charanga history includes a long list of flute players who helped develop and promote the style. I have added a list of select Cuban flute players that performed in charanga ensembles during the twentieth century, the ensembles they participated in, and
the years (Appendix E). These were the biggest advocates of the *charanga* style and there are still young *charanga* flutists today, although far fewer. Many of the names on the list have already passed away, and only a few continue to play the wooden five-key flute.

The Golden Age of traditional Cuban music is over, and since most of the flute masters of those years are either deceased or no longer living in Cuba, flutists today lack enough exposure to this essential part of Cuban national identity. Nonetheless, *charangas* are still present in Cuba and abroad.

**PROBLEM STATEMENT**

Although today’s instrumentation in *charanga* ensembles is a result of a gradual development through the nineteenth and twentieth centuries, the presence and importance of the flute as the main melodic and improvisatory instrument has remained constant since the rise of the *charanga francesa*. However, in an effort to gain more control and expand the boundaries of the technical possibilities, many flutists opted to switch from the traditional wooden five-key flute to the metal Boehm-system flute. When asked, most *charanga* flutists will simply state they switched because the Boehm flute is easier and more in tune, without going into a deeper explanation.

Through the performance of *charanga* genres I have wondered exactly why the five-key flute declined in popularity. Prior to this study it felt like no flutist had critically analyzed the reasons for switching to the metal Boehm flute, thus sacrificing tradition and a symbol of national identity in favor of easiness and effortlessness. What makes the Boehm flute the instrument of choice today? What makes it better in tune and easier to play? Has the facility of playing the metal flute helped develop improvisational
techniques and performance practices in the *charanga* setting? In looking for answers to these questions, close attention was given to the material, shape, mechanism, pitch, sonority, color, and response of both flutes. It is important to note that although the Boehm flute is thought of as the “modern” model, it already existed before the twentieth century as previously explained. Therefore, more recent developments in its mechanism such as the C# trill key and key rollers were not considered when comparing technical capabilities.

According to Sue Miller, “The main difference between the two flutes is one of timbre…and many charanga musicians insist that the charanga orchestra only sounds right with the five-key flute.” In addition, Miller states, “These old flutes are now only available from a few select antique musical instrument shops and are highly sought after by *charanga* flute players.” Miller also reaffirms Councell-Vargas when stating, “there are now very few remaining five-key flute players in Cuba (or elsewhere in the world).” If the *charanga* orchestra only sounds right with the traditional wooden flute, and if this declining instrument is highly sought after by *charanga* flute players, then why is it being neglected today by the younger flutists? This in-depth exploration from a performance perspective sheds light on the answers, and considers the idiomatic and stylistic advantages of using the metal Boehm-system flute when performing *charanga* genres.

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26 Miller, 30.
27 Ibid.
28 Ibid.
JUSTIFICATION

Through this study, the hope is to provide readers with an insight into a musical instrument that became associated with charanga ensembles and Cuban culture in the 20th century. It is important for flutists interested in charanga-based genres to evaluate how the idiomatic role of the instrument developed due in part to a structural development of the instrument itself. There is a need to understand the reasons from a musical and technical perspective for which the Cuban flute players of the late 20th century switched to the Boehm system flute in charanga ensembles. How this switch to a more developed flute enhanced the improvisatory and idiomatic practices typical of charanga-based genres will help flutists develop as performers of that style.

PURPOSE STATEMENT AND RESEARCH QUESTIONS

The purpose of this study is to examine the structural differences between the five-key flute and the Boehm system flute, and to provide a methodology for playing and improvising in Cuban charanga ensembles. The following research questions served to guide my study:

1. What are the physical and acoustical properties of the five-key flute and the Boehm flute?
2. How did the charanga flutists of the 20th century learn to play the five-key flute? How do students learn to play the Boehm system flute today? Is there a difference?
3. How do both flutes compare in Cuban *charanga* performance practices?

4. What are the technical and lyrical possibilities on both flutes in a *charanga* setting?
A decade ago, the amount of information written on the topic of charanga was far from extensive and comprehensive. However, the topic has received more attention as of late by ethnomusicologists and performers alike. Books, journal articles, and dissertations can now be found that reference charanga. Most of these only provide historical and descriptive information although there are a few publications about the subject that go more in depth. There is, however, very little information on the use of the five-key wooden flute in charanga ensembles, and even less information on the methodology of performing this style. Finding literature on this part of the study was a challenge and most of the information comes directly from the few proponents of the instrument still alive as well as my own experience performing the style through the years.

In carrying out this research, broader topics were first explored then narrowed down to the topic of this study. Literature on Cuban music in general was examined to understand the culture as a whole and the evolution that led to the rise of charangas, and in turn how charangas paved the way for the newer genres. Then, a search for resources focusing on the traditional Cuban genres of the early and mid-20th century was done. Any literature that explored the genres of son, danzón, chachachá, charanga, bolero, guajira, and mambo was examined to get a general understanding of the musical landscape in which charanga took place. Following this, the research focused on charanga ensembles and the main flutists who have played the wooden five-key flute. Numerous sources were found in this category, and from there I narrowed down the research and concentrated on the individual styles of the flutists, emphasizing their idiomatic characteristics on the
five-key flute and the Boehm flute. When looking for information on the different flutes, sources were found on early flutes as well as the Boehm flute. Various books explore the development of the Boehm system and how today’s metal flute changed through the years. Others take a closer look at the wooden flutes and their unique playing characteristics, including timbre, performance techniques, and the gradual addition of keys. These sources were used to compare the wooden flute to the metal Boehm, keeping in mind their application to charanga music.

Although a good number of sources have been found, there are researchers who continue to contribute to the literature. Dissertations, books, journal articles, and audiovisual material are still being produced at the time of this writing. It is encouraging to see that the topic of Cuban charanga and traditional dance music garners the attention of musicologists and performers alike. It is my hope that this study adds valuable information to that literature, more specifically to the topic of the flute as the musical symbol of Cuban charanga.

When researching information on Cuban music in general, authors Cristobal Diaz-Ayala and Helio Orovio stood out with multiple publications. Diaz-Ayala provides three books to the literature: *Cuba Canta y Baila: Discografía de la Música Cubana Volume 1*, 29 *Cuando Salí de La Habana: 1898-1997, 100 Años de Música Cubana por el Mundo*, 30 and *Los Contrapuntos de la Música Cubana*. 31 All three sources are housed in the Cuban Heritage Collection at the University of Miami. *Cuba Canta y Baila* is a

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31 Diaz-Ayala, *Los Contrapuntos de la Música Cubana* (San Juan: Ediciones Callejón, 2006).
convenient starting point of research. This extensive volume provides a general
discography of Cuban genres that helped find certain recordings used in the study as
described in the following chapter. The book serves as a guide for Diaz-Ayala’s
collection at the Florida International University, where many of the recordings described
can be found. Cuando Sali de La Habana is a volume dedicated to the history of Cuban
music. This volume covers the origins of Cuban music, passing through the bolero, son,
and its derivatives, Afro-Cuban jazz, and the new trends that surged after the Revolution
both in Cuba and abroad. It is heavily illustrated and includes a compact disc with 20
musical pieces that cover the genre spectrum explored. Contrapuntos de la Música
Cubana presents a more analytical view by the author, in which the influence that Cuban
music has had to the world is explored. Another important source by Diaz-Ayala is his
book Música Cubana del Areyto a la Nueva Trova, an in-depth chronological look at
the development of Cuban music through the nineteenth and twentieth centuries.
Supported by numerous photographs, Diaz-Ayala examines each decade in detail, the
musical genres that flourished, and the influence of political and socio-economic factors
on the cultural evolution in Cuba.

Helio Orovio’s Cuban Music from A to Z, and Diccionario de la Música
Cubana, Biográfico y Técnico are general reference works that define musical terms,
describe genres and instruments, and provide biographical information of composers and
artists from Cuba’s musical history. Diccionario de la Música Cubana is particularly

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32 Cristobal Diaz Ayala, Música Cubana del Areyto a la Nueva Trova (Miami: Ediciones Universal, 1993).


34 Orovio, Diccionario de la Música Cubana, Biográfico y Técnico (Havana: Letras Cubanas, 1981).
useful when coming across an unfamiliar name in the research. The book also provides illustrations and tables that present chronological information such as genre development and repertoire. Where it fails to deliver is in the absence of an entry for charanga, but many of the elements, musicians, and related genres are nonetheless included. *Cuban Music from A to Z* is very similar to the *Diccionario* in content but written in English. Because it was published two decades later, it is more complete and up to date with the newer musical genres and musicians of the Cuban scene.

Another scholar accessed in the research was Isabelle Leymarie. Leymarie is a renowned musicologist whose book *Cuban Fire: The Story of Salsa and Latin Jazz*\(^{35}\) is a detailed account of the evolution of Cuban music through the decades, from the roots of sacred African music and Creole rhythms to salsa, Latin jazz, timba and the influence of Cuban music abroad. Leymarie’s work is one of the most complete found in the research and leaves no area of the Cuban musical history untouched. Of special importance to this study are chapters two and four. Chapter two is in Part II of the book, which covers the 1920s and 1930s, with a section on the rise of charanga ensembles at a time when other genres such as son, bolero, and American jazz were also popular. Chapter four is dedicated to the golden age of Cuban music, the 1940s and 1950s. Here, Leymarie writes about the great charanga ensembles, mentioning the most prominent Cuban flute players of the time and their contribution to traditional dance music in Cuba. At the end, the book includes interviews by the author with Cuban musicians and a discography for each chapter and genre. It should be noted that Leymarie’s book can be found in Spanish as

well, titled *Cuban Fire: La Música Popular Cubana y sus Estilos*. The content is the same and organized in equal manner. Thus, for the purposes of this research the English version was used.

Two semi-encyclopedic works in English are also part of this research. *The Rough Guide to Cuban Music* written by Philip Sweeney, and *Cuba and its Music: From the First Drums to the Mambo* by American musicologist Ned Sublette. Sweeney’s miniature book is similar to Leymarie’s work in content although more condensed. It introduces various musical traditions in Cuba with an emphasis on select performers for each genre. Chapter four is titled *The Cuban Diaspora* and related to topics covered in this study. The book also includes a biographical directory of over 100 musicians and discographies for each artist that is critical to this research. Sublette’s work, on the other hand, examines Cuban music from a more analytical point of view rather than descriptive. His account makes the case for the fundamental role Cuban music had in the evolution of the New World. The basis of his research is the slave trade of the 16th century and how slaves transformed the new continent, developing what we call Cuban music and influencing other genres such as ragtime and blues.

Three Cuban scholars wrote the last resources used in the general Cuban music category of this study. Olavo Alén Rodríguez published *Géneros Musicales de Cuba: De*

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lo Afrocubano a la Salsa\textsuperscript{39} in both English and Spanish, providing substantial information and historical data on Cuban music, including charanga. Five families of genres are explored (son, rumba, danzón, Cuban song, guajira) and their musical derivatives. Writer and musicologist Radamés Giro is the author of Panorama de la Música Popular Cubana\textsuperscript{40} and Diccionario Enciclopédico de la Música Cubana.\textsuperscript{41} Although his Diccionario is similar to Orovio’s Diccionario and Sweeney’s Rough Guide in structure, it presents additional useful information. Meanwhile, Panorama deals with the wider picture of Cuban’s musical landscape from the past as well as its current status today. In addition to these writings, Alejo Carpentier’s La Música en Cuba\textsuperscript{42} is a widely renowned literary work that was translated to English in 2001 by Timothy Brennan. Carpentier goes beyond criticism of Cuban music and includes other areas in the Caribbean, supporting his idea that culture, and more specifically music, should be studied in terms of geographical regions and not limited to specific countries. At the time of its publication it was considered one of the best analytical works on Cuban music and to this day remains one of the most important books in Cuban music literature.

The next category in my literary research was works focusing on traditional Cuban music, emphasizing charanga and its derivative genres (danzón, chachachá,

\textsuperscript{39} Olavo Alén Rodriguez, Géneros Musicales de Cuba: De lo Afrocubano a la Salsa (San Juan, PR: Editorial Cubanacán, 1992).

\textsuperscript{40} Radamés Giro, Panorama de la Música Popular Cubana (La Habana: Editorial Letras Cubanas, 1998).

\textsuperscript{41} Giro, Diccionario Enciclopédico de la Música Cubana (La Habana: Editorial Letras Cubanas, 2007).

\textsuperscript{42} Alejo Carpentier, Music in Cuba, ed. Timothy Brennan, trans. Alan West-Durán (Minneapolis: University of Minnesota Press, 2001).
mambo). Various works were found that focus on the charanga genre, giving a deeper insight into the ensembles, flutists, and musical characteristics that defined it.

On the topic of danzón, scholars Helio Orovio and Osvaldo Castillo Failde informed my research. Danzón was one of the main traditional genres performed by charanga ensembles in the 1940s and 1960s, with the flute as the principal melodic instrument. Thus, any sources about danzón are bound to refer to the charanga groups and the prominent flutists that played it on a five-key flute. Orovio’s *El Danzón, El Mambo, y El Chachachá* and Castillo’s *Miguel Failde: Creador Musical del Danzón* explore the traditional genres of mid-20th century Cuba with an emphasis on danzón and the role it played on establishing Cuba’s musical identity around the globe. Other genres of the time such as mambo and chachachá are analyzed, and are useful to this study because the flute was at the forefront of the instrumentation used. In addition to these two sources, Cuban scholar Ezequiel Rodriguez Domingues’s publication in Spanish *Iconografía del Danzón* provides an assortment of images accompanied by historical information that will be used in this research.

If you were to ask any Cuban musicologist and scholar whom they consider the best charanga flutist and ensemble, almost certainly the answer will be Richard Egües and the *Orquesta Aragón*. The ensemble’s legacy and impact on Cuba’s musical identity is immeasurable. Three scholars have contributed works to the literature on the story of

43 Helio Orovio, *El Danzón, el Mambo, y el Chachachá* (Santiago de Cuba: Editorial Oriente, 1994).


the *Orquesta Aragón*, all of which will inform my research: Gaspar Marrero’s *La Orquesta Aragón*,\(^{46}\) Hector Agustín Ulloque’s *Orquesta Aragón*,\(^{47}\) and Francois-Xavier Gomez’s *Orquesta Aragón: The Story, 1939-1999: La Charanga Eterna*.\(^{48}\)

Most of the information on *Aragón* will be obtained from Ulloque’s book, which provides a thorough and detailed account in Spanish of the famous Cuban orchestra. The author chronicles, through interviews with former and current members, the band’s trajectory from its creation through its golden age until the turn of the century. It is important to note that the group remains active today. The book includes an entire discography of *Orquesta Aragón* as well as a list of works composed and recorded by the group. The discography is arranged by formats, from the older LPs to CDs, and has been a great aid in this research. In addition, the author gives special attention to the flutists and their individual style. The flutists, most notably Richard Egües, wrote many of the compositions that became staples of the *charanga* repertoire and the author emphasizes those works and the role the five-key flute sound played in creating the group’s stamp.

