

ROOTS OF RHYTHM - CHAPTER 13:  
THE STEEL DRUMS FROM TRINIDAD AND TOBAGO

**Instrument:**

*Steel Drums*, melodic metal for Calypso

**Country:**

Trinidad and Tobago



**Flag:**

The flag is red with a white-edged black diagonal band from the upper (hoist) side to the lower (fly) side. The color red represents the strength of the land in Trinidad and Tobago, the friendliness and courage of its people, and the sun. Black represents the unity and vigor of the people, as well as the natural resources of the country. The white border represents the sea, the purity, and the equality of all people.



Together, the colors represent water, Earth, and fire, which connect the nation's people to their past and future. The flag was designed in 1962 and was officially adopted that year when the two islands gained independence from Great Britain.

**Size and Population:**

The two-island nation called the Republic of Trinidad and Tobago covers an area of 1,980 square miles, smaller than the state of Delaware. Trinidad's rectangular shape measures 37 miles by 50 miles and has a total area of 1864 square miles. Tobago, shaped like a fish, measures 26 miles by 7 miles, and has an area of 116 square miles. The coastline around both islands together is 292 miles. As of July 2013, the population is estimated at 1,225,225; ranked 158th in the world. Ninety-five percent of the people live on Trinidad, the larger island. The major city, the capital, and the main port in Trinidad is Port of Spain. The largest city in Tobago is Scarborough.

**Geography and Climate:**

Trinidad and Tobago are located in the West Indies and consist of the southernmost islands of the Caribbean archipelago, a chain of islands between the Caribbean Sea and the North Atlantic Ocean. Geologically, the islands are an extension of the South American continent and Trinidad

## ROOTS OF RHYTHM - CHAPTER 13: THE STEEL DRUMS FROM TRINIDAD AND TOBAGO

is separated from Venezuela by only seven miles. Tobago, the smaller island, is about 20 miles northeast of Trinidad and mostly consists of plains, hills, and low mountains. Trinidad is covered with tropical forests and fertile flat lands. The highest mountain is El Cerro del Aripo at 3,085 feet and the lowest areas are at sea level. Clays, sands, and gravels found in the southern lowlands come from prehistoric times and lie above rich oil and natural gas deposits discovered in the 19<sup>th</sup> century. Even though the islands are located close to South America, Trinidad and Tobago are often considered part of the North American continent, since they are a Caribbean country.

The country has a hot, humid tropical climate with temperatures ranging from 64° F to 92° F, with Trinidad being slightly warmer than Tobago. The annual rainfall ranges from 50 inches on Trinidad to 100 inches on Tobago. The rainy season is between June and December. Because of its southern location in the Caribbean islands and its proximity to cold waters in the Atlantic, the nation normally escapes hurricanes that are common in parts of the Caribbean.

### **Background and History:**

During his third voyage to the Americas in 1498, Christopher Columbus landed on and claimed Trinidad for the Spanish Empire. The island was occupied by Amerindians, indigenous people that included the peaceful Arawak (are-oh-wok) as well as the fierce Carib (care-eb), Indians who resisted colonialization. The Carib tribal name was later taken for the name Caribbean. The Spaniards brought European diseases that killed most of these original inhabitants and those who did survive gradually assimilated into the Spanish culture. After the indigenous Indians died out, thousands of Africans were brought to work on the plantations as indentured servants, a type of slavery.

Although the Dutch settled the island of Tobago in 1632, Spain, Britain, France and the Netherlands fought for control of the island until Britain took control in 1814. Unlike other West Indian islands, Tobago changed hands 22 times during this period. The Spanish established the first permanent settlement in 1592, but the population did not begin to grow until Spain offered land grants to Roman Catholic settlers to develop the island's economy in 1783. Planters from Haiti with French background came to Trinidad and established a sugar cane and cocoa plantations that prospered. By the end of the 18<sup>th</sup> Century, the British had captured Trinidad; they colonized it over the next 150 years. When the British abolished slavery on the islands in 1833, more than 150,000 Hindu and Muslim workers were brought in or came from India to replace the slave labor force.

