The National-Dobro Guitar Company: How The Resonator Guitar Survived The Age of Electric Amplification

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A Thesis Submitted to

The Faculty of
the Columbian College of Arts and Sciences
of The George Washington University
in partial fulfillment of the Partial Requirements
for the Degree of Master of Arts

August 31, 2009

Thesis Directed by

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Abstract of Thesis

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John Dopyera, who was attempting to increase the sonority of the acoustic guitar, invented the resonator guitar in the mid 1920s. Dopyera's invention was responsible for the single largest leap in volume in guitars since the instrument first appeared some 2000 years ago. The resonator first appeared in Hawaiian music but later spilled into other genres such as blues and country. Professional musicians coveted the resonator guitar and its advent caused innovations in style and playing method that continued on into the age of electric instruments. The instruments that were supposed to replace the resonator in the evolutionary chain, the lap steel and the Spanish electric guitar, actually had the effect of insuring its ultimate survival. For ten years, the resonator guitar was in the hegemonic position among musical instruments when opportunities for musicians were disappearing by the thousands due to technological changes in the field of entertainment and the entire world was mired in an economic slowdown never seen before or since in the modern world. The resonator's history intertwined with the Folk Revival, racial discrimination and intense drama among the partners of the National String Instrument Company. It is fraught with contradictions and ironies.

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Terminology

For any discussion on the history of the resonator guitar, it is important to clarify some of the terminology. Normally, historians include a glossary to help identify the various terms, jargon and colloquialisms. Musicians, however, are a peculiar group who describe sounds onomatopoetically and refer to instruments by brand names. For an alt-country musician, "skronk" is a perfectly reasonable adjective to describe an over-driven, compressed, dirty guitar sound. In addition, it is not uncommon for someone to refer to an instrument not made by the National guitar company as having that "National" sound.

Steel guitar is an umbrella term to describe any instrument played on the musician's lap with the strings facing up. It obtained this moniker because of the steel bar used to slide across the strings. The *Spanish guitar* is an instrument that is embraced by the player on its side with strings facing away from the musician. When National started making *Spanish guitars* out of steel, people began calling those guitars *steel guitars* but this is incorrect. *Hawaiian guitar, lap steel*, and *pedal steel* are all covered under the term *steel guitar*; however, modern musicians generally associate electrification with the term.

The National String Instrument Company produced metal-body guitars in both the *Hawaiian* style and in the *Spanish* style. For these purposes, *metal-body* refers to a National guitar and *Hawaiian* or *Spanish* is the defining adjective to describe whether the instrument is played on the musicians lap with the strings facing up or if it is played on its side with the strings facing away. The *Spanish guitar* can also be called a *slide guitar* or

bottleneck slide guitar because of the glass, metal or ceramic tube donned on the small finger of the player. National's association with slide guitar is so powerful that sometimes the musician will refer to any metal-body *slide guitar* as a *National*.

The story for the wood-body resonator is equally as confusing but for other reasons. The wood-body resonator was called by the brand name *Dobro* for years. *Dobro* refers to a *Hawaiian* style, wood-body resonator. Interestingly enough, the musicians that played them did not refer to Dobro's *Spanish* style guitars as *Dobros*. The Dobro brand was purchased by the Gibson guitar company in 1993 and they, inexplicably, started legal actions against other luthiers who were producing *Hawaiian* wood-body resonators and calling them *Dobros*. For these purposes, *wood-body resonator*, unless otherwise specified, refers to a Hawaiian style wood-body instrument played with a steel bar in either the sitting or standing position.

Historiography

There is no historiography of the resonator guitar nor is there any history, popular or academic. This treatment will establish the resonator's history. There were two books written on the subject. *The History and Artistry of National Resonator Instruments* by Bob Brozman covers all the inner workings of National from its inception to the Second World War. For the enthusiast, it is a critical book. It contains every conceivable piece of information regarding identification of virtually every guitar National ever put out. It includes serial numbers; cover plate types, head stock information, cone and body types. For the historian, it is a very helpful roadmap but it is not a history book nor does it cover the Dobro era. The other book was co-authored by writer Tom Gray and cone designer John Quarterman. This book was written from the perspective of the Dobro years. Centerstream publishing was fully prepared to release this book when a dispute broke out between one of the authors and Centerstream's president Ron Middlebrook over the cover art. There is little chance this book will ever be released.