Another valuable and more recent source on *Orquesta Aragón* is Jose Loyola Fernandez’s *La Charanga y Sus Maravillas: Orquesta Aragón*.\(^{49}\) This book is preferred by some of the flutists involved in this research over Ulloque’s book, although in terms of content and depth they are similar. However, it is thought to be more accurate on some accounts. In addition to the author’s criticism and historical focus, it also includes a


discography of the orchestra. Similarities notwithstanding, I prefer Ulloque’s as I find it to be more complete all around.

Prior to Richard Egües’ career with Orquesta Aragón, flutist Rolando Lozano held the position with the ensemble. There are a few dissertations in the literature on the topic of charanga. Rolando’s son, Danilo Lozano, who graduated from the University of California in 1990 with a master’s degree in music, wrote one of them. His work, titled The Charanga Tradition in Cuba: History, Style, and Ideology,50 contains critical analysis of the charanga genres, with good historical information and in-depth description of charanga performance practices.

The other dissertation was written by Ruth Witmer, titled Cuban Charanga: Class, Popular Music, and the Creation of National Identity.51 Witmer’s publication is one of the few truly comprehensive scholarly works on charanga. As she explains, “the goal of [her] research is to fill that lacuna [lack of comprehensive publications on charanga] by moving past descriptive and historical treatments of charanga and to analyze the concept from broader socio-cultural perspectives.”52 Similarly, the goal of this research is to fill the void of comprehensive and analytical information on the five-key charanga flute and to provide a methodology for students who wish to perform charanga and improvise to it. Witmer’s extensive study includes a section on the five-key flute as part of chapter two, numerous photographs, transcriptions, and interviews with charanga flutists. Her focus, however, is on the charanga genre and its role in defining


52 Witmer, 55.
Cuban national identity during the 20th century. It contains substantial information and additional references that will be useful to my research.

In regards to journal articles, there are three publications that present historical information on *charanga*, with a comparative focus to today’s status of the genre. Connie Grossman53 and Pedro de la Hoz’s54 contributions to the literature are worth a look as a complement to the other sources previously mentioned.

After looking for sources of information on traditional Cuban music, the topic of the flute as a musical instrument, its history, and development was researched. Several books have been written on the evolution of this instrument, from the early wooden flutes of the Baroque to the invention of the metal key Boehm system. It was important to understand the different stages of development and how the flute gradually became the instrument it is today. It was also essential to recognize the role the wooden flutes had in the Baroque, their disadvantages for performance, and the transition into the Boehm flute to relate it to the decline of the five-key flutes in *charanga* ensembles. It is important to note that although there is plenty of literature on wooden Baroque flutes and their gradual evolution, the amount and depth of literature focusing specifically on the five-key flute’s presence in Cuban music is scarce in comparison.

Regarding early flutes, there are two books in the literature that will be used throughout this study. John Solum55 and Rachel Brown56 offer useful resources on

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wooden flutes, although neither concentrates on the five-key flute. Their books are nonetheless practical in understanding the different types of early flutes. Solum’s book examines the use of the transversal flute through the Renaissance, Baroque, and Classical periods. It also deals with the pros and cons of the different variations of the instrument, some of the flute makers of the time, and how to maintain them in good condition. Brown’s work, meanwhile, is a more practical guide for performers who wish to play early music. Brown offers performance practice techniques and advice for stylistic issues through a number of case studies.

In addition to these sources, there are two websites maintained by early flute collectors with valuable information that will be used in this study. Early flute collector Terry McGee maintains a website with information on flutes used in Irish, early, and classical music. This site is critical to this research because it focuses on temperaments of the different flutes, with special attention to the five-key flute. The site also includes diagrams that show the different tendencies of each register in the five-key flute. It is especially useful for the improvement of the five-key flute and will be examined closely during the fieldwork part of this project. Similarly, Richard Wilson’s website home page reads, “This website presents photos of, descriptions of, and information about historical European and American flutes from the Renaissance to the 20th century. In addition, we give related historical material about performance practices and report on the author’s experiences playing these instruments.” Of special interest are the three pages titled

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“19th Century Simple-System Flutes” which deal with different keys that were gradually added to the wooden flute and the playing characteristics of each model, with a breakdown of intonation tendencies and construction.

English flute specialist and maker Ardal Powell wrote the book *The Flute*.\(^{59}\) One of the most detailed and complete works about the evolution of the instrument, it covers all stages of the development of the flute from the 12th century until today. He discusses the relationship between each transformation to changes in playing style and repertoire, as well as its uses in different settings and the lives of different flutists. Powell also contributed a lengthy journal article titled “The Tromlitz Flute”\(^{60}\) about Tromlitz’s keyed model of 1785. Tromlitz himself contributed to the literature with his book *The Keyed Flute*,\(^{61}\) which was translated by Powell. Tromlitz’s book was first published in German in 1800 and contains vital information on performance practices for his flute model.

When researching literature on the Boehm system flute, Christopher Welch’s *History of the Boehm Flute*\(^{62}\) and Philip Bate’s book *The Flute: A Story of its History, Development, and Construction*\(^{63}\) are the two sources that most informed my study. They both provided a detailed account of the processes involved in the construction of the Boehm system and the different stages of evolution. Author Charles Nicholson’s work

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Readings in the History of the Flute provides a collection of primary sources such as essays, monographs, and letters that are difficult to find anywhere else. These sources are critical in considering the impact of the instrument’s transformation.

In regards to the Cuban flute or five-key wooden flute used in charanga ensembles, Sue M. Miller is the researcher with the most information available to date. Her recently published book Cuban Flute Style: Interpretation and Improvisation thoroughly explains every aspect of the five-key flute. Her methodology was heavily based on personal interviews of the Cuban flute masters still alive in Cuba and abroad. The book provides an in-depth analysis of the flute-playing style in traditional Cuban genres, with a focus on performance techniques and improvisation. It examines the development of the charanga ensemble, from its early French and African roots to the peak of its popularity in the Golden Age of the 1940s-1960s. It also includes useful guides of playing, including fingering charts, tips for tuning, and alternate techniques to improve intonation. In addition, Miller dedicates a brief section to teaching the reader how to perform the instrument in the style of charanga, as well as all the derivative genres like danzón, chachachá, and mambo. Miller’s big inspiration for her book was Cuban flutist Richard Egües, whose career with the famed Orquesta Aragón cemented his legacy as one of the top three Cuban charanga flutists and improvisers. At the time of this writing, Sue Miller is writing a sequel book that will examine the careers of Cuban flute players in the United States and their work in other genres like Latin jazz.

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65 Miller, Cuban Flute Style.
Miller also contributed a PhD dissertation exclusively on performance practices of the five-key flute and improvisation in charanga music. It is titled *The Creative Process of Improvisation in Cuban Charanga Performance, with a Specific Focus on the Work of Richard Egües and Orquesta Aragón.* However, the University of Leeds in the United Kingdom owns the print document and getting access to it has been impossible due to copyright protections that prevent it from being published in digital format. Another dissertation that was recently published at the time of this writing is Jessica Valiente’s *Siento Una Flauta: Improvisational Idiom, Style, and Performance Practice of Charanga Flutists in New York from 1960 to 2000.*

I met Valiente at the 2015 National Flute Convention in Washington, D.C. She is one of the few scholars whose main focus is on charanga flutists specifically in the New York area, an area that was critical for the evolution and distribution of derivative genres like salsa. I also met another charanga scholar, Martha Councell Vargas, at this convention. A professor at Western Michigan University at the time of this writing, Councell Vargas has been interested in charanga music, inspiring her to publish articles and record in the style. She published an article in the flute magazine *The Flutist Quarterly.* It is titled “Toward a Cuban Flutistry: An Exploration of the Charanga Flute Tradition” and it offers valuable information gathered during her travels to Cuba and interviews with charanga flutists. Other journal articles focusing on the Cuban flute style and the traditional five-key flute can be found in the literature. Sue Miller wrote a series

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66 Miller, "Flute Improvisation in Cuban Charanga Performance: with a specific focus on the work of Richard Egües and Orquesta Aragón" (PhD diss., University of Leeds, 2010).


of articles for the British magazine *PAN*. However, the information is mostly the same as that found in her book and dissertation.

In order to go beyond descriptive and historical concepts, I researched ethnomusicological sources to produce a complete and well-rounded publication. For scholarly work on Cuban musicology arguably the best researcher is Robin D. Moore. His publications on Cuban music are referenced in almost all scholarly literature about Cuban music. His two books, *Nationalizing Blackness: Afrocubanismo and Artistic Revolution in Havana, 1920-1940* and *Music and Revolution: Cultural Change in Socialist Cuba* provide the groundwork on ethnomusicology necessary to carry out this study. Moore describes *Nationalizing Blackness* by saying,

"*Nationalizing Blackness* uses music and dance history as a means of discussing the highly ambivalent attitudes towards Africa and African-derived culture in Cuba of the 1920s and 1930s. Specifically, it focuses on an artistic movement known as "afrocubanismo" which led to the popularity of formerly marginal genres of black, working-class music such as son and comparsa. Afrocuban artistic expression is presented as both a source of pride for most Cubans, a symbol of their unique Caribbean experience, and as a form of expression that many considered "primitive" or "backwards." The book discusses numerous subjects such as the history of the Cuban blackface theater, the history of carnival in Havana, early son bands, popular song and dance music of the 1930s, the international rumba craze, and poetry and visual art inspired by Afrocuban culture."  

While *Nationalizing Blackness* gives attention to the earlier history of Cuban music, *Music and Revolution* takes a look at post-Revolution Cuba, analyzing how the fall of the Soviet Union influenced musical and ideological changes that had an impact on

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the musical landscape of the island. Also of note is ethnomusicologist Peter Manuel who contributed to the literature with his books *Creolizing Contradance in the Caribbean* and *Popular Music of the Non-Western World*. Each book contains a section that will inform this research: “Cuba: From Contradance to Danzón”72 and “Latin America and the Caribbean,”73 respectively.

All the writings and research involving Cuba by scholars of multiple nationalities over the last century have been central in creating a national identity of a country known around the globe for its culture and strong musical presence. Together, resources on traditional Cuban music, the flute and its evolution, ethnomusicological analyses, and educational methodologies were all explored in this study. By analyzing information from various areas a more comprehensive study was conducted to find accurate answers to the research questions presented in the previous chapter.


CHAPTER THREE
METHODOLOGY

As stated previously, the purpose of this study is to examine the structural
differences between the five-key flute and the Boehm system flute, and to provide a
methodology for playing and improvising in Cuban *charanga* ensembles. The following
research questions served to guide my study:

1. What are the physical and acoustical properties of the five-key flute and the
   Boehm flute?
2. How did the *charanga* flutists of the 20th century learn to play the five-key flute?
   How do students learn to play the Boehm system flute today? Is there a
difference?
3. How do both flutes compare in Cuban *charanga* performance practices?
4. What are the technical and lyrical possibilities on both flutes in a *charanga*
   setting?

In order to answer these research questions, a three-part methodology for
gathering and analyzing data was used. The methodology involved fieldwork, historical
research, and analysis of recordings and scores.

The first question was addressed through fieldwork. In undertaking this project, it
was important for me to be proficient in the instrument I was investigating, namely the
five-key flute. For this I contacted Dominican flutist Gerardo Peña, thought to be the only
person in Miami who sells wooden five-key flutes. A lover of Cuban culture and
musicology, Gerardo has a personal collection of wooden flutes and a vast knowledge of
the evolution of traditional Cuban music. I acquired my own five-key flute from him; a
French Jérôme Thibouville-Lamy brand from circa 1860 with all original parts made of rosewood (Figure 3.1).

Figure 3.1. My personal 19th century French five-key flute (c.1860). Jérôme Thibouville-Lamy, rosewood. Photo by author.

With the aid of method books and some of the sources used in this study I taught myself how to play the five-key flute. I have learned enough to be able to differentiate between this instrument and the Boehm system flute, the instrument I have played since I was six years old. In addition, flutist Eduardo Aguirre (Charanga Típica Tropical) provided me with lessons, techniques, and strategies to perform accurately on the five-key flute. This gave me a better understanding of the difficulties this instrument presents and a clearer picture of the reason it was replaced with the Boehm system flute in some charanga ensembles. For the different fingering combinations, I used Sue Miller’s book, in which she includes charts used by flutists Polo Tamayo, Eddy Zervigón, and Joaquín Oliveros.74

Another aspect of fieldwork involved personal interviews with charanga flutists in New York, South Florida, and Havana. Because of the advanced age of many of these flutists, the interviews were a priority of the research. The individuals chosen to participate are all proficient in both the five-key flute and the Boehm flute, with most of

74 Miller, 38-62.
them choosing the five-key flute as their primary instrument when performing *charanga* genres. The first set of interviews took place in Miami, FL where flutists Gustavo Cruz, Eduardo Aguirre, and René Lorente reside. Gustavo performs with the *charanga* ensemble of singers Hansel & Raul (former members of La Charanga 76), while Eduardo Aguirre performs around the country with his long-standing *Charanga Típica Tropical*. René Lorente was the successor flutist in the famed *Orquesta Aragón* after legendary Cuban flutist Richard Egües stepped down.

The next destination was New York where flutist Eddy Zervigón lives. I met Mr. Zervigón through Gustavo Cruz, as they are close friends and maintain constant communication with each other. During a trip to Washington, D.C. in August 2015 for the National Flute Convention I went to New York and met with Mr. Zervigón. Eddy Zervigón moved from Cuba to New York in 1962 and founded the *Orquesta Broadway*, still active today. He is one of the oldest flutists of the *charanga* era still alive and plays on the five-key wooden flute mostly.