Trinidad and Tobago became a single colony under British control in 1889. After decades of exploratory interest on Trinidad, the first commercial oil drilling started in 1901. Over next hundred years, an extensive oil industry developed and became the country's main source of income. Many in the country demanded greater control of the government and over the next twenty-five year, Britain slowly released its rule. During WW II in the early 1940s, the Americans negotiated an agreement with Britain to use land on Trinidad for a military base, further increasing the need for oil and oil refining.

## ROOTS OF RHYTHM - CHAPTER 13: THE STEEL DRUMS FROM TRINIDAD AND TOBAGO

In 1962, Great Britain granted independence to Trinidad and Tobago, and they joined the British Commonwealth as independent sovereign states. By the early 1970s, supporters of Black Nationalism protested the high unemployment, and social and economic inequalities. In 1976, the governments of these two islands merged to become the Republic of Trinidad and Tobago.

This Republic is one of the most prosperous island nations in the Caribbean thanks largely to petroleum and natural gas production and processing. These islands are the third leading exporter of oil in the Western Hemisphere. Trinidad's Pitch Lake is the world's chief source of asphalt, tar used for paving roads. Today, the nation of Trinidad and Tobago is an active member of the Caribbean Community known as CARICOM. In March 2013, President Anthony Carmona was elected. The head of government has been Prime Minister Kamla Persad-Bissessar since 2010.

### **Culture:**

The island of Trinidad meaning "land of the Holy Trinity" received its name from Columbus. The origin of the name of Tobago is not clear but may have been derived from the word tobacco; Columbus originally named it "Bella Forma" or beautiful shape. Today the people of these islands are called Trinidadians and Tobagonians. Most of the country's people are from Africa (40 percent) or East India (40 percent). However, the population includes 18 percent mixed cultures, 0.06 percent white, with Chinese and others at 1.2 percent. Virtually all speak English, but a small percent speak Hindi, French patois (pa-twa) – combination of English, French, and Spanish, and several other dialects as well. About 95 percent of the people can read and write.

Trinidad and Tobago have two major folk traditions: Creole and East Indian. Creole is a mixture of African elements with Spanish, French, and English colonial culture. Trinidad's East Indian culture came to the islands after 1833 mainly from northern India to fill a labor shortage created by the emancipation of the African slave. East Indians have retained much of their traditional way of life, including Hindu and Muslim religious festivals and practices.

Roman Catholics form the largest religious group at 29 percent while Hindus are the next most populous at 23.8 percent. Others include Anglicans at 10.9 percent, Muslims at 5.8 percent, Presbyterian 3.4 percent, and other combined faiths at 26.7 percent. These diverse cultural and religious backgrounds foster many festivals and ceremonies throughout the year.

The focus of this chapter, the steel drum, has two important cultural associations: calypso and Carnival. Calypso was born on the islands in the early 1900s as a way for musicians to satirize politics and society in song. This music probably started during slavery when Africans, often forbidden to communicate with each other, used music to forge a sense of community and mock their overlords. What is called the Golden Age of Calypso began with the first recordings in 1914 and the first major Calypso artists became known in the 1930s. After World War II, calypso, a popular tool of political criticism, was associated with the People's National Movement in Trinidad. The most well-known calypso song, "Banana Boat Song," was written in 1956 by Jamaican-born Harry Belafonte. It was the first record of any kind to sell more than a million copies.

## ROOTS OF RHYTHM - CHAPTER 13: THE STEEL DRUMS FROM TRINIDAD AND TOBAGO

The origin of Trinidad and Tobago's Carnival is probably found in a mixture of several traditions. Beginning in 1785, during British rule, the French settled in Trinidad bringing with them the tradition of Carnival, a pre-Lent celebration. The celebrations included elaborate indoor masked balls, which, of course, were not to be attended by the enslaved Africans. As a result, black inhabitants of the islands started festivals in their backyards and streets. After the emancipation of slaves in the 1830s, former slaves took to the streets to claim areas they were previously denied. Carnival may also be tied to the word, canboulay (or cambroulay) a reference to burning sugar cane. This practice, called "cannes brulee" (cahn brew-lay) in French, was employed by slaves during a rebellion. In the 1880s, when Carnivals became increasingly raucous, the British attempted to suppress the event; resulting in riots. Despite this turmoil, Carnival continued as a celebration that was intended to overload the senses.