The lack of a history has to do with numerous factors. The first reason is that the largest collection of primary documents concerning the National-Dobro Guitar Company, the Al Frost collection, has not become available until recently. Frost, who started as a shipping clerk at the National String Instrument Company, eventually became its president. Frost saved a plethora of documents starting at the time the company was founded. In these documents is Frost's correspondence with other writers and authors. What is clear from these letters is that Frost was responding to inquiries and not offering all of his collection for inspection. When Frost passed his entire collection was donated

to the National Association of Music Merchandisers. This is the first history to incorporate the entire collection.

Another reason that no history of the resonator exists is because the records of the Dobro Guitar Company are currently missing. According to Don Young, current president of the National Guitar Company, the Dopyeras handed over the records of Dobro to an unnamed writer sometime in the 1980s. There is some critical information in these records. As just one example, Dobro had no distribution through the South when the company operated independently from National. This lack of distribution had a huge effect on the instruments ability to permeate into country music.

The real problem, from a historiographic sense, is that interest in guitars corresponded with the ascension of the vintage guitar market. It was only after prices of guitars began to rise did people begin to think in terms of the instruments musicians played. Very few people, who were involved in the music industry in its early years, cared about such things as the brand of guitar the musician was using. None of the early record labels bothered to annotate what the musician was playing. Guitars were utilitarian instruments that a musician employed in earning a living.

History books covering musical instruments invented in the twentieth century have long lacked the *gravitas* of those written about violins, classical guitar and banjos. The companies that publish these books realize that their readers want to see large color photos of guitars, keyboards and lap steels. This gives the impression that these books are of the coffee table variety and lack substance. Even the titles are invented to attract buyers but at the expense of credibility. Ethnomusicologist Dr. George *Kanahele* wrote a history on Hawaiian music that was admittedly lacking but still remains the only

academic treatment on this subject. The title, *Hawaiian Music and Musicians: An Illustrated History*, gives the impression that this is a coffee table book.[1] In truth it is the only treatment of the subject with any credibility. Kanahele explores the various theories behind the invention of what is now referred to as Hawaiian music. More importantly, this treatment is Hawaiian focused. It talks about the Hawaiian recording industry, the various musicians and the international export of the genre. University of Maryland ethnomusicologist Mantle Hood reviewed this treatment for several academic journals.

University of North Carolina historian Phillip Gura wrote an incredibly valuable book about the Martin guitar company based on the records of the company. *C.F. Martin and His Guitars, 1796-1883,* documents the early years of the company in a way few others do.[2] The books problem is that it sits next to the dozen or so large picture books devoted to this company, giving the consumer the impression that one is as good as the next.

Gura argues that the critical juncture in Martin's history is when the X-brace appeared. This innovation involved two pieces of fir placed in an x between the sound hole and the bridge. Martin theorized that the loudest point on the guitar is nearest to the bridge. The two pieces of wood took that volume and spread it over the top of the guitar, greatly increasing the volume of the instrument. The resonating cone that the Dopyeras used is the rough equivalent. Like Gura, this thesis relied on the primary documents of the company.

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[1] George S. Kanahele, *Hawaiian Music and Musicians : An Illustrated History* (Honolulu: University Press of Hawaii, 1979).
[2] Philip F. Gura, *C.F. Martin & His Guitars, 1796-1873*, H. Eugene and Lillian Youngs Lehman Series (Chapell Hill: University of North Carolina Press, 2003).

Musical movements of the nineteenth and twentieth century have no such problem. There are plenty of books that cover these areas and do it well. The Appalachian immigration of the eighteenth century, early folk music, medicine shows, minstrelsy, the Second Great Awakening and ragtime have no direct relationship to the development of the resonator guitar. They did, however, play a critical role in the development of blues and country music. Those forms had a direct impact on the development of the resonator. Only Hawaiian music can claim direct influence over the resonator.