The last component of fieldwork was the most special to me. I had the opportunity to interview select *charanga* flutists in Cuba through email correspondence. These included Eduardo Rubio of *Orquesta Aragón*, Polo Tamayo of *Ritmo Oriental*, and Joaquín Oliveros of *Orquesta Rubalcaba*. Also, Cuban flutist and close friend Orlando Valle “Maraca” was very helpful in providing me the contact information of these flutists on the island. Due to the small amount of literature written on these artists and the advanced age of Polo Tamayo, documenting their story, anecdotes, and perspectives was very valuable to my study.
Due to the nature of the project as an on-going study, follow-up correspondence with some of the artists has served to complement the information initially gathered. All interviews and correspondence were recorded in written form with the approval of all participants. The subjects provided approximately an hour of their time for a formal, sit-down interview where pre-determined questions were fielded (Appendix C). The questions asked focused on each flutist’s method for learning the five-key flute and the Boehm flute, how they learned to perform in the Cuban charanga style, and their individual improvisational techniques. Due to their proficiency with the five-key flute and their presence during the transitional period to the Boehm flute, they provided useful information for recreating the idiomatic charanga performance characteristics on the latter. In most cases, these interviews carried on to more informal conversations that sometimes took a few hours; conversations that were enlightening due to the amount of knowledge and resources these flutists shared with me.

As part of the fieldwork for this project, I designed and instructed a new course at the University of Miami that was approved for the study of the Cuban flute style in the spring of 2015. I was able to offer flute majors an opportunity to increase improvisational skills in the charanga style through an examination of 20th century Cuban flute playing, with a look at the five-key wooden flute and its main proponents. The students learned a standard piece from the Cuban repertoire every week and improvised to it. They also did some research on prominent Cuban flutists and their careers, and were assigned a specific recorded solo to transcribe by ear and then learn it. In addition to this class, I had the opportunity to present related workshops and clinics at the 2015 and 2016 Florida Flute Conventions in Orlando and the 2015 National Flute Convention in Washington, D.C.
where flutists from all over the country were exposed to the charanga style of flute playing and interacted through improvisation. Through these events I got to see the interest of flutists, particularly the young generation, in growing their musical vocabulary and creativity.

The next element of my methodology involved historical research in numerous repositories of information. Investigation in libraries, collections, and museums provided data that cannot be obtained through oral history or interviews with contemporary musicians. The sites visited in Florida included The Cristobal Diaz-Ayala Cuban Collection at Florida International University, the Cuban Heritage Collection and the Center of Latin American Studies at the University of Miami, and the University of Florida’s Latin American Collection. During my time in Washington, D.C. for the National Flute Convention I was able to visit the Dayton C. Miller Flute Collection at the Library of Congress. This collection houses photographs, instruments, and other historical materials that were donated to the Library by scientist Dayton Miller. All these sites visited over the course of the past year contain valuable information on Cuban music that was paramount to this study.

The final element of the methodology was the analysis of recordings, transcriptions, and scores to understand the musical evolution of flute performance in the charanga style. According to Witmer, the Diaz-Ayala Collection at Florida International University contains the largest collection of recorded Cuban music in the world, including 28,000 LPs, 17,000 78 rpm records, 1,500 45 rpm records, 4,000 cassettes with radio interviews, 4,500 pieces of sheet music, and 1,000 CDs, photographs,
videocassettes and paper files. The Cuban Heritage Collection also holds rare recordings and other media resources that were used in this study. I catalogued all the music explored into different categories such as ensemble, flutist, album, and year for easier tracking and studying. Whenever possible, the type of flute used in the recording was identified with the help of Gustavo Cruz and compared to other versions of the same piece in which the other flute was used. Special attention was given to the difference in timber, technique, and improvisational elements employed in each version to draw conclusions about the idiomatic and stylistic identities of each flutist in the recordings.

Select flute solos from some of the recordings were analyzed and learned by ear on both the Boehm and five-key flutes. This allowed me to make a more personal comparison about the facility and tendencies of each instrument, including intonation of the different alternate fingerings, articulation in the different registers, amount of pressure and support needed to produce tone in different tessitura, and possibilities for improvisational ideas.

As culmination for this project, a final concert was produced in Gusman Hall at the University of Miami on March 26, 2016. The concert consisted of a classical-influenced first half and a second half with a modern charanga ensemble. The musicians who participated included Liván Mesa (piano), Muriel Reinoso and Jorge Carlos Oviedo (violins), Chad Bernstein and Wiliam Paredes (trombones), José “Majito” Aguilera, Reinier Guerra, and Tony Columbié (vocals/percussion), and Yorgis Goiricelaya (bass). The repertoire included modern arrangements of traditional charanga songs arranged by

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Yorgis Goiricelaya. The event was graced with special guest singer Aymee Nuviola. Aymee Nuviola is a Cuban singer who has been described by some as the successor of Celia Cruz, with an enviable ability for improvisation and a powerful voice. Born, raised, and trained in a musical family, Aymee Nuviola’s most recent album *First Class to Havana* (Figure 3.2) received a Grammy nomination for “Best Tropical Latin Album” and a Latin Grammy nomination for “Best Salsa Album” this past year.

![Figure 3.2.](http://www.aymeenuviola.com)

CHAPTER FOUR
WOOD AND METAL

The origin of the wooden transverse flute dates back to the 17th century. During the Baroque period musical instrument manufacturing became a popular art in Europe and the flute underwent many changes in mechanism. Early-Baroque wooden flutes were regularly used by composers in orchestral works, and due to their immense popularity in France gradually became known as the “French Baroque” flute. However, it is important to note that these flutes were also manufactured in other European countries like England and Germany, where flutists like Richard Potter, Charles Schuchart, and Johann George Tromlitz contributed to improvements in flute design.76

Meanwhile, in Cuba, Spanish-influenced military and regimental bands were common, providing outdoor performances in plazas. These ensembles included fifes and piccolos, but not flutes. Cuba had not developed a strong tradition for Western classical music and conservatories and concert halls were still scarce at the time.77 It was not until the end of the eighteenth century that the transverse flute arrived in eastern Cuba thanks to the French migration. By then, the instrument had already gone through a series of structural changes to address flutists’ concerns of tone, technique, and compositional style. Intonation became more important with the evolution of equal temperament, and changes in manufacturing attempted to address these concerns and improve the quality of the instruments.


Initially, flutes were constructed in one piece with six small tone holes and no keys. The body had a narrow cylindrical bore and the pitch was very low. The embouchure hole was extremely small, about the same size of the tone holes. This made tone production a challenging task for players, and the resulting sound was weak with a limited range. This was the common instrument used in the Renaissance (Figure 4.1).


In the second half of the seventeenth century, a new flute was developed that became known as the Baroque flute and was very popular in France. The bore was now conical and wider at the top of the instrument, which provided better intonation and stronger low notes. The six tone holes remained but the size of the embouchure hole increased slightly. An important development was the division of the instrument into three parts, known as the head, the body or the center, and the foot. A single key for D♯ was added to the early-Baroque wooden flute to improve intonation. This key made of brass or silver was pressed with the fifth finger of the right hand, and made the instrument fully chromatic (Figure 4.2). The lowest note possible was D next to middle C, produced when all tone holes were closed. When opened one by one in succession, the flute would play a D major scale. In order to get other notes a system of forked fingerings
was employed, including the single key as part of the different combinations. Forked fingerings involve the opening of a hole while closing one or two holes below it in order to produce semitones. The disadvantage is in intonation because the partials are not in tune with each other.\textsuperscript{78}


Around 1720, flutes were manufactured in four sections. Having the instrument divided in four instead of three sections provided facility when making the tapered bore. Shorter pieces of wood are easier to stabilize and fix than longer sections. The four sections were the head, the upper body, the lower body, and the foot. These parts can also be referred to as the headjoint, middle joint, heartpiece, and footjoint (Figure 4.3). The flute remained fully chromatic, with a conical bore tapered toward the footjoint, and

became the most common flute used until the end of the 18th century. Flutes were made of wood, mainly grenadilla, although rosewood was also used (Figure 4.4).


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Over time, more keys were added to accommodate equal temperament on the instrument and to meet technical demands in the music. There were flutes constructed with five, six, eight, and nine keys, and at times the addition of keys happened rather rapidly as flute makers were experimenting and competing to gain an advantage in the market. According to Richard Wilson, the initial reason for the introduction of keys was to increase volume and evenness, and to be able to play notes outside the D major scale without the use of forked fingerings.\textsuperscript{80} German manufacturer Johann George Tromlitz (1725-1805) is credited with constructing the five-key flute model in 1785, a model that by 1796 had a sixth and seventh key (Figure 4.5).\textsuperscript{81} As Ardal Powell explains,

In its design, the essential points of which were developed by 1785, and which was perfected a decade later, Tromlitz overcame all the significant weaknesses his contemporaries had bewailed in the period’s conical-bored flutes. The new flute had an evenness of tone, with a security and precision of intonation, that had never been possible before. It surpassed contemporary instruments in its large dynamic range and its powerful, almost trumpet-like sound.\textsuperscript{82}

\begin{figure}[h]
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\caption{Tromlitz’s 1785 (bottom) and 1796 (top) keyed flute models. Source: Johann George Tromlitz, \textit{The Keyed Flute}, ed. and trans. Ardal Powell (New York: Oxford University Press: 1996), 47.}
\end{figure}


\textsuperscript{82} Powell, \textit{The Keyed Flute}, 44.
However, as previously stated, the French introduced a five-key model into Cuba at the end of the eighteenth century, where it would eventually become the symbol of charanga music. Whereas England’s standard flute by the 1820s was an eight-key flute with a C foot, and in Germany a nine-key flute with a B foot was becoming common, in France the five-key flute with a D foot was the standard flute used.83 Writer Connie Grossman explains, “Since the primary migration from France to Cuba via Haiti took place in the late 1700s, and since the development of charanga orchestras mainly took place throughout the 1800s and early 1900s, it’s not surprising that the flute mostly used in charanga is the Tromlitz wooden 5-key flute.”84 Why the later keyed flutes never replaced the wooden five-key flute in Cuban charangas is unknown. Aside from the obvious challenge of geographical distance, many Cuban flutists believe that once its place was cemented in the instrumentation of the ensemble, the five-key flute became the tradition, supported by its musical possibilities and attuned to Cuban dance music genres.

For the purposes of this research, I will focus on the five-key flute commonly used in Cuban charangas during the nineteenth and twentieth centuries and the Boehm-system flute later developed. The physical properties of the instrument will be examined, including keys, bore, embouchure and tone hole shape and size, wall thickness, tone hole location, undercutting, cork, weight, and length. These categories will be compared to the same physical properties on the Boehm-system flute.


The Five-Key Flute in Charangas: Physical Properties

Information in the literature regarding the five-key wooden flute used in the nineteenth century is scarce. Multiple sources jump from the four-key flute to the six-key flute in the development timeline without mentioning this transitional instrument. Remarkably, the five-key flute made its way into eastern Cuba at the turn of the nineteenth century and eventually became the main instrument in charanga ensembles in Havana amidst all the experimental innovations occurring in Europe. This could be attributed to Cuba’s lack of resources and isolation from the rest of the world.

Before the physical properties and structural design of the five-key flute are described, it is important to note that all measurements presented in this section were done to the five-key flute that I own. When compared to the flutes of some of the flutists interviewed, most of the physical characteristics were identical. Some aspects, such as the weight of the flute, tone hole width, and embouchure hole size vary among flutes. This is due to the nature of the wood used when making the flute or intentional alterations by each flutist, which will be discussed later.

The five-key flute used in charangas is divided in five sections: the headjoint (Figure 4.6), the tuning barrel (Figure 4.7), the main body which contains three keys (Figures 4.8 and 4.9), the lower body with one key (Figure 4.10), and the footjoint with the fifth key (Figure 4.11).

Figure 4.6. Headjoint of a nineteenth-century five-key flute. Photo by author.
Figure 4.7. Tuning barrel of a nineteenth-century five-key flute. Photo by author.

Figure 4.8. Main body of a nineteenth-century five-key flute; three keys. Photo by author.

Figure 4.9. Main body (detail) with Bb, G#, and C keys. Photo by author.
The five keys represent the notes Bb, G#, C, F, and D# (Figure 4.12). The D# key was the first key added in the development of the flute, then the G#, Bb, and C keys. Finally, the F key was added. Each key has a single spring that tenses when opened, and a single screw that attaches it onto the body of the flute. The spring is not too tense in order to allow the fingers to press the keys with little effort and play trills with ease. The pads are made of leather, attached to the keys with sealing wax, and are cup-shaped in order to
seal the holes perfectly. The leather is the best material due to its resistance to water formed inside the instrument and its durability.\textsuperscript{85}

\begin{figure}[h]
\centering
\includegraphics[width=\textwidth]{flute_keys.png}
\end{figure}

The D# key is attached to the footjoint and played with the right hand pinky. The F key is the only key attached to the lower body of the flute, situated between the D and E holes and engaged with the right hand ring finger. The main body has three keys for C, Bb, and G#. The C key is the longest key on the flute, with a long axle that situates the touchpiece on the lower body. It opens a hole between the A and B holes and is played with the right hand index finger. Because this finger is kept busy closing the F# tone hole, the use of the C key is very limited and it is difficult to use for multiple combinations on this flute.\textsuperscript{86} The Bb key is on the opposite side of the tone holes, opens a hole between the G and A tone holes and is played with the left hand thumb. Finally, the G# key wraps over the main body of the flute, opening a hole between the G and F# tone holes, and is played with the left hand pinky.

\textsuperscript{85} Powell, \textit{The Keyed Flute}, 174.

\textsuperscript{86} Solum, 63.
The lowest note that can be produced is a D below the first line on a treble staff. This note sounds when all six tone holes are closed and none of the keys are pressed. If the tone holes are opened in succession one at a time with no keys pressed, the flute will produce a D major scale. A second octave of this scale uses the same fingerings and is produced by overblowing. Thus, the five keys produce the rest of the notes to cover the chromatic scale. Initially made fully of brass, the keys were substituted with silver-plated brass keys for a better appearance, functioning individually with a simple system of one spring per key. Ardall Powell describes how this simple key mechanism works:

Each new hole, drilled between two existing fingerholes, was sealed by a simple lever having an airtight pad at one end, a touchpiece with a spring attached at the other, and an axle in the middle to fix it to the flute body. To use the key, the player would finger the next lowest note while opening the key. This simple principle laid behind nearly all the keywork the flute subsequently accumulated, and some of the fingering patterns thus introduced survive in the modern flute.87

This system provides the flute with an approximate chromatic range from D4 to G6. Charanga flute players developed a unique style that expanded the range to the altissimo notes, reaching as high as E7. With a system of forked fingerings, the performer can find numerous alternate fingerings for any given note, each one altering the pitch slightly (Appendix A). The five-key flute is built in the key of C with a varying temperament that ranges between 390-460 Hertz.88 Because of this wide range and the lowest note being D, some historians consider the five-key flute an instrument in the key

87 Powell, The Flute, 111.

of D. However, after checking the notes of my five-key flute with a piano, I can confirm that the sounding pitch is the same as the note played, thus a non-transposing instrument.