Today, Carnival expresses several characteristics of society in Trinidad and Tobago. It is a time to be free or a time to break away from the routine of life. While the actual festival lasts for around five days, the Carnival season extends from Christmas to Lent. Some say Carnival really takes place throughout the year, and simply reaches a peak during one week.

The focus instrument of this chapter, the steel drum, contains elements of music from Europe, East India, Africa, Trinidad, and America. One example of these multicultural connections is *soca* music started by calypso musician, Lord Shorty, who joined this East Indian music and musical instruments with African rhythms.

### **Music: Instruments & Rhythms**

**Instruments:** Steel drums, or "pans," are one of the major unique metallophones (metal percussion instruments) and were invented in the 20<sup>th</sup> century. Beginning with simple homemade instruments in the 1930s, they are now made with advanced technology and played in many venues from concert halls to school classrooms. Because steel drums have become an international success and gone far beyond the borders of the birthplace in Trinidad, it is important to understand how they developed over the past 75 years.

Steel drums probably originated in Laventille, an economically depressed suburb of Port of Spain that was settled by freed African slaves in the mid-1800s. African and East Indian drumming evolved over the years into percussion ensembles of young, often unruly men, who paraded in the streets during Carnival and other celebrations beating mainly skin-headed drums. In 1884, when the British banned drumming during Carnival parades, these drummers turned to hitting bamboo tubes. Called Tamboo Bamboo, the performers were thought of as drummers because the word "tamboo" is the patois pronunciation of the French word, *tambour*, "drum." Some competing bands became violent and fought using the bamboo as weapons forcing the British to outlaw their use in parades in 1935.

Also during this time, Carnival marchers had been using garbage cans and other metal pans as a substitute for skinned drums. After bamboo was prohibited in 1935, metal cans remained part of the parade and eventually were incorporated into large percussion ensembles. These instruments included garbage can lids, automobile brake drums, pots and pans, dustbins, and biscuit tins (large square cookie cans). Known as "steel bands" by 1935, these groups had the distinct

## ROOTS OF RHYTHM - CHAPTER 13: THE STEEL DRUMS FROM TRINIDAD AND TOBAGO

advantage of being much louder than bamboo bands. Often percussionists would push the bottom of the can out, making it convex and producing a better sound when hit with a mallet.

Although the invention of most musical instruments cannot be traced back to specific individuals, two people had a profound influence on the development of the steel drum: Winston Spree and Elliot "Ellie" Mannette. In 1937, at age 7, Winston was experimenting with creating multiple notes on convex cans. At the same time, at age 10, Ellie Mannette began examining Winston's ideas. When a friend returned a loaned drum to Ellie it was beaten so hard that the can's bottom was now concave. As he began hitting the can's bottom back to a convex shape with a small stone, each time he hit the dent it would make a pitch or musical note. In this way he learned to first form the concave shape, now called "sinking," and then tune convex notes with opposite hits. Since the dents sounded like "ping" and "pong," the instrument became known as ping-pong, the first of Ellie's many designs.

Though Carnival was banned during WW II, steel drum work continued and in 1946 Mannette demonstrated his 14-note ping-pong at the first post-war Carnival. This was the first melodic steel pan, which now gave steel bands the ability to play songs.

Mannette began using discarded 55-gallon oil drums to make pans, hammering them concave, but then heating the metal to make it stronger and hammering the underside to make each note convex for true pitches. By 1947, Mannette had a steel drum with 16 notes and led The Invaders, one of the first organized steel bands. By 1948 the 55-gallon drums had replaced the smaller biscuit pans and chromatic notes had been added.