Minstrelsy has, at best, a tangential relationship with the invention of the resonator guitar. *Love and Theft* by Eric Lott explores the subject at length but for resonator research, it provides little or no help.[3] The instrument of minstrelsy is the banjo and unfortunately, author Lott fails to incorporate it into his narrative. One particular writer has claimed that the reason the single-cone idea worked is that it has a similar rate of attack as the banjo. In the Piedmont, many learned tunes on the guitar that were originally written on the banjo. In that regard, banjo does fit into the resonator story.

As Lott mentions, the 1960s television show "Hee Haw" came out of the minstrel movement. The white version of blackface comedy involves the hillbilly. In the 1930s, Pete Kirby, the first of the wood-body resonator players who was heard on a national stage, was playing the hillbilly role of Bashful Brother Oswald when he joined Roy Acuff on the stage at the Grand Ole Opry. Acuff's previous resonator player, Clell Summey, quit the band because he felt the hillbilly act was demeaning. The founding fathers of Nashville, who called their city the Athens of the south, despised the hillbilly act as well.

[3] Eric Lott, *Love and Theft : Blackface Minstrelsy and the American Working Class*, Race and American Culture. (New York: Oxford University Press, 1993).

No part of Lott's racial narrative concerning minstrelsy can be applied to the resonator either. The resonator stayed out of the Delta bluesman's hands because of price, not discrimination. Blacks were denied access to the radio airwaves, which greatly affected their ascent as artists, but in the 1960s, these bluesmen were nearly worshipped by musicians on both side of the Atlantic Ocean.

Scholarship in country music today is vibrant. In 1979, historians Bill Malone and David Strickland published *Southern Music/American Music*, and by doing so set off a wave of new scholarship in country music history.[4] The overall goal of this work is to elucidate the influence the South has had on American music. The secondary goal is to wade through the sea of *apocrypha* that has long been accepted as dogma. To Malone and Strickland, the popularity of acoustic instruments among young people is a rejection of the prefabricated, franchised culture of the last fifty years. Finally, *Southern Music*, continues the long reexamination of the contribution of African-Americans to country music.

The theme of African-Americans and their contributions to southern music is a major part of Malone's next effort, *Country Music U.S.A.*[5] *Country Music U.S.A.* is the first major academic history on the subject. It encompasses the entire history of the subject matter and far outpaces *Southern Music*. In this treatment of the subject, Malone covers every sub-genre in country music from Cajun to Texas Swing. He also advances some fringe theories regarding the influence of African-Americans. Malone has embraced a little-known theory, one that employs logic more than it does empirical data,

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[4] Bill C. Malone, *Southern Music, American Music*, New Perspectives on the South (Lexington: University Press of Kentucky, 1979).
[5] ———, *Country Music, U.S.A*, Rev. ed. (Austin: University of Texas Press, 1985).

regarding Hawaiian music originally, advanced by folklorist David Evans. Malone claims that Hawaiian music, the phenomenon generally attributed to Joseph *Kekuku* came from African-American sailors visiting the Pacific Island chain during the mid to late nineteenth century. This is how Malone, through Evans, connects the advent of bottleneck slide tradition of blues to Hawaiian steel guitar.

Blues has a more mature historiography than country music because of the Library of Congress recording project of the late 1920s through the 1940s. In addition, W.C. Handy's 1961 autobiography, *Father of the Blues*, was released right during the Folk Revival.[6] This work does an excellent job at framing the Delta blues as the product of minstrelsy and ragtime from a man who lived through it. It is interesting to note that none of the histories of that era spend any time talking about what kind of guitar someone played. For modern blues historians, Handy's book is foil for new research. Ted Gioia's work, *Delta Blues: The Life and Times of the Mississippi Masters who Revolutionized American Music* casts much doubt on Handy's claims as the father of the blues.[7] Of course, all historians continually try to find the twelve bar format in Africa but to no avail. Folk music too enjoys a much more mature historiography primarily because of its fascination to social historians. Every folk song is ostensibly an oral history. In the canon of American folk songs "John Henry" stands as out as the most popular. The song is to folk music what the Faustian Robert Johnson is to blues. *Steel Drivin' Man*, by historian Scott Nelson is the latest attempt to challenge the prevailing