The five-key mechanism was considered the standard in France around 1820 but did not last long in England or Germany, as both Potter and Tromlitz continued to experiment and further develop the instrument. Soon, a longer offside F key was added to create the six-key flute. Richard Wilson explains in his website,

The F key required RH3 [right hand third playing finger] to move sideways, away from hole six. It is almost impossible to slur or move quickly from D to F without an intervening E being heard, or a pause, in the first two octaves. To alleviate this problem, an extra key for F, or an extra lever to control the F hole, was introduced and given to LH4. This was called the long F key; the original key being the short F key.89

Nonetheless, Cuban flutists in charanga ensembles preferred the five-key wooden flute, and to this day many insist that the true charanga sound is only obtained with the nineteenth-century wooden five-key flute. During an interview with flutist Eduardo Aguirre he explains,

Las flautas de granadilla estan conceptuadas para crear un sonido dulce como pasa con los clarinetes. Originalmente, las orquestas de charanga en Cuba tenian clarinete en vez de flauta. Era una influencia grande Europea con el clarinete, violines, piano, bajo, no habia voces, y se utilizaba mucho la influencia de las contradanzas. La flauta de madera de cinco llaves fue el modelo introducido en Cuba durante el tiempo de desarrollo de las charangas francesas y mantenía el sonido dulce producido por la madera y similar al del clarinete. Una vez reconocida como el instrumento principal, la flauta de cinco llaves se mantuvo a través de los años ya que los flautistas Cubanos estaban familiarizados, y ya sabian como hacerle modificaciones para obtener el sonido y las notas que querian sin perder el timbre característico de la madera.90


90 Personal interview with Eduardo Aguirre, May 25, 2015, Miami, FL.
Flutes made of grenadilla wood are meant to create a sweet sound like the clarinet. Originally, orchestras in Cuba used a clarinet instead of a flute. It was a big European influence with clarinet, violins, piano, contrabass, no voices, and using the contradance as influence. The wooden five-key flute was the model introduced in Cuba during the time of development of the charangas francesas, and it provided a sweet sound similar to the clarinet thanks to the wood. Once it was recognized as the main instrument of charangas, the five-key flute remained through the years because Cuban flutists were familiar with it and knew how to modify the instrument to obtain the sound and notes desired, without losing the characteristic timbre of the wood.

The five-key flute is constructed with ebony wood, rosewood, or the different tones of grenadilla wood (Figure 4.13). However, charanga flute players in Cuba mostly use five-key flutes made of granadilla (blackwood) grenadilla wood, giving it its distinct black color. The difference in wood alters the quality of the sound due to the different densities of each wood, and according to former Aragón flutist René Lorente the grenadilla wood is a harder wood that tends to crack more frequently than the rosewood. Nonetheless, Cuban flutists prefer it for sound projection. Ebony was the wood preferred by Johann Joachim Quantz in the eighteenth century. It produces a mellow tone with little edge or bite in the sound. Visually, it is a dark wood that looks like satin when polished. Grenadilla lacks some of the tonal elegance of ebony but it is a more durable wood that did not become common until the end of the eighteenth century. Rosewood, originally from Brazil, has a more “woody” sound and is less dense than grenadilla. It became more commonly used in flutes toward the end of the nineteenth century. In his book, John Solum provides the relative densities of each wood, measured in grams per cubic centimeter. In general, the higher the density, the heavier and thicker the sound is:

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91 Personal interview with René Lorente, June 14, 2015, Miami, FL.

92 Solum, 68.
Ivory: 2.00  
Grenadilla: 1.35  
Ebony: 1.3  
Boxwood: 1.25  
Rosewood: 0.8-1.0  
Pearwood: 0.8


The flute has metal-lined sockets and tenons wrapped in cork (Figures 4.14 and 4.15). The head joint has a cork inside the top end that affects intonation, much like the Boehm system flute (Figure 4.16).

Figure 4.14. Metal-lined socket of a wooden five-key flute. Photo by author.

93 Solum, 68.
Moving the cork closer to or away from the embouchure hole was a common practice for Baroque flutes, and remained so for charanga flute players. To move it closer, the crown is removed and the cork is pushed gently. The correct position varies with each flute. According to Rick Wilson, “The position of the cork determines whether the octaves are true. If it is too close to the embouchure, the octaves are wide [sharp]; if it is too far the octaves are narrow [flat]. In my five-key flute, the cork is placed 4.3
centimeters from the top edge of the headjoint where the crown rests, and 13.8 centimeters from the bottom of the headjoint. However, charanga flutists tend to push it in much closer to the embouchure hole in order to reach the altissimo notes of C to E with less effort.

In order to compensate for intonation issues, one must adjust the tuning barrel. London manufacturer Richard Potter invented a tuning head in two parts that could be adjusted to fix intonation problems in 1785. His patented model featured a head joint lined with metal, with a section extending beyond the wood of the head joint. This metal section was inserted into the barrel, also lined with metal, to fix intonation (Figure 4.17). When pushing the cork close to the embouchure hole, the headjoint must be pulled out from the barrel, and vice versa. This concept remained in use during the nineteenth century and was adapted to some French five-key flutes (Figure 4.18). Potter’s model included engraved lines with numbers on the barrel to help the flutist remember specific positions (Figure 4.19). In figure 4.13 above, the two inner flutes have a barrel section, while the two outer models do not.


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It is important to mention that the metal lining inside the head joint was only partial. There was no metal in the embouchure or cork area because metal was thought to affect the tone.\textsuperscript{95} The figure below shows where the extended metal section begins inside the head section (Figure 4.20).

The bore of the five-key flute is conical in nature, with a cylindrical headjoint measuring 18.4 millimeters in diameter and a body that tapers down to a much narrower foot joint (Figure 4.21). Flute maker Peter Noy explains,

The taper (the cone) starts at the top of the left hand joint. From this point, where it is typically 18.2 millimeters in diameter, it constricts to 12.4 millimeters at the bottom of the right hand joint. Typically the bore widens through the foot joint, becoming about 15.2 millimeters at the bottom end. The purpose of the taper is tuning. In a completely cylindrical flute, the second octave is flat to the first octave. The taper helps to correct this.  

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While the low register sounds weak and dull because of the small resonating chamber toward the end of the instrument, the conical body helps create powerful high notes due to a faster airstream (required to produce those notes) traveling with more pressure through a smaller space. This is ideal in the charanga style, where the use of the third register and altissimo notes is characteristic.

The entire length of the five-key flute, with the headjoint all the way into the tuning barrel, is approximately 24.8 inches long. The weight of the instrument varies with the type of wood given the different densities. The headjoint is the heaviest part of the flute because of the cork and its width. The width allows for a loud resonance in the high register where the partials are closer together. This is another convenient factor when playing the altissimo notes in charanga. The embouchure hole was initially circular, but later was changed for an oval shape, unlike the more rectangular with round corners shape of Boehm’s (Figure 4.22). The center of the hole is approximately 8.4 centimeters from the top end of the flute, and the factory size is similar to the size of the embouchure hole on the Boehm flute. However, the five-key flute lacks a lip plate unlike the Boehm metal flute and the player must set the embouchure directly on the wood.

Figure 4.22. Embouchure hole of a five-key flute (top) and a Boehm system flute (bottom). Photo by author.
The six finger holes are small in size and are spread out unevenly for intonation purposes. On the main body there are 3.6 centimeters between the B and A tone holes, and 3.7 centimeters between the A and G tone holes. On the lower body there are 3.7 centimeters between the F# and E tone holes, but only 3.3 centimeters between the E and D tone holes (Figure 4.23).

Figure 4.23. Distance between tone holes on a five-key wooden flute. Scale in centimeters. Photo by author.

The holes are cut onto the wood and closed directly with the fingers. The diameter varies from 6.5 millimeters for the A and G holes, to 6 millimeters for the F# and E holes, and 5 millimeters for the D hole. This inconsistency in distance and size creates a challenge for the performer who has to spread out the fingers to a wide position and be more accurate when closing the keyless holes. In this regard, Boehm’s key mechanism helped tremendously. According to flute maker Peter Noy, the thickness of the wall at the blow edge varies from 4.05 to 4.9 millimeters and the average is 4.57 millimeters. A thicker wall will produce a stronger sound but will weigh more, making the high notes slightly more difficult to play.
Today, both the embouchure hole and tone holes of a five-key flute are slightly undercut. Undercutting is a process by which the diameter of the tone hole is increased closer to the internal sound chamber than to the external surface by removing and molding the material of the instrument (wood or metal). If the tone hole is not undercut, there is a ninety-degree angle between the opening of the hole and the horizontal body of the flute (Figure 4.24). This angle creates turbulence in the sound, reduces volume, and slows the response of the flute.

With undercutting, the pitch sounding from the tone hole is raised and the process helps fine-tune the scale of the flute. Undercutting the embouchure hole also improves response. According to flute maker Peter Noy, “The practice of flute makers today is to make an undercut of seven degrees below the blow edge. French flutes of the mid-nineteenth century are much like this. There is a gentle curve from the blow edge of the

hole to the left and to the right as it goes down to meet the bore [Figure 4.25]. The side of the hole under the players chin is a straight surface at about seven degrees."  


The undercut process was done during the eighteenth century with the aid of molds called fraises. These impressions were used to cut the front and back walls of the embouchure and to form the curvature in the tone holes. Usually a scraper was used to smooth the edges.\(^98\) Ardal Powell explains, “The tone holes are undercut, either with a scraper or narrow-bladed knife, or with a fraise, a small metal cutter passed up inside the bore and engaged by a threaded rod through the tone hole to cut away its underside.”\(^99\) Tromlitz was known for using impressions in dental molding putty for the different sizes of tone holes and embouchure of his keyed flutes (Figure 4.26).

\(^{97}\) Peter Noy, flute maker, personal correspondence, June 16, 2015.


\(^{99}\) Tromlitz, xvii.


**Modifications on the Five-Key Flute**

One unique aspect of Cuban *charanga* flute players during the mid-20th century is their ability to fix their own instruments and adapt them to the style. The five-key flute has some original physical features that are disadvantageous in the *charanga* style. The original position of the cork makes the altissimo notes a little bit harder to produce. The small embouchure hole and tone holes do not produce the loud volume and bright attacks commonly heard in *charanga* improvisations. Furthermore, the position of the keys and the basic fingerings are not ideal for some difficult passages and stylistic motives used in *charanga* genres. Finally, intonation is very unstable, especially in the middle and low registers.

During my interviews with various Cuban flutists, I was able to conclude that the practice of modifying the instrument is common yet risky. One must be familiar with the instrument before attempting to change any parts, because it could end up destroying it. Gustavo Cruz has had to get rid of several five-key flutes after trying to modify the
headjoint unsuccessfully. It is a testament to the ability of Cuban musicians to operate with scarce resources and adjust the instrument so much that it becomes part of their cultural identity; the French flute becomes the Cuban charanga flute.

The cork is usually pushed closer to the embouchure hole using a stick through the top end of the flute. This makes the instrument shorter which in turn makes the high register easier to play. More specifically, the altissimo notes D, E, F, and even G are not possible on the five-key flute unless the cork is very close to the embouchure. Often, the cork is visible through the embouchure hole, as is the case with one of Eduardo Aguirre’s flutes (Figure 4.27).

![Cork of a five-key flute pushed in for charanga playing. Photo by author.](image)

There is no specific measurement and it is something the player must achieve through trial and error until the desired position is reached. A consequence of moving the cork is that the intonation of the instrument is affected and the low notes will in turn sound weaker than they already tend to be. The low register is not used much in charanga style thus it is not a big issue, but the intonation problem resulting from the cork reposition is definitely a factor to consider and plan for. When the flute has a tuning barrel, flutists compensate by pulling out the headjoint to a far distance. During my interview with Eduardo Aguirre, one of his flutes caught my attention because of how close the embouchure hole was to the top end of the flute. He explained that the tuning
barrel had to be cut to a smaller size because of a big crack. After that, it was necessary to seal the original embouchure hole and open a new one closer to the top of the flute to maintain the proportions and intonation. It is a very unusual case but another example of just how creative Cuban flutists can be with their five-key flutes. The difference in the positions of the holes and the sizes of the tuning barrels can be clearly seen (Figures 4.28 and 4.29).

Figure 4.28. Adjusted embouchure hole (top) compared to embouchure hole in original position (bottom). Eduardo Aguirre’s flutes. Photo by author.

Figure 4.29. Resized tuning barrel (top) compared to an original tuning barrel (bottom). Eduardo Aguirre’s flutes. Photo by author.

Perhaps the main adjustment made to the instrument by Cuban flutists is resizing the embouchure hole to make it bigger. My five-key flute has the original size for that type of instrument. I wanted to learn it that way at first. After trying Eduardo Aguirre’s
flutes I found there was an immense difference in sound. The altissimo D and E spoke with great power and brightness; that is simply not attainable with the regular-sized hole. It is important to emphasize that this practice of widening the blowhole is extremely delicate and should not be attempted by amateurs. It is a technique that requires expertise and if done poorly can crack the wood and render the flute unusable. As in the case of the cork, there is no specific measurement for the diameter of the hole, and the correct size varies according to each individual player and their physiognomy (Figure 4.30).

![Figure 4.30. Comparison of a regular-sized embouchure hole of a Jérôme Thibouville-Lamy c. 1860 rosewood five-key flute (bottom) and a widened and repositioned embouchure hole of a Perisson Guinot (date unknown) grenadilla five-key flute (top). Photo by author.](image)

Eduardo Aguirre, founder and former flutist of *La Original de Manzanillo*, and director of Miami’s *Charanga Típica Tropical* is used to playing with this adjustment in the blowhole. He only plays on five-key flutes although he wants to learn the Boehm system flute because “requiere más técnica que la de cinco llaves”, [it requires a better
technique than the five-key flute]. During an interview at his house that lasted two hours, Eduardo explained the reason for this practice:

Este tipo de flauta de madera de cinco llaves tiene muchas imperfecciones para desarrollar lo que es la musica en sí. Los músicos Cubanos se dedicaron a coger esta flauta y, para poder adaptarla a la sonoridad que necesitaban para las orquestas de charanga, empezaron a modificar ciertas cosas en la flauta. Por ejemplo, esas flautas vienen con un agujero en la embocadura bien pequeño porque fueron diseñadas para llegar nada más a un Do alto en el tercer registro y los Cubanos querían dar un Re, Mi, Fa y Sol. Entonces, a medida que los flautistas fueron experimentando y se dieron cuenta que en el estilo de charanga la flauta tenía que predominar en ciertos arreglos con notas bien agudas, empezaron a buscar cómo hacer que esa flauta llegara a esas posiciones bien altas pero que el sonido fuera bien nítido. Empezaron a agrandar un poquitico el agujero de la embocadura y en algunos casos, por ciertas desafinaciones de la propia flauta al empezar a alterarlas, empezaron a abrir un poquitico el primer hoyo del cuerpo hasta encontrar un balance de acuerdo con el labio que cada cual tenía para ejecutar ese instrumento. Entonces, de ahí viene la práctica de instrumentistas Cubanos que cogieron varios pedazos de diferentes flautas y empezaron a hacer un ajuste total con el cuerpo de la flauta.100

[This type of five-key flute has many imperfections to play music. Cuban musicians began to modify certain things in the instrument in order to obtain the sonority needed in charanga orchestras. For instance, these flutes come with a very small embouchure hole because they were designed to only reach the high C in the third register, but Cuban flutists wanted to play up to the high D, E, F, and G. Thus, they experimented and realized that in the charanga style the flute had to be able to play these extreme notes that are common in arrangements. They searched for a way to reach those high notes with a clear and crisp sound and decided to slightly widen the hole on the embouchure. In some cases, due to the intonation problems caused by this widening, the first tone hole of the main body (B) was also widened a bit until the right balance was found in accordance to each player’s lips. As a result, Cuban flutists began to assemble parts of different flutes to achieve a complete adjustment.]