In 1951, an all-star band that included Spree and Mannette traveled to London with a wide range of their instruments and a repertoire that included classical European music. Their innovations along with their European tour brought the steel pan to worldwide attention. In 1963, Trinidad started the National Steel Band *Panorama* competitions. In 1968, Ellie Mannette moved to the United States to perform and conduct instrument-making workshops, further influencing the steel drum art and industry.

Over the next 35 years steel drum making continued to evolve and gain international popularity. One innovation designed by Denzil Fernandez uses holes or "bore holes" around each note to improve the sound (see Tenor example below). In 2000, Europe held its first Steel Band Festival. That year Trinidad and Tobago held a conference on the science and technology of the instrument and a number of articles and books were written about the pan.

Today's steel band can have the musical range of almost an entire piano. Currently, there are hundreds of bands in Trinidad and Tobago and more than 1000 in other countries, including several hundred each in the U.K. and the U.S. Today, in addition to Trinidad and Tobago, at least nine countries manufacture pans. Steel bands have performed in some of the world's most prestigious venues including Carnegie Hall, the Kennedy Center, and Royal Albert Hall.

Other percussion instruments in steel bands can include congas, maracas, scrapers, brake drums, the standard drum kit, and occasionally a bass guitar. Together these instruments are called the

ROOTS OF RHYTHM - CHAPTER 13:  
THE STEEL DRUMS FROM TRINIDAD AND TOBAGO

"engine room" providing the rhythmic pulse of the group. In addition to pans, other melodic instruments in Trinidad include flutes, the guitar, violin, the *cuatro* (kaw-trow), a small percussive guitar from Venezuela, and the bass-box, a cord connected to a stick that is pressed on a wooden box. Electric amplified instruments also have been added to steel bands.

**Rhythms:** Steel band rhythm is usually based on calypso syncopations but can make use of many types of rhythms from around the world. These other rhythms include Jamaican reggae, American jazz, rock and hip-hop, West African traditions, South American music (especially from Venezuela), European classical music, and Asian rhythms (especially from North India).

One player can perform on one pan with 29 or more notes, or play many pans at the same time, for example, a nine-pan bass. The pan player can hit one note with one mallet or hit two notes with two mallets. He or she can also "roll"—a rapid alternation of right and left mallets to sustain the sound—on one or two notes lasting one count or many counts. The basic calypso syncopation and variation are often a two-count pulse or measure with subdivided accents in a pattern of 3+3+2, as follows:

Calypso rhythm	Count	1	2	3	4	1	2	3	4	Eight counts
	or	1	2	3	1	2	3	1	2	Syncopated pattern
Snare + bass drum		X	X		X	X		X		
Tenor pan		E <sup>b</sup>	E <sup>b</sup>		E <sup>b</sup>		E <sup>b</sup>		E <sup>b</sup>	

The play-along exercises shown below consist of these types of syncopated calypso rhythms based on the music of David Rudder, called "High Mas." His original music is performed by the steel drum ensemble, Panic, on the *Roots of Rhythm: Extensions Companion CD*, track 33.

**Listen & Play Along:**

*Note to teachers: if instruments are not readily available, consider having students make their own (a general activity for making drums can be found in the Roots of Rhythm: Introduction Section, and a specific instrument-making activity is described below) or encourage them to improvise - using everyday items such as buckets, containers, phonebooks, desktops, etc., as instruments. Rhythms can also be created with body percussion including handclapping, foot tapping, finger snapping, etc.*

*Listen to Tracks 30-33 of the Roots of Rhythm Companion CD to hear the sound of the steel drums. Now it is time to play along. If you do not have a steel drum, see below for instructions on how to make your own steel drum, or use instruments from the music classroom as substitutes: you can make a steel pan ensemble (see Resources section) using cowbells, glockenspiel (bells), conga drum, and bass drum.*

*Listen to Tracks 34-45 of the Roots of Rhythm Companion CD and play along with the rhythms. As you listen to the CD, have student groups clap the various rhythms from the TUBS notation below. Now play these rhythms along with the CD.*

ROOTS OF RHYTHM - CHAPTER 13:  
THE STEEL DRUMS FROM TRINIDAD AND TOBAGO

**Make Your Own Steel Drums:** You can make a steel drum in two ways and either version can be used to play a melody.

- A. Tape together various sizes of tin cans that make a sound you like, or
- B. "Sink" one end of a can with a hammer then push dents back out to make notes.