[6] W. C. Handy, *Father of the Blues: An Autobiography by W. C. Handy* (London: Sidgwick and Jackson, 1961).
[7] Ted Gioia, *Delta Blues: The Life and Times of the Mississippi Masters Who Revolutionaized American Music* (New York: Norton and Company, 2008).

historiography of the real life John Henry.[8] Social historians have seen John Henry as the working class hero of Reconstruction. In the several hundred versions of the song, Henry bested a steam driven spike driver with his nine-pound sledgehammer.

The only link between John Henry and the story of the resonator is that both the song and the guitar were a product of the industrial revolution. Henry used his hammer to create holes in which to put dynamite in. The 1860s produced the steam drill, which could replicate the efforts of John Henry. The steam drill was a symbolic apparatus of the changing modern era but it lacked the flexibility of a two-man hammer team. The resonator was a much more reliable product.

Nelson also argues that in 1931, the song's meaning took a decided change. Thomas Hart Benton performed a version of the song in 1931 in the presence of folk musician Charles Seeger. Communist activists, including Charles Seeger, began to opine that the public had misinterpreted the song. To these activists, the steam hammer had intensified the pace of work until John Henry died trying to keep up with it. Soon, the song became a standard of the far left of the Folk Revival and was usually accompanied on acoustic guitar.

Virtually every book used in this treatment concerning the social, political and economic environment that produced the resonator guitar came out of an academic environment. None of the books that talk specifically about the resonator guitar did. This subject matter is begging to be written up because its ascension occurred during a time when musicians were being put out of work in droves do to changing technology in radio and film. It is an oddity produced by a confluence of events both economic and

[8] Scott Reynolds Nelson and ebrary Inc., "Steel Drivin' Man John Henry, the Untold Story of an American Legend." (New York ; Oxford: Oxford University Press, 2006).

social. It represents a direct link between acoustic and electric amplification. It is time for this iconic instrument to get off album covers and into the academic journals.

Introduction

The resonator guitar was assigned a peculiar history. It was invented in the mid-1920s by John Dopyera, who was attempting to increase the sonority of the acoustic guitar, but the resonator guitar survived the age of electrification for an entirely different set of reasons. The instruments that were supposed to replace the resonator in the evolutionary chain, the lap steel and the Spanish electric guitar, actually had the effect of insuring its ultimate survival. The acoustic guitar and the mandolin date back 2000 and 300 years respectively and have at different times enjoyed various levels of popularity. By the 1920s, the five-string banjo had been around for one hundred years. The resonator guitar was in the hegemonic position among musical instruments for ten years and still was able to work its way into the cultural memory of the American public.

Dopyera's invention represented the single largest leap in guitar volume prior to the advent of the electric version of the instrument. For a ten-year period following its introduction, professional musicians coveted them. The increase in volume spurred a wave of innovation in playing method that started in Hawaiian music and quickly spilled over into blues, county and jazz. What is more amazing is that all the growth and innovation associated with the resonator guitar occurred when talking movies and radio

were wiping out tens of thousands of work opportunities for musicians and the world was enduring a massive economic depression.

The resonator guitar's presence in some forms of music such as Hawaiian, Texas swing and country was ephemeral. In others such as the bottleneck blues and bluegrass, it is now part of the instrumental canon. For bluegrass, the resonator is the only instrument from the twentieth century to be part of the traditional ensemble. Regardless of how long it remained, the resonator influenced all the genres that it touched and whether it was played on the musicians lap or in the Spanish style, it put the guitar player out front for the first time with an instrument commensurate with that position.

The resonator story is not just about guitars. It involves racial discrimination and the brutal, post reconstruction share cropping system. Social movements, like the Folk Revival, as well as the Great Depression also played huge roles in the resonator's story. There was drama and vitriol at the National String Instrument Company. The hatred and rancor among the original partners and some of their descendants carried on for decades after the company had changed hands. For the resonator, the drama in the original company had significant implications for the history of this instrument.