Not only does a bigger hole expand the range of the flute, it also increases the volume. This was important for flutists in charanga ensembles who had to

100 Personal interview with Eduardo Aguirre, May 25, 2015, Miami, FL.
project above the rest of the ensemble, comprised of a violin section and sometimes even multiple vocalists. Aguirre attests to this, describing that oftentimes charangas had to perform outside and there was only one microphone available which was given to the lead singer. The flute would stand on the side without a microphone and when it was time to play a danzón with an important passage the flute was barely heard. This occurs at the turn of the twentieth century where, in an effort to increase the power and projection, flutists began playing in the high register and needed to adjust the instrument to make the altissimo notes easier to reach. In general, the smaller the embouchure hole the more focused the sound is because the air stream goes through a narrower opening, but the bigger the hole the louder the flute will sound in the high register.

Figure 4.31. Eduardo Aguirre (left) and Ernesto Fernandez (right). May 25, 2015. Miami, FL.
Another reason for widening the blowhole was that Cuban flutists in general have bigger lips than European players due to the mixed African ethnicity in the island. Because almost 75% of the air blown across the hole was wasted, it was necessary for these flutists to widen the hole to make the playing less physically demanding and less stress on the embouchure.\textsuperscript{101} The perfect example of this is Orquesta Aragón flutist Richard Egües, who was widely known for having big lips that would cover most of the embouchure hole. Eventually, he switched to the Boehm system flute because he no longer had the strength and stamina to play the five-key flute.

Finally, flutists would put water in the embouchure hole and let it run down the instrument. This process, as explained to me by René Lorente, is rarely seen and was only done when the wood was very old. Old wood is very hard and dry and with time becomes porous, with tiny cracks and openings that disrupt the air flow and weaken the sound, sometimes creating leakage. Running water through it is done to trancar la madera, [seal the wood], and to soften it a bit. The amount of water must not be excessive as to avoid it overflowing through the tone holes and wetting the pads. I have personally never seen this done to a flute of any type, and René assures me it is seen only in rare occasions. He suggests cleaning the inside of a five-key flute only when the flutist is finished with the session, and in the meantime to let the moisture inside the flute dampen the wood. Today, flutists use a variety of oils to maintain the moisture of the wood.

\textsuperscript{101} Personal interview with Rene Lorente, June 14, 2015, Miami, FL.
The Boehm-System Flute: Physical Properties

The metamorphosis of the flute through time is comprised of experiments by multiple flutists and cannot be credited to one person alone. The invention of the “modern” flute however, is universally attributed to the German flutist and goldsmith Theobald Boehm, who devised the most revolutionary change to the mechanism of the flute. It is important to note that although we refer to Boehm’s system as the “modern” flute and it is still used today, it was invented in 1847 and it is over 150 years old. Flute makers continue to add features to Boehm’s model in an effort to upstage the competition in an overcrowded market and create a more refined flute.

Theobald Boehm drew inspiration to build the system flute after watching English flutist Charles Nicholson play his large-holed flute. An often-quoted passage from one of Boehm’s letters to a friend reads, “I did as well as any continental flautist could have done in London in 1831, but I could not match Nicholson in power of tone, wherefore I set to work to remodel my flute. Had I not heard him, probably the Boehm flute would have never been made.”

Nicholson’s flute was an eight-key flute with larger holes that produced a larger sound. Boehm’s improvement of the instrument went through two major phases, both of which encountered rejection and disapproval at the time. In order to get a larger sound, the tone holes had to be enlarged and positioned in the correct acoustical places. After multiple experiments and measurements, Boehm designed a conical bore model in 1832 with larger holes but most importantly with a mechanism of ring-keys that allowed the player to close these holes efficiently. The ring-keys were mounted on long axles and connected to other keys by rods that allowed multiple keys to

close with just one finger. This created a new fingering system and improved intonation (Figures 4.32 and 4.33).

Figure 4.32. Theobald Boehm 1832 conical ring-key flute. Source: DCM Collection, DCM 156: Theobald Boehm, Flute in C. http://www.loc.gov/item/dcm000966/#about-this-item.

Figure 4.33. Theobald Boehm 1832 conical ring-key flute; detail. Source: DCM Collection, DCM 156: Theobald Boehm, Flute in C. http://www.loc.gov/item/dcm000966/#about-this-item.

Boehm referred to six characteristics that were improved with his 1832 model. These were purity of intonation, evenness of tone, facility of operation, secure speaking across all registers, beautiful profile, and neat and robust workmanship. Only a few influential French flutists adopted this ring-key model in the 1830s, as many felt that Boehm tried too hard to reinvent the instrument, losing most of its character in the process. Jean-Louis Tulou, professor at the Paris Conservatoire from 1826-1856, opposed the idea of instituting a class to teach Boehm’s model to students. He defended the wooden flute’s mellow tone and sonority, describing Boehm’s flute as “lacking in depth” and noting that most students at the time who tried Boehm’s model returned to their instruments, preferring “charm” to “astonishment.” Tulou strived to design a better instrument himself and attempted it in the 1840s with the goal of having simplicity in

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103 Powell, The Flute, 165.

104 Ibid, 158-159.
fingerings while preserving the character and acoustical proportions of the simple-key system French flute. He also wrote a flute method in 1835 that was later adopted by the Paris Conservatoire. This method was later published in different languages with numerous editions, and is the method that Cuban *charanga* flutists refer to when learning the five-key wooden flute.

To give a more detailed account regarding the evolution of Boehm’s 1832 conical flute model would take us beyond the scope of this study. For the interested reader who might want to go more in depth, I recommend Ardal Powell’s book *The Flute*.

After studying the scientific properties of acoustics and conducting multiple experiments, Boehm decided to further improve his 1832 model. He was not completely satisfied with the intonation in the high register and wanted the low notes to have more sonority and depth. One of the solutions was to create larger holes that would increase the volume and place them in correctly measured places along the body of the flute to achieve the proper intonation. The conical bore of the 1832 model did not allow for big tone holes because the holes cannot be larger than the bore itself. Therefore, Boehm decided to implement a cylindrical bore across the body of the flute. He explains,

> I was never able to understand why, of all wind instruments with tone-holes and conical bore, the flute alone should be blown at the wider end: it seems much more natural, that with a rising pitch and shorter length of air-column, the diameter should become smaller…I finally called science to my aid and gave two years to the study of the principles of acoustics under the excellent guidance of Herr Professor Dr. von Schaffhäutl. After making many experiments, as precise as possible, I finished a flute in the latter part of 1847, founded on scientific principles.¹⁰⁵

The tone holes were widened so much that the fingers were not able to close them anymore. The ring-key system was then altered to create cup-shaped closed keys with

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pads that seal the holes when pressed. The mechanism for the keys still used axles and rods to connect multiple keys that could close simultaneously when pressed with a single finger (Figure 4.34).


Boehm’s innovations incited legal disputes regarding trademarks and patents, as manufacturers throughout Europe tried to imitate his design. Boehm’s model would gradually become accepted as the new standard. In 1860 professor Tulou was succeed by Parisian flutist Louis Dorus at the Paris Conservatoire. Dorus adopted the Boehm cylindrical flute as the main model in the Conservatoire and wrote a flute method for it, while Boehm credited Dorus for the success of the instrument in France and dedicated the French translation of his book to him.\textsuperscript{106} The Boehm model was further improved over the years as competition increased among manufacturing companies, and it is the main flute used today due to its facility, balance, and versatility.

The 1847 model introduced by Boehm had a metal tube instead of the customary wood. No other maker since 1810 had used metal in a flute, when London-based maker

\textsuperscript{106} Powell, \textit{The Flute}, 176.
George Miller patented a fife made of brass to use in hot climates. As Ardal Powell documents,

Noting that cylindrical wood tubes he made to conduct experiments were unstable, Boehm replaced them with hard drawn brass. This experience convinced him that, as he put it, “the molecules of the flute tube shall be set into vibration at the same time as the air column,” and he determined that a lighter tube, such as one of drawn silver having a mass less than half the thinnest possible wood one, required less expenditure of energy to sound.

Despite this, some manufacturers were wary of metal flutes at first, as most flutists were accustomed to the timbre of the wood. One such manufacturer was John Clinton, who wished to manufacture Boehm’s 1847 model in England but realized he disliked the sound produced by the metal. In his book, Clinton states,

To meet the wishes of those who prefer a metal flute, we manufacture such to order; but it would lead to error to suppose that we approve of such material—the tone which a metal flute yields being uncertain, harsh, and hollow in quality, and the pitch constantly and suddenly changing to the extent of nearly a semitone; while from wood we can ensure vocality, richness, softness, or fullness, at pleasure, and a reedy pliability, such as cannot be elicited from any other material.

Today, flutes are made of various metals including silver and gold, either plated or solid. Nickel, copper, and platinum are other metals used although these are more rare. While silver has a density of 10.49 grams per cubic centimeter, gold has a higher density of 19.32 g/cm$^3$. As mentioned earlier, the higher the density the heavier the sound is.

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108 Ibid.


Thus, a silver Boehm flute produces a much thicker sound than a wooden five-key flute with a grenadilla density of 1.35 g/cm$^3$.

Every Boehm flute is divided in three main sections: the headjoint, the body with most of the key mechanism, and the footjoint, which has three or four keys depending on the specific model (Figure 4.35).

![Figure 4.35. Sections of a Boehm flute: Headjoint (top), body (middle), and footjoint (bottom). Photo by author.](image)

The headjoint is the same length as the headjoint of a five-key flute with the tuning barrel included, and the embouchure hole is originally placed in the same position. However, the embouchure hole of a Boehm flute is oval-shaped, 10 millimeters wide and 12 millimeters long, and is placed on a lip plate soldered to the tube. The lip plate accommodates the position of the lips and creates more width on the headjoint, providing more resonance (Figures 4.36 and 4.37).
While the five-key flute has a cylindrical headjoint, the Boehm headjoint is parabolic, with a small taper from 19 millimeters at the bottom end on the right to 17 millimeters at the top end on the left. Boehm wanted a flute that could play up to three octaves in tune, due in part to the music written at the time. While a completely cylindrical instrument with large holes and bore is able to play the first two octaves in tune, the third octave is narrower and out of tune. By adding a taper to the headjoint Boehm was able to solve this problem when combined with different fingerings in the third octave (Appendix B). The headjoint has a cork inside the top that affects intonation.
It is assembled unto a screw that extends to the crown and at a distance of 17 millimeters from the center of the embouchure hole (Figure 4.38). Although initially Boehm advocated removing the cork after every playing session to clean the inside of the head, this is never done today, and the cork is rarely adjusted unless there is a leak or needs to be centered.  

Figure 4.38. Corkscrew of a Boehm flute. Photo by author.

The area where the cork lies is cylindrical in order to facilitate the removal of the cork for maintenance. From the bottom of the cork, the bore begins widening with a slight curvature until it reaches 19 millimeters at the bottom. Dayton C. Miller explained in his translation of Boehm’s book this parabolic taper, which is mapped in figure 4.39. The length of the headjoint from the bottom to the base of the cork is 134 millimeters. The horizontal lines reflect the diameter variations through the headjoint. The acd line

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reflects a straight taper as a comparison point to the actual, parabolic taper shown by the
aed line (Figure 4.39).\textsuperscript{112}

![Figure 4.39. Parabolic taper, Boehm headjoint. Source: Theobald Boehm, Flute and Flute

The different sections are connected through metal-lined sockets and tenons, but
unlike the five-key flute these are not wrapped in cork. Pushing in or pulling out the
headjoint from the body section adjusts intonation. The correct position varies with each
flute and other factors such as temperature and cork placement (Figure 4.40).

\textsuperscript{112} Schulze-Johnson, "Boehm’s Cylindrical Flute of 1847: A Study of its Evolution, its Improved
While the bore of the headjoint is parabolic, the bore of the body and footjoint is cylindrical with a diameter of 19 millimeters. Initially Boehm preferred a diameter of 20 millimeters for the bore due to the volume it produced, but found that by slightly narrowing it the third octave could be played softer while still in tune. The body section measures 36.2 centimeters in length and carries most of the key mechanism. The footjoint measures 16.4 centimeters in length with a B footjoint and has the keys for low D#, C#, C, and B. If a C footjoint is used, the flute has one less key at the bottom and is approximately five centimeters shorter. The body has a total of 13 tone holes and 15 keys, while a B footjoint has four additional tone holes and keys. However, only up to nine keys can be directly engaged with the fingers; the rest of the keys close through the mechanism of axles and rods that connects them. As with the five-key flute, the instrument is supported with the left hand index knuckle and the right hand thumb. This thumb is not in charge of any keys. The right hand pinky is used to close up to all the keys in the footjoint. Unlike the five-key flute, the majority of the keys on the Boehm

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flute are open-standing, kept up with various needle springs and flat springs underneath the rods (Figure 4.41).

![Figure 4.41. Needle springs of a Boehm key mechanism. Photo by author.](image1)

Only the keys for G#, D#, and both trill keys (also used in altissimo fingerings) are closed-standing and opened when pressed. Some models include open-hole keys that provide the player with more possibilities for extended techniques such as half-closed holes as in the five-key flute and note bending (Figure 4.42). These are techniques that, although advanced and modern, I incorporate in charanga improvisations. A more in-depth analysis of these and other techniques are explored in Chapter Five. A diagram of the key mechanism of the body section is shown in figure 4.43.