A. Tape cans together



B. Sink a can



**Steel drums and Performers:**

**Panic Steel Band**



**Six Bass and Double Tenor**



**Nhkruma Potts-Tenor**



**Tenor mallets**



**Bass Mallets**



**Triple Cello**



**Tenor – Bore Pan**

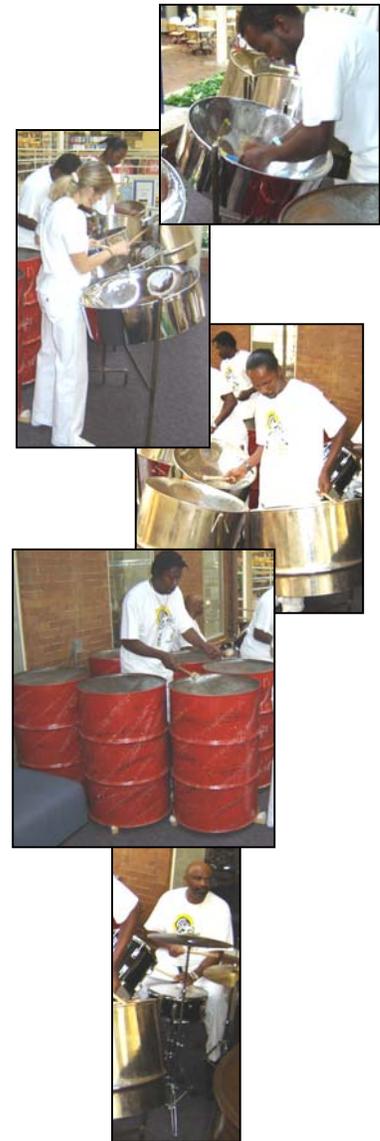


ROOTS OF RHYTHM - CHAPTER 13:  
THE STEEL DRUMS FROM TRINIDAD AND TOBAGO

**Resources: The Steel Drum Ensemble and Rhythms**

Calypso Rhythms and Melody from "High Mas" by David Rudder

Pans:	Count	1	2	3	4	5	6	7	8
Tenor*	1.	E <sup>b</sup>	E <sup>b</sup>		E <sup>b</sup>		E <sup>b</sup>		E <sup>b</sup>
	2.	E <sup>b</sup>	E <sup>b</sup>		E <sup>b</sup>		E <sup>b</sup>	C	
	3.	D							▶
	4.	E <sup>b</sup>							▶
DoubleTenor*	1.	E <sup>b</sup>	E <sup>b</sup>		E <sup>b</sup>		E <sup>b</sup>		E <sup>b</sup>
	2.	E <sup>b</sup>	E <sup>b</sup>		E <sup>b</sup>		E <sup>b</sup>	C	
	3.	D							▶
	4.	E <sup>b</sup>							▶
Cello**	1.		E <sup>b</sup>		E <sup>b</sup>				E <sup>b</sup>
	2.		E <sup>b</sup>		E <sup>b</sup>				E <sup>b</sup>
	3.		D		D				D
	4.		E <sup>b</sup>		E <sup>b</sup>				E <sup>b</sup>
Bass	1.	E <sup>b</sup>				B <sup>b</sup>			C
	2.	E <sup>b</sup>	E <sup>b</sup>		B <sup>b</sup>		B <sup>b</sup>		C
	3.	F				B			C
	4.	E <sup>b</sup>							



Calypso "Engine Room" Rhythms:

	Count	1	e	an	ah	2	e	an	ah
Bell #2 Angle iron				X	X			X	X
Bell #1 Cowbell		X	X			X	X		
Cymbal bell			X		X		X		X
Hi-hat				X			X		
Snare drum			X		X			X	
Bass drum		X				X			

NOTE:

Tenor pan = soprano voice or lead  
Double tenor pans = alto voice

Cello pans = Tenor voice\*\*  
Bass pans = Bass or baritone voice

\* - The Tenor and Double Tenor pans use a roll, or fast alternating strokes (RLRLRL), in this rhythm. The symbol for the roll is an arrow —▶.