Hawaiian Music—Pre-Resonator

The story of the resonator guitar began on the island of Hawaii. From its volcanic beginnings, the small chain of islands in the Pacific Ocean was a perfect incubator for a new form of artistic expression. The first contact made with westerners occurred in 1778 when Captain Cook arrived. Cook viewed the islands from a perspective of extracting and exporting its resources. He brought with him European boars, ewes and rams as a gift for King Kamehameha I, but what he hoped was that this breed stock would prosper into a sustainable herd. Cooke understood that, if ships were to be encouraged to sail to the Hawaiian Islands, they needed an economic reason and a way to victual for the voyage home. The Hawaiians began harvesting their fragrant Sandalwood trees as a trade good. To solve the second problem, Captain Vancouver brought with him a herd of cattle in 1793. Kamehameha I placed the herd under protection for a ten-year period, and with additional shipments of cattle, the island soon had a thriving and unwieldy population.[9]

In 1815, Kamehameha I hired the first foreigners to manage the island's herd. By 1830, Kamehameha III brought in Spanish-Mexican *vaqueros* to teach herd management to the Hawaiians.[10] The *vaqueros* brought with them some version of an acoustic guitar. The six-string acoustic guitar appeared somewhere around the last quarter of the eighteenth century but was not prevalent throughout Europe until the first part of the

[9] Kepa Maly and Bruce A. Wilcox, "A Short History of Cattle and Range Management in Hawai'I," *Rangeland* Vol. 22 No. 5 (Oct., 2000), 21.
[10] Maly and Wilcox, "Cattle and Range Management," 22.

nineteenth century. It is probable that the *vaqueros* brought the six-string's predecessor, a small body classical guitar with five pairs of strings called the *baroque* guitar.[11] The Spanish favored a non-standard form of tuning. Standard tuning on a guitar allows the musician to play all the chords in any key in the first position but the Spanish loosened the strings to create an open chord. Called *slack key* guitar, this was a finger style tuning as opposed to the strumming rhythm that the instrument is most famous for. Open tunings like those of early *slack key* guitar became the foundation of almost all music played with a slide or bottle neck.

Before the guitar came to the Hawaiian Islands, "Hawaiian music" as defined by the local population, had almost no relationship to what it meant by the last quarter of the nineteenth century. Before 1820, the Hawaiians had no conception of melody nor did they have a word for singing in the language. This all changed when the Christian missionaries arrived in 1820. The modern term for singing in the Hawaiian language is *himeni*, which was derived from the English word "hymn." With a repertoire of hymns and some secular music gleaned from sailors, the concept of melody began to work its way into the Hawaiian culture and society.[12]

There was only one stringed musical instrument indigenous to the Hawaiian Islands. The *ukeke* resembled a bow similar to what the American Indians used for

[11] Darryl Martin, "Innovation and Development of the Modern Six-String Guitar," *The Galpin Society Journal*, no. 51 (Jul., 1998), 86.
[12] Orme Johnson, "Musical Instruments of Ancient Hawaii," *The Musical Quarterly*, Vol. 25, no. 4 (Oct., 1939), 498.

hunting and defense.[13] The major wind instrument was called an *ohe* or nose flute and the most prominent instrument of the ancient Hawaiians was the *pahu* or kettledrum.[14]

By the 1870s, the Spanish *vaqueros* had successfully worked their way into Hawaiian culture. Their guitars had become a standard form of entertainment on the various cattle ranches across the island. In 1879, two Portuguese luthiers came to Hawaii to try their hand at instrument making. They brought with them a *viola* and a *braga,* or guitar and *ukulele* respectively. There is other evidence to suggest that the four-string *ukulele* was built in Hawaii for portability reasons. The late nineteenth century saw a great many workers from the Canary Islands of Portuguese descent brought in to work the sugar cane fields and this group wanted a smaller version of the guitar that came to be known as the *ukulele*.[15]

The origins of Hawaiian music—a microtonal form of music originally presented by a small ensemble with one musician playing an acoustic guitar on his or her lap using

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[13] For a complete discussion of the *ukeke*, see Johnson, "Ancient Hawaii," 500. When plucked, the one, two or three stringed *Ukeke* produced a sound similar to the echo a pebbled made when dropped into a well. Some players began to put one end of the bow up to their mouths, thereby using their mouths as a resonating chamber. The player could change the pitch of the instrument by changing the shape of his or her mouth. As a result, the music produced by this method emulated the human voice.