![Figure 4.42. Open-hole keys of a Boehm flute. Photo by author.](image2)
Due to the increased number of keys, the tone holes are positioned closer together than in a five-key flute. In addition, their size is much bigger at a 13.5-millimeter diameter, thus requiring keys to close them. Boehm experimented with different sizes when developing the 1847 model while at the same time using his knowledge acquired through his acoustic studies with Professor Dr. von Schafhautl.\textsuperscript{114} Making the holes as large as possible and placing them nearer than before allowed for a more powerful sound out of the Boehm flute. Also, the position of the tone holes affects the overall intonation of the flute, more specifically the third octave.

The tone holes of modern flutes are sealed with skin pads glued and screwed underneath the keys. More specifically, the skin is known as goldbeater’s skin and it comes from a cow’s stomach. Wool felt inside and a cardboard back make up the rest.\textsuperscript{115} More evolved flute pads are now made with synthetic felt and a stiff plastic backing to

\textsuperscript{114} Powell, \textit{The Flute}, 181.

\textsuperscript{115} Peter Noy, flute maker, personal correspondence, July 1, 2015.
keep the surface flat. The pads of the 1847 models were thinner yet more rigid than the ones used in other wind instruments, and were secured by a screw unto a nut soldered to the inside of the cup.\textsuperscript{116} Today, pads are secured in a similar fashion with either a metal platform when it is an open-hole key or with a screw and a washer in the case of closed-hole keys (Figure 4.44).

![Figure 4.44. Leather pads of a Boehm system flute. Photo by author.](image)

The undercutting process is similar to that of a five-key flute. Undercutting the embouchure hole affects the volume and response of the flute, and it was another aspect that Boehm meticulously experimented with for his 1847 model. The practice of flute makers today is to make a straight line undercut of seven degrees below the blow edge. This means that the side of the hole under the players chin is a drop at about seven degrees from a straight vertical line (Figure 4.45).\textsuperscript{117} This measurement was originally established by Boehm, and is confirmed by Schulze-Johnson when she states “Boehm adopted the dimension of seven degrees for the angle between the sides of the mouth-hole and the longitudinal section through the axis of the air column.”\textsuperscript{118}

\textsuperscript{116} Powell, \textit{The Flute}, 182.

\textsuperscript{117} Peter Noy, flute maker, personal correspondence, July 1, 2015.

\textsuperscript{118} Schulze-Johnson, "Boehm’s Cylindrical Flute of 1847", 63.
Another unique aspect of the Boehm flute is the raised walls of the tone holes above the main tube, at approximately three millimeters high (Figure 4.46). According to flute maker Peter Noy, this affects the intonation of the notes and the tone quality. The measurement is fairly consistent in different models I measured, and this is not seen on the five-key flute, where the tone holes are directly perforated on the wooden tube. The raise also takes the curvature of the cylindrical body away from the tone holes, allowing the keys to seal properly.
The weight of today’s Boehm flutes vary according to the material they are made of. Silver-plated flutes tend to weigh less than solid silver flutes. Gold flutes weigh more than silver flutes, and the higher the karat of the gold the higher the weight. In today’s market one can find gold flutes anywhere from nine to 24 karats. It is not rare to see flutists add a gold or wooden headjoint to a silver flute in order to improve sound or achieve a specific timbre. There are also platinum flutes that weigh much more and thus require more physical effort from the performer. Although the wood and different metals have an effect on the quality and color of the sound, this mostly occurs in the first two octaves. The higher the weight of the material the harder it is to play the altissimo notes with brightness and power. Thus, charanga flutists are rarely, dare I say never, seen playing on a gold or platinum flute. On the contrary, the charanga flutists who use a Boehm system flute often prefer the simple models made of silver and with the shorter C foot.

The thickness of the wall also affects the intensity and volume of sound from the flute. As mentioned previously, five-key flutes have a much thicker wall than Boehm flutes due to the natural thickness of the wood. This, paired with a regular-sized embouchure hole, creates a challenge when playing the altissimo register in a charanga setting. The thickness of the Boehm flute is measured in thou, or a thousandth of an inch (0.001 inch). In Japan it is usually measured in millimeters since they use the metric system. A typical heavy wall in Japanese models measures 0.45 millimeters, or approximately 17 thou. In the United States, the standard Boehm wall has a thickness of 16 thou, or 0.41 millimeters. Some advanced models come with a heavy wall to produce a bigger sound in the first two octaves. These tend to measure 18 thou, or 0.46
millimeters. In numbers, the difference might be minuscule. However, I can attest there is a difference between a regular wall and a heavy wall. The Muramatsu flute I own has a heavy wall and is solid silver. I also own a Gemeinhardt flute with a regular wall, also solid silver. The difference in weight can be appreciated right away. More importantly, I am able to reach the altissimo notes of D, E, and F on the Gemeinhardt model with much less effort and more power than with the heavy-wall Muramatsu.

Boehm certainly revolutionized the flute world by redesigning the mechanism of the flute in the mid-nineteenth century, but the spread of the new instrument occurred gradually in different countries. In Paris, Boehm’s invention became the standard instrument relatively quickly, being accepted at the Paris Conservatoire by the 1860. The same can be said of London, where professional flutists were using Boehm models by the 1860 as well. In Germany, there was a bigger desire to remain with the old and the spread of Boehm models occurred more slowly. Richard Wilson quotes English manufacturer R.S. Rockstro who indicated that in 1889 Boehm flutes were rare in Germany. “In justice to the consistency of our Continental neighbours it should be mentioned that while we [the English] have been too prone to vacillation between the old, the new, and the pseudo-old systems, the French have been generally loyal to the [Boehm flute]…and the Germans have, with equal pertinacity, adhered to the old flute, pure and simple.”

A similar case happened in parts of Italy, where modern flutes were still rare at the turn of

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119 Peter Noy, flute maker, personal correspondence, July 3, 2015.

the twentieth century, and composers such as Maestro De Nardis at the Naples Conservatory had not yet heard the sound of a Boehm flute.\textsuperscript{121}

Meanwhile, Boehm’s system flute was introduced to the New World around 1844, with flutists Alfred G. Badger and Phillip Ernst advocating the use of this new instrument in New York circa 1850. Among the early proponents of the new flute in America were Boehm pupils Eduard Heindl (Boston Symphony), Carl Wehner (New York Philharmonic, Metropolitan Opera), Eugene Wiener (New York Philharmonic), and James S. Wilkins (Philadelphia Orchestra).\textsuperscript{122} Finally, in the 1870s the Boehm model was the primary type of flute offered by American manufacturers and was the instrument of choice in professional orchestras throughout the East Coast.\textsuperscript{123}

In Cuba, the French influence of the 1800s introduced the five-key flute into the ensembles and its presence became so rooted in popular dance music that the Boehm system flute did not have much of an impact in the orquestas típicas and early charangas of the time. At the same time, however, Cuba was going through a transitional period after the Independence War that lasted until 1898 with Euro-romantic tendencies. According to Alejo Carpentier, one figure at the forefront of this educational movement was musician Guillermo Tomás. Carpentier explains,

Un músico inteligente, de solidísima formación, estaba haciendo un prodigioso esfuerzo por familiarizar al público cubano con autores desconocidos, o cuyos nombres sólo habían aparecido en los programas a título excepcional: Guillermo Tomás. Director de la Banda Municipal de La Habana, aspiraba a que ésta alcanzara la calidad y conciencia artística


\textsuperscript{122} Powell, The Flute, 193.

\textsuperscript{123} Powell, The Flute, 195.
de la banda de la Guardia Republicana de París, que constituía, en aquellos años, un ejemplo para todas las musiques d’harmonie.124

[An intelligent musician, with a solid formation, was making a prodigious effort to familiarize the Cuban public with unknown composers, whose names only appeared in exceptional programs. This musician was Guillermo Tomás. Director of the Municipal Band of Havana, he aspired to reach the same artistic conscience and quality as the orchestra of the Republican Guard of Paris, which constituted, in those years, an example for all the musiques d’harmonie.]

Part of this effort included the spread of classical and romantic music, exposing audiences and musicians alike to the master works of Beethoven, Wagner, Mahler, and others. Because this repertoire required more developed instruments to be accurately performed, one can conclude that Boehm’s model arrived in Cuba at the beginning of the twentieth century. Later, with the opening of music conservatories and schools on the island and the establishment of a music education system, the European model was used as the foundation that to this day remains.

Despite this dual musical environment on the island, it is interesting to see how Cuban charanga flutists preferred to make alterations to the five-key flute rather than switch to the Boehm flute. It was an effort to preserve the tradition of the charanga format, and it was not until the second half of the 20th century that an increase in the use of the metal flute was evident. This shift was caused by the implementation of the Boehm flute in classical music schools and the emigration of many charanga flutists after the Cuban revolution of 1959. These flutists took their knowledge of the five-key flute with them, which led to less demand and a decline in manufacturing of this iconic instrument.

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CHAPTER FIVE
LEARNING AND PERFORMING THE CHARANGA STYLE

In order to evaluate the idiosyncratic nuances of both the wooden five-key and Boehm system flutes in charanga-based genres, it was important for me to learn the five-key flute to a level proficient enough to be able to play it in that setting. I had started playing the Boehm flute at the age of six. I learned the charanga style after listening to recordings of Richard Egües at approximately ten years old. I have found I am able to transfer some of the performance practices idiomatic of the charanga style from the Boehm flute.

This chapter will include a methodology for learning to play the charanga style. Whenever technical exercises are presented in this paper they will be written in a single key. However, it is important to note that the flutist should learn them in all major or minor keys to be truly proficient in the style. These exercises are a reflection of my personal inspirations when improvising in the charanga style and should be complemented with ideas from other flutists to create an individual sello [style].

When learning the five-key flute, the biggest challenge was adapting to the different set of fingerings and the smaller embouchure hole. Gustavo Cruz, Eduardo Aguirre, and René Lorente all agree that the most challenging aspect is the different set of fingerings when dealing with only five keys. This is especially difficult if learning the five-key flute after the Boehm flute. Another challenge when playing on the five-key flute is the different alternatives available for every note (Appendix A). The placement of some keys such as the short F key, for instance, makes certain intervals such as D to F in the first two registers difficult to play cleanly. This is also the case in
the high register where cross-fingerings present more of a challenge. All the Cuban flutists interviewed mentioned the use of alternate fingerings called *tranquillas* when playing *charanga* music. Gustavo Cruz, flutist of the *Orquesta Hansel & Raul*, explained that *tranquillas* are made-up of alternate fingerings for the high notes in the third and altissimo register that facilitate difficult improvisatory passages. There are various *tranquillas* that have been documented in publications such as Sue Miller’s book and the fingerings provided in Appendix A; generally they are employed in improvisational lines or *inspiraciones* as Cuban flutists call them. Each *tranquila* fluctuates in intonation and sounds different depending on the five-key flute. The player must then experiment with his or her own instrument and find the one that sounds best for the purpose desired. This is one reason why many of the *charanga* flutists tend to own multiple models of five-key flutes.

![Figure 5.1. Gustavo Cruz (left) and Ernesto Fernandez (right). May 25, 2015. Miami, FL.](image)

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125 Personal interview with Gustavo Cruz, May 25, 2015, Miami, FL.
Students who learn the Boehm-system flute have various options when it comes to method books. In my case, as in the case of many flutists, I learned the Boehm flute with method books by Marcel Moyse, Philippe Gaubert, and Paul Taffanel. These emphasize tone development through long tones and technical passages through progressive exercises in all tonalities. For the five-key flute, the standard method book used by Cuban flutists is Jean-Louis Tulou’s *Méthode de Flûte, Op. 100*. This is because the five-key flute was widely used at the time of publication and the book was easily accessible in Cuba. Initially published in 1835 by the Paris Conservatoire professor, a Spanish translation was later published in 1910 by French pianist Henry Lemoine. This edition is the one used by most Cuban flutists as their first tutor for the five-key flute. There is a more current translation published in 1995 by Janice D. Boland and Martha F. Cannon that can be purchased online.\(^\text{126}\)

It must be noted that Cuban flutists adapted Tulou’s method to fit the *charanga* style. Instead of practicing the exercises the way a classical flutist would, they would experiment by playing them an octave higher and more rhythmically, using a harsher tongue to develop the Cuban style. I had the opportunity of interviewing Cuban-based flutist Polo Tamayo via email correspondence. During our conversations, Polo Tamayo explained that he would add embellishments such as mordents and turns to Tulou’s exercises. He would also change the articulation and use a heavier tongue and a powerful sound to increase the lung capacity, thus developing the volume required when playing in a *charanga* setting.\(^\text{127}\) Not only does this make practicing a method book fun, it truly targets the important areas of *charanga* playing and expands the musical vocabulary used.

\(^{126}\) Witmer, 238.

\(^{127}\) Email correspondence with Polo Tamayo, January 2016, Miami, FL.
in improvisations. Students wishing to learn the *charanga* style should obtain a copy of Tulou’s method and practice it in creative ways. The original version can be found in the public domain. A strong focus on this and other method books should be the first step to develop the technique and sound necessary in the *charanga* style.

Playing *charanga* can be done on both the five-key and Boehm flute, although each offers different possibilities and challenges. The five-key flute is ideal for the characteristic high register of *charanga* improvisations once the alterations discussed in the previous chapter have been made. The timbre and piercing sound produced is unmatched by the Boehm flute. However, the Boehm flute is without question more stable in intonation and offers the key mechanism that facilitates fingerings during virtuosic passages in the third register. Virtuosic solos in *charanga* only developed after Richard Egües’ style, since before him Antonio Arcaño and José Fajardo had approached it differently. According to René Lorente,

> El estilo de charanga evolucionó con el tiempo. Primero vino el estilo de Antonio Arcaño que era un estilo de tocar más “recostado.” Luego el de José Fajardo que era un poco más rítmico enfatizando las sincopas. Ya a mediados de siglo entra Richard Egües con su estilo único innovador que era más apresurado, más adelante, más virtuoso. El chachachá ayudó mucho con esta transición estilística de la flauta.¹²⁸

[The *charanga* style evolved with time. First was Antonio Arcaño with a more *recostado* style (more lyrical, more vibrato). Then, José Fajardo who played more rhythmically driven improvisations emphasizing syncopation. By the middle of the century Richard Egües introduced his innovative style that was more restless, more forward, more virtuosic. The *chachachá* helped with this stylistic transition of the flute.]