\*\* - The Cello pan uses two mallets to play two notes as harmony. At the time that you hit the E<sup>b</sup> you should also hit a B<sup>b</sup> (below E<sup>b</sup>). When you hit the D you should also hit an F (below D) at the same time.

ROOTS OF RHYTHM - CHAPTER 13:  
STEEL DRUMS FROM TRINIDAD AND TOBAGO

**Extensions:**

**B**ecause they were invented separately from the rest of the world’s drums and percussion—developing primarily from the metal pans and cans that were played in Trinidad’s parades and Carnival— the physical form of the steel drums has little direct relationship to the other percussion instruments that have been covered in the *Roots of Rhythm* and *Roots of Rhythm: Extensions*. Therefore, steel drums can be considered a root instrument and as such have evolved to an advanced state while spreading their influence to drummers and drum makers around the world.



Steel Drums

The history of the steel drums began with their invention on the Caribbean island of Trinidad almost 75 years ago.

The indirect connection between the making of the steel drums and the *ranāt ěk* relates to the idea that a bump and a hollowed out area can help the sound. The bump or load on the *ranāt ěk*'s keys adds weight and focuses the pitch, while the shape of the bump on the steel drums does the same thing. Hollowing out the material on both instruments thins it, which focuses the vibration more efficiently. In the case of the *ranāt ěk* the keys or wooden bars are often tuned with bumps of thick paste on each end of the bar, and the center is carved out to make it thinner. These procedures help define the pitch of each note.

However, even though their design and development may have no direct connection to earlier instruments, steel drums do have much in common with the technology of pitched instruments such as the *ranāt ěk* (xylophone) and *khōng wong yai* (set of tuned gongs) from Thailand as well as the syncopated rhythms of the Egyptian *sājāt* and African *djembé*. Such indirect extensions show the steel drums to be a mixture of cultures, which include features related to Asian instruments, European melodic scales and African and Middle Eastern rhythms.

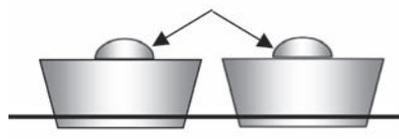
• Design/Construction Materials and Methods

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Using “bump” technology to define pitch.

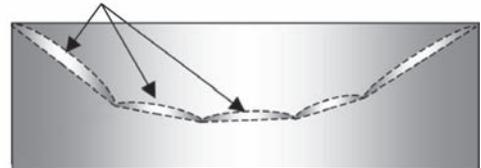


*Ranāt ěk*  
Bumps on ends of bars



arrows indicate bumps

*Khōng wong yai*  
One bump on each flat surface



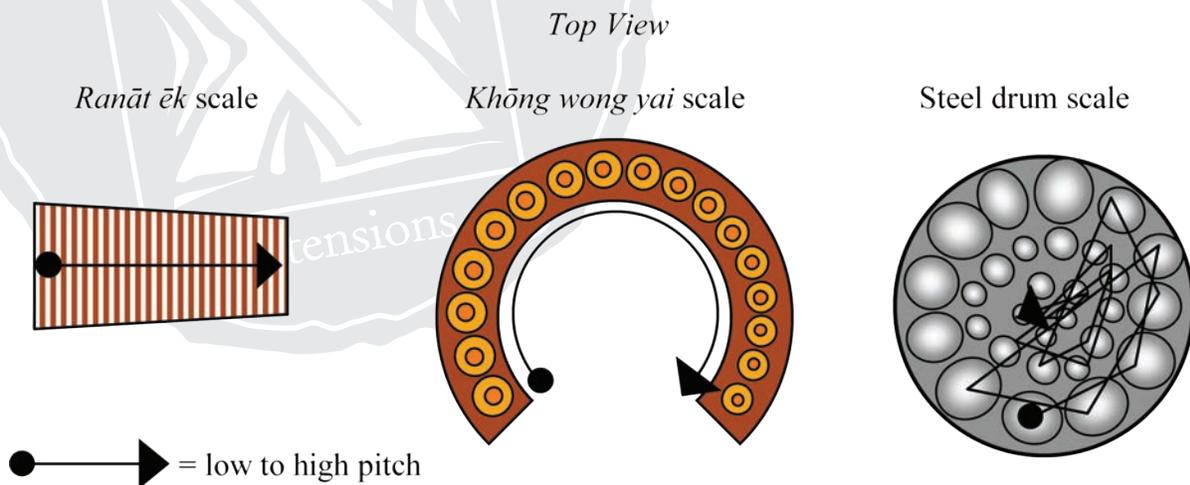
*Steel drum*  
Many bumps on one concave surface