[14] For a complete discussion of the *Ohe* and the *Pahu*, see Johnson, "Ancient Hawaii," 502. The *ohe* was an eighteen-inch piece of bamboo with one end closed. A hole was bore as close to the closed end as possible to serve as a portal from which to blow air through the players nose. Three finger holes were then bore into the bamboo nearer to the open end. As the player blew air into the instrument, he or she covered and uncovered the holes with their fingers to change the pitch. The most important instrument of the ancient Hawaiians was the kettledrum, or *pahu*. Musicologists believe that the *pahu* came over in the fourteenth century, probably from the archipelagos in the southern Pacific with an adventurous Hawaiian prince named *La'a*. The *pahu*, the *ohe* and various assorted percussion instruments were an integral part of Hawaiian dance particularly the *hula*—a dance that had little or no relation in ancient times to the popular western image of it in the late nineteenth and twentieth centuries.

[15] Lorene Ruymar, *The Hawaiian Steel Guitar and Its Great Hawaiian Musicians* (Anaheim Hills: Centerstream 1996), 10-11.

a steel bar—is rooted in three viable theories. The theory with the most problems involves a man named James Hoa. In the 24 January, 1932 issue of the *Honolulu Advertiser*, a fisherman named David Kupihea claimed that Hoa invented the steel guitar playing method in 1876. According to Kupihea, Hoa had witnessed a barber named William Bradley playing chimes on his guitar.[16] What Hoa probably witnessed was Bradley playing harmonics. A harmonic is produced when a guitar string is lightly touched at its nodal point. The resulting "chime" is not the entire string vibrating but the specific overtone that corresponds to that particular nodal point.

According to Kupihea, Hoa went home to try and reproduce what he thought he was hearing. He took the back of a comb and used it to block the string instead of using his finger. He then graduated to the flat end of a pocketknife, which he found worked the best.[17] Hawaiian musicologist and author of one of the most extensive studies done on the subject, Dr. George Kanahele, was highly doubtful of Kupihea's story for several reasons. First, Kupihea got many of the details wrong about Hoa's career. Kupihea claimed that Hoa was first bandmaster of the Royal Hawaiian Band, under Kamehameha V, which Kanahele asserted was patently false. Second, there is no other record of anyone else confirming Kupihea's version of the events. Finally, if Kupihea's timeline is to be believed, there was almost a twenty-year hiatus between the time Hoa began to play a primitive form of steel guitar and its eventual popularization in the 1890s.[18]

The theory possessing the least amount of problems - and the one that has been widely accepted for more than a century as dogma - lays the invention of the steel guitar

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[16] George S. Kanahele, *Hawaiian Music and Musicians: An Illustrated History* (Honolulu: University Press of Hawaii, 1979), 366.
[17] "Kupihea on Steel Guitar and Ukulele," *Honolulu Advertiser*, 24 January 1932.
[18] Kanahele, *Hawaiian Music and Musicians*, 366.

at the feet of Joseph Kekuku. One version of the story states that, at age ten, Kekuku was walking with his guitar next to some train tracks when he found a steel bolt on the ground. He picked up the bolt and began sliding it up and down the strings of his guitar. When he got home he took the flat end of a knife and tried the to do the same. What worked best, he found, was the ground down edge of a straight razor.[19] Another version, this one by Dr. Helen Roberts who was commissioned by the legislature of Hawaii in 1923 to make a thorough study of Hawaiian music, claimed that Kekuku was at school with his guitar and, out of curiosity, took his comb out and began sliding it up and down the strings.[20] Simeon Nawa'a confirmed in a letter to the *Honolulu Star Bulletin* on 21 October 1944 that he had witnessed Kekuku and his cousin Sam playing a duet, Kekuku on steel and Sam on violin, when they came to the Kamehameha School for Boys in 1888. Kekuku told Nawa'a that he had been working on the method for "some time."[21]