¹²⁸ Personal interview with René Lorente, June 14, 2015, Miami, FL.
When learning the *charanga* style, it is of utmost importance to be able to recognize, feel, and follow the *clave* pattern in the music. This is the rhythmic foundation of most Cuban dance music. At times it is clearly distinctive as played by the timbales player, or clapped by the musicians, or played by the instrument of the same name, claves. This pattern is adapted to different tempi and is thus implied in the various *charanga*-based genres. The musician must remember there are different types of *clave* patterns, mainly the *son* clave and the *rumba* clave, both of which can be in 2-3 or 3-2 (Example 5.1). In *charanga*, mostly the *son* clave is used. In order to recognize the *clave* pattern, listening to vast examples of the style is a must. Paying close attention to the different musical layers in every song, the listener should attempt to clap the pattern along. If it feels out of place, then perhaps it is a 2-3 pattern instead of a 3-2, or vice versa. In order to play and improvise efficiently, the *clave* pattern must be fully understood and internalized.
Another aspect of equal significance when playing in this style is syncopation. The flutist should be able to play offbeats and syncopated rhythms without getting away from the clave pattern. A good way to practice this is to set the metronome to indicate the strong beats and play technical exercises off the beat. To make it more challenging, some of the notes in beamed groups can be replaced with a rest of the same value (Examples 5.2 and 5.3). For more exercises to strengthen the clave feel and syncopation, I recommend Javier Zalba’s book *Flute Soneando*, where the flutist can play accompanied by percussion tracks including the clave pattern.\(^{129}\)

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One of the benchmarks of *charanga* performance practice is improvisation by the flutist. This is where the instrument’s versatility is showcased and the style established. Out of the many Cuban flutists, it is Richard Egües of *Orquesta Aragón* who is credited with revolutionizing the improvisational role of the flute in the *charanga* style. Certainly, his predecessors Antonio Arcaño and José Fajardo paved the way and served as his models. Arcaño’s style was based on melodic decorations and extensive use of arpeggios at the end of phrases. Fajardo, on the other hand, employed a more sequential style using composed material to create his improvisations.\(^{130}\) However, Richard Egües’ extensive knowledge of music theory, ability with the piano as well as the flute, and extensive compositional production cemented his legacy as *charanga* genius in the mid-twentieth century.

Perhaps the most difficult part for the beginning *charanga* player is the solo section. In terms of the song itself, one simply has to learn the form and main melodic section by ear or read it from the multiple real and fake books available for purchase. Just as in the jazz world, there are numerous standards in the Cuban repertoire and once the player learns them half the battle is won. When it comes to learning how to improvise in the *charanga* style, the performer should take a two-part approach of echo and dialogue. In the first stage, it is essential to listen to as many recordings as possible, paying close

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\(^{130}\) Miller, 138.
attention to the flute solo and trying to echo it or imitate it by ear. Having a small degree of piano skills can be helpful to understand the harmonic layout. Breaking the improvisation into short musical phrases will be easier to echo. The flutist should notate these short phrases whenever possible. I recommend this be done by ear with the aid of a piano. This should serve to build the musical vocabulary of the player.

For the second stage a musician proficient in the style is highly recommended, preferably someone with improvisation skills. It is recommended that the players trade musical statements as if in a dialogue, in call-and-response fashion. This is where the true art of improvisation is learned, as the flutist aims to tell a story through the musical ideas with a beginning, an exciting climax, and a resolution. This improvisatory story varies in length, sometimes as short as eight measures or as long as a few minutes. This process of echo and dialogue can also be thought of as repetition and creativity. At first, the dialogue should be an exchange of short musical ideas. Rests and pauses are welcomed and give the flutist time to think of the next musical statement. With time, these musical exchanges should become progressively more extensive, leading to a more fluid and connected conversation between the two players. In her book, Sue Miller documents how her improvisation lessons with Richard Egües were structured:

Egües would play a phrase (solo or to a backing tape), which I had to copy. He would then make a small change to the phrase and I would then have to play back the new variation. He therefore gave me the characteristic vocabulary in a way that demonstrated motivic development and sequencing. Egües would often tell me ‘hay mucho que escoger’ (there are lots to choose from). In effect he was demonstrating creative strategies whilst supplying me with the vocabulary and syntax of the style.¹³¹

¹³¹ Miller, 195.
My process of learning to improvise was similar to Miller’s. I had the opportunity of meeting Puerto Rican Latin jazz flutist Nestor Torres at the age of ten. He sat down with me and told me to repeat what he played. That was it. No preparation, no lecture, no textbook. In front of an audience at a music store, he played one of the tracks on his newly released album at the time and went off. Like Richard Egües, Nestor Torres used motivic development and sequencing to elaborate his improvisations, and encouraged me to not shy away, to take musical risks, and to make something out of musical mistakes.

The concepts of motivic development and sequences are of utmost importance when developing the típico flute sound of charanga style. This is one of the main differences between improvisation in charanga and other genres such as jazz. Unlike jazz, inspiraciones are kept simple in charanga genres, sticking strictly to the diatonic tonality without complex dissonances. Modalities and substituted chords are heard at times today by players such as Orlando “Maraca” Valle, but this is a more modern approach and not part of the típico style that characterized Fajardo’s and Egües’ playing. It is common practice, however, to employ composed material to form motivic and sequential figures around structural melodic points. Most of the exercises applied to charanga improvisations are sequential in nature. The challenge is not only to have a clean technique at an often-fast tempo but to adapt the sequential figure to the context, approaching it and leaving it in a logical musical manner. For instance, when playing an upward sequential line it is customary to end it with a downward shape and vice versa, usually with a larger note value (Example 5.4).
This rule, however, is not absolute and can be broken at times. If the piece is gaining intensity through a rhythmic drive of bloques (hits) played by the pailas (timbales) and tumbadoras (congas), and trills or tremolos played by the violins, the flutist can continue the direction of the line with a harsher articulation to match the intensity of the ensemble (Example 5.5).
being played at the moment this exercise is used. It is also worth remembering that improvisations in the típico (traditional) style of charanga use chromaticism sparingly and focus more on arpeggios, melodic sequencing, and rhythmic motives to drive forward the energy.


Trills and turns are also prominent in charanga flute improvisations, as these are two important ornamentations used since the Baroque style that were maintained through the five-key flute tradition and applied to charanga music. Tulou’s method book provides a series of exercises for trills and turns that should be studied. However, the charanga trill more closely resembles a mordent that continues on to descend to the next primary note. This mordent is repeated sequentially through the diatonic scale (Example 5.7).

Example 5.7. Charanga mordent in descending sequence. Notated by author.

The above mordent exercise could continue to resolve into a series of wide octave leaps on the dominant, another characteristic of the típico style (Example 5.8).
Another characteristic of *charanga* improvisation is the interchanging melodic and rhythmic idiomatic roles of the flute. At times, the flutist plays melodic *inspiraciones* that emulate what the voice would sing; this should be driven by the basic harmonic makeup through stepwise and/or arpeggiated motives. At other times the flutist is responsible for increasing the intensity of the music for the dancers by working in unison with the percussion. As a general rule the flutist should find a balance between melodic improvisatory phrases and rhythmic statements, alternating them throughout the improvisation. Even more important is to play rhythmic patterns that do not interfere with the underlying *clave* foundation of the song (Example 5.1).

If only a few notes are played interchangeably with rests, these rhythmic passages should employ a harsh single tongue on the syllable *tu*. When a more melodic phrase is played a lighter tonguing on the syllable *du* should be used. For fast, technical passages a double-tonguing pattern is recommended. All these articulations can also be played staccato to emphasize the notes in the high register. Most *charanga* flutists use a staccato tongue, either single or double as needed. Various exercises of different tonguing patterns can be found in Tulou’s method. If playing on a wooden five-key flute, more effort is required to play with a crisp and detached articulation because of the density of

\[\text{Example 5.8. *Charanga* mordent with wide octave leaps resolution. Notated by author.}\]
the wood. This is why flutists who own a five-key flute adapt it by widening the embouchure hole. The metal Boehm system flutes make the articulation clearer.

For additional improvisational ideas let us examine the flute solo of the song *Tumba la Caña*, originally by Celina and Reutilio, as performed by *La Charanga De La 4*, a recording *charanga* ensemble created by singer Roberto Torres.\footnote{Celina y Reutilio, “Tumba la Caña,” by Roberto Torres, José Fajardo, and Charanga De La 4, recorded 1993, SAR Productions, CD.} The flutist in this 1993 recording is José Antonio Fajardo. This and other transcribed flute solos can be found in Appendix F. Generally, every *charanga* song follows the head section with a *bloque*, or percussion hits in unison, that opens into the chorus section. Then, the chorus is repeated in an exchange between the singers - who state the refrain - and the flutist who plays short improvised *inspiraciones* in between. These back-and-forth statements can be two to four measures in length (Example 5.9).

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Once this interaction between the refrain and the flutist subsides, the voices rest and the flutist takes over with an extended solo section. This is the part of the song where the flutist showcases his or her technical abilities. While this is happening, the rhythm section or *la base* (piano, bass, percussion) vamps the *montuno*. The harmonic progression of most *charanga montunos* is generally simple. A few common progressions in *charanga* genres such as *chachachá*, *danzones*, and *pachangas* include: \[ I-IV-V_7; \quad I-ii-V_7; \quad I-V_7; \quad I-V_7-V_7; \quad I-IV-V-IV. \] Other genres such as *guajira* use similar progressions \[ I-IV-V_7 \text{ and } I-VII-vi-V_7. \] Due to the use of violins in the ensemble and the lack of transposing instruments, the *charanga* repertoire is primarily written in sharp keys, namely G, D, A, and E major. C major is also common. These progressions are also generally used in minor keys. *Charanga* improvisations are mostly diatonic in nature with little to no dissonances, blue notes, or other jazz-like modalities. Thus, it is important that the flutist understand the basic progressions in all tonalities in order to stay within the chords during the solo section.

In addition to the piano *montuno* vamp, the violins maintain a *guajeo* phrase of short motifs and rhythmic emphasis. The *guajeo* is commonly two measures long; it continues to repeat and supports the rhythm section (Example 5.10). The violins and piano play in the middle to high registers, while the bass provides the low foundation.
The flute solo in *charanga* requires an enormous amount of stamina. It should be paced carefully. When the solo section opens, the flutist should play shorter phrases and let the music breathe through short pauses. Eventually, the ensemble and soloist will work together to carry the piece to a more energetic level where the flute gains more freedom for virtuosity. The continual repetition of the high notes can be overwhelming to the listener if not paced properly. The player’s maturity in the style should be reflected through quality choices of notes as opposed to quantity.

One common section that serves to gain intensity and bring the music to a more energetic gear is a bridge-like passage called *hierro*. In this bridge the flute repeats a rhythmic turn on the dominant while the *pailas* (timbales) play the same pattern in unison. Meanwhile, the violins continue the *guajeo* and the pianist keeps playing the *montuno* with the bassist. The singers often cue this section by shouting “*Hierro!*” a few times (Example 5.11).
Example 5.11. Eight-bar *Hierro* section. Notated by author.

After the *hierro*, the entire *charanga* ensemble is more involved musically. The violins play louder and a different, more elaborate *guajeo*. The *pailas* make bigger use of crash cymbals and cowbell, and the flute uses the full extent of its range in a more virtuosic improvisation.
Repetition is a common technique in improvisations, and it is welcomed as long as it is done for a reasonable period of time. In _Tumba la Caña_, Fajardo introduces the dominant turn followed by an arpeggiated C major chord. Then, he repeats the turn motif a few times before resolving with an ascending linear melody that ends in syncopation (Example 5.12).


Repeating an aurally attractive idea can be an effective technique in driving the energy forward. Another common technique is the quoting of other well-known tunes. This is done consistently in charanga improvisations and is a skill acquired through extensive listening of the repertoire and good transposition abilities. For instance, one of the most famous tunes in the standard Cuban repertoire is the piece _El Manisero_ (Peanut Vendor) by Moisés Simons. It is also one of the most quoted melodies in improvisations. While the original tune (Example 5.13) is commonly played in G major, Fajardo transposes it to C major (Example 5.14) and quotes it in his improvisation during _Tumba La Caña_ (Example 5.15).


In the example above, Fajardo uses the quarter note sextuplet to quote in a more melodic rather than rhythmic manner. This quarter note sextuplet is later used again, giving a rubato feel to the flute improvisation. This stands out over the rhythmic drive of the rest of the ensemble (Example 5.16).
Example 5.16. Quarter note sextuplet with rubato feel. Notated by author.

Fajardo used rubato to a lesser degree than Richard Egüé. Egüé’s classical influence in his solos was more noticeable through his use of vibrato and classical articulations. During my interview with Eddy Zervigón, he explained how Fajardo’s style was strikingly different than Egüé’s. Egüé used material from the composition to create a dialogue in the solo, using more melodic and sequential lines than Fajardo. Zervigón further explains there were some similarities such as the use of octave leaps in

\footnotesize

134 Miller, 240.

135 Personal interview with Eddy Zervigón, September 8, 2015, Miami, FL.
conjunction with the percussion and use of cross-rhythms. Ultimately, they both used rubato but differed in the way they used it in their solos. Egües’ classical training and great understanding of theory as well as his piano skills helped him develop a unique style that stood out from the rest.

Figure 5.3. Eddy Zervigón (left) and Ernesto Fernandez (right). September 8, 2015. New York.

Rubato is only one element of the style. Ornamentation, articulation, sequencing, motif development, quoting, timbre, and extended techniques are all factors that can shape a flutist’s sello (unique style). Extended techniques were not widely used by traditional flutists of the típico style of the mid-twentieth century. Contemporary flutists incorporate modern techniques such as singing-and-playing, flutter tonguing, note bending, and percussive sounds in the lower register. I personally make greater use of extended techniques when I improvise in charanga, finding a balance between the
traditional, motivic phrasing and the more modern sounds. It should be noted that extended techniques are easier to play on the Boehm metal flute and not very effective on the wooden five-key flute. Flutist Dave Valentín is the perfect example of a modern flutist whose style incorporates various extended techniques into traditional *charanga* genres as well as Latin jazz. Some traditional flutists might argue that extensive use of these techniques takes away from the traditional *charanga* sound. However, when used carefully it is a display of virtuosic training that can rejuvenate an otherwise dated style.

In this chapter I have presented a few performance practices and techniques that are standard in *charanga* playing. Flutists wishing to learn this style can use these guidelines regardless of which flute they use. Above all it is extremely important to listen to as many recordings as possible of as many flutists as possible. A discography of select *charanga* recordings can be found in Appendix D. Antonio Arcaño, José Fajardo, and Richard Egües are a great starting point, and more names of flutists and orchestras can be found in Appendix E. The most effective way to get accustomed with the style includes:

- Transcribing solos and short ideas,
- Playing them back until memorized,
- Transposing them to multiple keys,
- Understanding the harmonic progression and playing it on the piano,
- Identifying the *clave* patterns in each recording, and
- Identifying the common techniques that multiple flutists use.