## ROOTS OF RHYTHM - CHAPTER 13: STEEL DRUMS FROM TRINIDAD AND TOBAGO

The steel drum can also be considered an indirect extension of the bump technique of the *khōng wong yai*. The *khōng wong yai*'s notes are made with single kettles for each note and their single bump in the middle of each kettle helps make the pitch more definite. On this instrument, however, each gong has only one note and all notes are positioned individually on a rack. The steel drum extends this idea by grouping many notes with bumps of various sizes on a single concave surface.

### • Playing Techniques

The steel drums, *ranāt ēk* and *khōng wong yai* are all played using two mallets and the performer can hit with one mallet, the other mallet or both mallets at the same time. Also, performers on these instruments can roll (fast alternating strokes) with both mallets. The melodic scale on the Thai instruments moves from left to right on the *ranāt ēk* in a straight line and on the *khōng wong yai* in a circular motion. The steel drum performer indirectly extends these ideas often moving in a crisscross pattern back and forth. A scale on each instrument from low to high is as follows:



### • Quality or Type of Sound

While the designs and materials used to make steel drums create a unique sounding instrument, the drums are tuned to European scales originally brought to the island on musical instruments by colonial rulers. Instruments like the violin and the clavichord, an early type of piano, set the stage for the development of melodic instruments like the steel drums, so in this way the steel drums can be considered an indirect extension of those classical stringed instruments. On the first steel drums in the 1930s, however, there were only a few notes for playing simple songs. As pan makers like Ellie Mannette and Winston Spree experimented, they added more notes eventually making it possible to play complicated songs and musical arrangements. More recently, pans have been tuned with electronic equipment to international standards making it possible for this unique musical instrument to join other pitched instruments, including large symphony orchestras.

### • Musical Style or Application

The calypso rhythms played on steel drums might be considered a direct extension of rhythms in the Middle East and in West Africa. These ancient rhythms came with African slaves to Trinidad and likely became the foundation for calypso. For example, compare the syncopated calypso rhythm with that of a *sājāt* rhythm and a *djembé* rhythm as follows:

ROOTS OF RHYTHM - CHAPTER 13:  
STEEL DRUMS FROM TRINIDAD AND TOBAGO

	Count	1	2	3	4	5	6	7	8	
Calypso rhythm		X	X		X	X		X		Steel drum rhythm from Trinidad and Tobago

	Say	dum	tak	.....	tak	dum.....	tak.....		
<i>Wahed wa nusf</i>		R	L		L	R		L	<i>Sājāt</i> rhythm from Egypt

	Say	I	like.....	to	drum.....	with	you		
<i>Aconcon</i>		R	L		R	L		R	<i>Djembé</i> rhythm from Guinea

While music has historically been used in many different ways, for example in religious rituals, military maneuvers, royal ceremonies and dancing, the music played on the steel drums is popular in nature.



As an invention of the twentieth century within its own unique culture, the steel drum can be considered a root instrument. On the other hand, it also demonstrates coincidental connections to the technology, construction and music of ancient world percussion such as the *ranāt ēk*, *khōng wong yai*, *sājāt* and *djembé*. These examples show how pans, like many percussion instruments, are the result of a mixture of different influences and ideas. In addition, the steel drum is an excellent example of how commonly available local materials, in this case oil drums, are often used to create instruments that eventually become accessible to players and audiences around the world.