It is also recommended that classical studies be continued as they help develop the sweet tone of the middle register and the brilliant sound of the high register.
Technical exercises and etudes often provide a variety of resources that can be adapted to *charanga* improvisations. It would be helpful to record the practice sessions on improvisation to evaluate progress and correct errors. Each individual is different, with a different sound, and a different message to transmit. The goal should be to mold a uniquely personal sound within the style, but most importantly one that can be impactful and memorable to the listener in every performance or recording.
Since the mid-nineteenth century, Cuba has contributed a vast number of genres and artists to the music world. The bolero, habanera, danzón, son, mambo, chachachá, charanga, pachanga, guajira, songo, rumba, and timba are some of the many dance music genres that have contributed to Cuba’s reputation as a breeding ground of top-notch musicians. The unique mixture of European and West African elements that created each of these genres is also evident in Cuba’s own “classical” music. Elements from Italian opera, Spanish zarzuela, European ballet, complex drum rhythms of Yorubaland, as well as vocal practices that recall African chants, Spanish flamenco, or Italian bel canto are just a few examples of the various styles of music that make up Cuban musical culture.136

There exists a unique creative environment on the island in which musicians get a European model of classical music education in schools but are also active as performers of popular music genres. This environment has been impacted by the lasting effect of an aging political system. Lack of resources, deteriorating facilities, and little access to the outside world have isolated the island throughout the late 20th and early 21st centuries. Even so, the ability of Cuban musicians to establish themselves as an influence in the industry despite the challenges is commendable. This isolation has also affected ability to research, and there remains much more to be explored about Cuba’s musical history.

In recent months, relations between the United States and Cuba have been reestablished. This should facilitate access to musicians and historical sources in

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the island thus expanding the research of Cuban and American scholars. The new
diplomatic relations could also establish a more prominent cultural exchange of live
performances and recordings. This can enrich understanding of Cuban musical culture
and increase the musicological literature.

After the Cuban revolution of 1959 many *charanga* musicians relocated to the
Unites States, mainly New York and Miami. As a result of the embargo that disrupted
collaboration between the two countries *charanga* music evolved differently in Cuba and
the United States. Today *charanga* music is still played in both countries albeit consumed
mostly by older generations or tourists.\(^{137}\) It remains an important symbol of Cuban
national identity on the island and abroad. In New York Eddy Zervigón continues to lead
his *Orquesta Broadway* and José Fajardo’s son, Fajardo Jr., directs his own group mixing
some of his father’s repertoire with new arrangements. Meanwhile, Miami enjoys the
presence of flutists René Lorente and Gustavo Cruz who carry on the *charanga* flute
tradition today. Additionally, Eduardo Aguirre performs with his *Charanga Típica
Tropical* regularly as does his son Ramiro Aguirre with his *charanga* ensemble.

For Cubans primarily established in Miami and New York, the political history
between the two countries blurs the lines of nostalgia. Emotions run high every time an
artist or band living in Cuba performs in the United States. Despite this, there is a
younger generation who is increasingly interested in reconnecting with their nationalistic
roots, including music. For musicians living in the United States, *charanga* represents an
attractive opportunity to learn new skills. For scholars, it continues to be an intriguing
topic of investigation that has not been fully explored. Encouragingly, scholars from
many countries focus their studies on Cuban music. Sue Miller, Jessica Valiente, Danilo

\(^{137}\) Witmer, 283.
Lozano, Andrea Brachfeld, and the author have all made contributions to the continuation of the charanga tradition. After each presentation at state and national flute conventions I am approached by a large number of flutists interested in learning the style.

Lastly, there are Cuban flutists in Miami who deserve the attention of scholars. Alemnest Andino, Fabian Alvarez, and Maria Consuelo Hernandez are three flutists who belong to the generation following the flute masters explored in this chapter. They all continue the charanga flute tradition through performances with the local charanga ensembles.

It is my hope that this work motivates flutists to study and practice charanga genres. Another prospective project as a result of this research is the publication of a didactic book. This book would be a tutor for flutists with an included DVD to learn performance practices in various traditional Cuban genres.

The enduring influence of Cuban charanga is notable to this day in the newer dance forms and music genres of Cuba’s diverse cultural society. As relations continue to improve between the two countries and new musicians are discovered, we can only be excited for all the future possibilities of research and cultural exchange with this captivating Caribbean island.
APPENDIX A: FIVE-KEY FLUTE FINGERING CHART

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French 5-Key Flute fingering chart. Alternate positions

A#5 / Bb5

B5

C6

C#6 / Db6

D6

D#6 / Eb6

E6

1. Basic
2. Flat
3. Sharp-flat: Sharpen with hole & open - PN
4. Flat: F# key depressed, flat - PN
5. Flat: FN

1. Basic
2. Sharpen
3. Flat: PN
4. Flat: FB key optional - PN
5. Sharp: FB, PB, FN - PN
6. Sixth-flat - PN

1. Basic
2. Sharp-flat
3. Flat: PB, FN
4. Sharp: Harmonic F# Poor response - PN
5. Flat: FN - PN

1. Basic
2. Sharp-flat
3. Flat - PN
4. Flat: FB key slightly sharp TD
5. Flat - TD

P. Núñez
French 5-Key Flute fingering chart. Alternate positions

1. Basic - PN
2. Flat - EZ
3. Flatted - EZ With G flat key better response (flatted) - PN
4. Sharp - PN
5. Sharped - PN
6. Sharpish - PN

G7

G#7 / Ab7

A7

Note from the author:
Fingering positions are given in accordance to response in a Jerome Thibouville Lamy French 5 key flute for charanga, circa 1800, @ A440 Hz, which means small tone holes and cork positioned near the embocure.
Though they appear numbered and first is always named as "Basic", no intention was to establish preferences on which position to play for each given note, knowing no standardisation happened to take place in manufacturing prior to Boehm System flutes.
If a so mentioned flat or sharp note gives better results for another player it is because of flute response, player embouchure, tuning and some other possible facts like larger holes or different than 5 keys.
It is unlikely this chart would become the definitive one. No profit intention was when this chart was created. Feel free to distribute.
P. Núñez Crespi
2005 - Rev. 8
Acknowledgements: Many thanks to Joaquin Oliveros (JO), Ted David (TD), Eddy Zervigor (EZ) and Richard Wilson (RW) for their contribution.

Legend:
- Closed hole or depressed key
- Open hole
- Shaded hole, means finger close to it but not completely closing.

1. 1st first finger hole
2. 1st second finger hole
3. 1st third finger hole
4. 2nd first finger hole
5. 2nd second finger hole
6. 2nd third finger hole
APPENDIX B: BOEHM FLUTE FINGERING CHART


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APPENDIX C: INTERVIEW QUESTIONS

1. What brand of five-key flute do you own?
2. What material is it made of? What year was it manufactured?
3. What methods/studies did you use when learning to play the five-key flute?
4. What challenges did you encounter when learning to play the five-key flute?
5. What made you switch to the Boehm metal flute? In what year? What brand do you use?
6. What methods/studies did you use when learning to play the Boehm flute?
7. What challenges did you encounter when learning the Boehm flute?
8. How would you compare the process of learning both instruments?
9. How do you describe the musical possibilities of each flute when playing in a charanga setting? What are some advantages/disadvantages of playing charanga genres on each flute?
10. How would you compare the performance practices of the charanga style on each flute?
11. How can the sound/timbre/gestures characteristic of the five-key flute be emulated on the Boehm flute in a charanga setting?
12. How did you learn to play in the charanga style? How did you learn to improvise? Who were your major influences?
13. What advice would you give today’s flutists who wish to learn how to improvise and play in the charanga style?
14. Do you feel it is important for young generations in Cuba to be exposed to this music? If so, why? How can we balance tradition with modernity and progress
APPENDIX D: SELECT DISCOGRAPHY


Fajardo, José. *La Flauta de Cuba*. Vintage Music. 2013 reissue. CD.

Fajardo, José. *Señor Charanga*. Fania Records JM570. 1980. CD.


Fajardo y Sus Estrellas. *Chachachá by Fajardo and his All Stars*. Musart-Balboa. 2007. CD.


Valentin, Dave. *Primitive Passions*. RMM Records & Video Corp. RMD 82001. 1996. CD.

## APPENDIX E: SELECT CUBAN CHARANGA FLUTISTS AND ENSEMBLES

<table>
<thead>
<tr>
<th>FLUTIST</th>
<th>ENSEMBLE</th>
<th>YEARS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alberto Cruz (Pancho El Bravo)</td>
<td>Orquesta Neno Gonzalez</td>
<td>1930s</td>
</tr>
<tr>
<td></td>
<td>Orquesta Pancho Bravo y Sus Candelas del Tira</td>
<td>1959-1980s</td>
</tr>
<tr>
<td>Alfredo Valdés</td>
<td>Orquesta Antonio Romeu</td>
<td>1910s</td>
</tr>
<tr>
<td>Antonio Arcaño</td>
<td>Orquesta Gris</td>
<td>1930-1935</td>
</tr>
<tr>
<td></td>
<td>Maravilla del Siglo</td>
<td>1935-1937</td>
</tr>
<tr>
<td></td>
<td>Arcaño y Sus Maravillas</td>
<td>1937-1950s</td>
</tr>
<tr>
<td>Belisario López</td>
<td>Orquesta Neno González</td>
<td>1925-1928</td>
</tr>
<tr>
<td></td>
<td>Orquesta Belisario López</td>
<td>1928-1960</td>
</tr>
<tr>
<td>Eddy Zervigón</td>
<td>Orquesta Broadway</td>
<td>1962-Present</td>
</tr>
<tr>
<td>Eduardo Aguirre</td>
<td>Original de Manzanillo</td>
<td>1960-1965</td>
</tr>
<tr>
<td></td>
<td>Orquesta Típica Tropical (L.A.)</td>
<td>1969-1973</td>
</tr>
<tr>
<td></td>
<td>Charanga Típica Tropical (Miami)</td>
<td>1973-Present</td>
</tr>
<tr>
<td>Eduardo Rubio</td>
<td>Orquesta Pedro Luis Ferrer</td>
<td>1975-1990</td>
</tr>
<tr>
<td></td>
<td>Orquesta Aragón</td>
<td>1990-Present</td>
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<tr>
<td>Efraín Loyola</td>
<td>Orquesta Aragón</td>
<td>1939-1952</td>
</tr>
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<td></td>
<td>Orquesta Ritmo Propio de Efraín Loyola</td>
<td>1952-1980s</td>
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<td>Francisco Delabart</td>
<td>Orquesta Antonio Romeu</td>
<td>1920s</td>
</tr>
<tr>
<td>Gustavo Cruz</td>
<td>Orquesta América</td>
<td>1970s</td>
</tr>
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<td></td>
<td>Fajardo y Sus Estrellas (N.Y.)</td>
<td>1981-1984</td>
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<td></td>
<td>Orquesta Hansel y Raul</td>
<td>1993-2015</td>
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<tr>
<td>Joaquin Oliveros</td>
<td>Combo de Senén Suárez</td>
<td>1973-1981</td>
</tr>
<tr>
<td></td>
<td>Orquesta Jorrín</td>
<td>1981-1982</td>
</tr>
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<td></td>
<td>Charanga Típica Rubalcaba</td>
<td>1990s-Present</td>
</tr>
<tr>
<td>Jose Antonio Diaz</td>
<td>Orquesta Antonio Maria Romeu</td>
<td>1930s</td>
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<td></td>
<td>Orquesta Cheo Belén Puig</td>
<td>1934</td>
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<tr>
<td>José Fajardo</td>
<td>Orquesta Antonio Maria Romeu</td>
<td>1940s</td>
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<tr>
<td></td>
<td>Arcaño y Sus Maravillas (substitute)</td>
<td>1947-1949</td>
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<td></td>
<td>Fajardo y Sus Estrellas Cubanas</td>
<td>1949-1961</td>
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<td>Joseito Valdés</td>
<td>Orquesta Habana</td>
<td>1934-1938</td>
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<td>Orquesta Ideal</td>
<td>1938-1968</td>
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<tr>
<td>Melquiades Fundora</td>
<td>Orquesta Sublime</td>
<td>1956-1989</td>
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<td>Policarpo “Polo” Tamayo</td>
<td>Ritmo Oriental</td>
<td>1973-1989</td>
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<td></td>
<td>Charanga de Oro</td>
<td>1989-1998</td>
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<td></td>
<td>Afro-Cuban All Stars</td>
<td>1998-2006</td>
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<td>René Lorente</td>
<td>Orquesta América</td>
<td>1969-1980</td>
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<td>Combo Senén Suárez</td>
<td>1980-1984</td>
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<td>Orquesta Aragón</td>
<td>1984-1990</td>
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<tr>
<td>Richard Egües</td>
<td>Orquesta Aragón</td>
<td>1954-1984</td>
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<td></td>
<td>Los Ases del Ritmo</td>
<td>1984-1999</td>
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<td>Rolando Lozano</td>
<td>Orquesta Aragón</td>
<td>1952-1954</td>
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<tr>
<td></td>
<td>Orquesta América</td>
<td>1954-1959</td>
</tr>
<tr>
<td></td>
<td>Orquesta Nuevo Ritmo de Cuba</td>
<td>1959-1960s</td>
</tr>
</tbody>
</table>
APPENDIX F: SOLO TRANSCRIPTIONS

SONG: Tumba La Caña

COMPOSER: Celina y Reutilio

PERFORMED BY: Charanga De La 4

FLUTIST: José Fajardo

RECORDING: Roberto Torres y Charanga De La 4
SAR Productions
1993, CD.
Tumba La Caña

Celina y Reutilio

Transcription: Ernesto Fernandez
SONG: *El Cuini*

COMPOSER: Richard Egües

PERFORMED BY: *Orquesta Aragón*

FLUTIST: Richard Egües

RECORDING: *Grandes Hits con la Orquesta Aragón*
EGREM
1999, CD.
El Cuini

Transcribed by Ernesto Fernandez

Richard Egues

Moderato

Flute
SONG: Montuneando Me Voy

COMPOSER: Eddy Zervigón

PERFORMED BY: Orquesta Broadway

FLUTIST: Eddy Zervigón

RECORDING: Orquesta Broadway 40th Anniversary
Flauta Records
2002, CD.
REFERENCES


Torres, Roberto. *Charanga De La 4.* Recorded 1993. SAR Productions. CD.