As compelling as the Kekuku theory is, there is another that is by far the most intriguing and has gained credibility among musicologists and historians. According to a newspaper article written by Charles E. King, a young man named Gabriel Davion invented the principal of the steel guitar in 1884, a year before ten-year old Kekuku claimed that he had. The Davion theory probably would have been categorized with other less substantiated claims except for one important factor. Davion was from India.

In seventeenth century India, an instrument called the *gottuvadyam* began to appear in musical ensembles and as a solo instrument. The word is derived from *kõdu*, meaning glass slider and *vadyam* meaning instrument. The origins of this stringed

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[19] Kanahele, *Hawaiian Music and Musicians*, 367.
[20] Roberts, *Hawaiian Steel Guitar*, 7.
[21] "Letter to the Editor", *Honolulu Star Bulletin*, 21 October 1944.

instrument played with a glass slide may go back as far as 200 B.C. Indian music and Hawaiian music share one important trait that makes the Davion theory more compelling, both instrument and voice have a remarkable ability to imitate each other.[22] Debashish Bhattacharya, a modern resonator guitar player from India, seamlessly adapted the resonator to Indian music.

Away from the plethora of anecdotal evidence that supports the Kekuku theory, those who saw and heard him play thought it was impossible for anyone else to have invented this musical style. No musician can lay a larger claim to starting the Hawaiian music phenomenon than Joseph Kekuku. He played at the Kamehameha School for his friends during the entire time that he was a student there, and he did concerts in Honolulu. Other students began to learn from Kekuku; soon the steel guitar began to permeate across the islands.

The first known Hawaiian steel guitarists to go the U.S. mainland arrived in San Francisco in 1899. William Kuali'i, a man who made his reputation later pioneering Hawaiian recordings, brought over July Paka and Tom Hennessey to record on wax cylinder for Thomas Edison. None of these recordings survived but Paka soon married a local dancer and formed a group called Toots Paka's Hawaiians. The group was a sensation and played along side the most famous entertainers of the day in small clubs and high society. Dr. George Kanahele has asserted that Paka and his fellow first generation steel players - including Joseph Kekuku, who came to the U.S. in 1904 - were responsible for putting Hawaiian music at the vanguard of musical influence in American. In 1912, "Birds of Paradise" opened on Broadway with its brilliant island

[22] Mantle Hood, "Musical Ornamentation as History: The Hawaiian Steel Guitar," *Yearbook for Traditional Music*, no. 15 East Asian Music, (1983), 144-5.

scenery and steel guitar players. It was an instant hit. In 1919, the show was taken to Europe with Joseph Kekuku on steel guitar. By far though, the most influential showcase for Hawaiian music was the Panama-Pacific International Exposition held in San Francisco in 1912. The Hawaiian pavilion built for the expo recorded the highest attendance of all exhibitions, and shows were held several times a day. Recordings, which outsold ever other kind of popular music, movies with Hawaiian themes, and instructional books were in high demand.[23]

The influence of Hawaiian music spread as cultural influences had for thousands of years. The constant need for supplies, food and expertise on the island of Hawaii brought an influx of diverse influences into Hawaiian culture. The guitar, *ukulele* and other lesser-known stringed instruments came from the Spanish and Portuguese. The Hawaiians took those influences and produced a new kind of music played on steel guitar. The same transitory factors that created steel guitar now began to export it. Whalers, sailors and merchant marine coming through Hawaii heard the music and started forming their own bands to occupy the long hours at sea. When they got to other ports, they played for themselves and the local population. A man named Alfred Bentley, a steel guitarist from Fiji, claimed that he heard a Hawaiian trio of sailors play steel when they came into port. His brother-in-law, John Fatiaki, formed a band on his merchant ship and brought steel guitar to Japan, India, Australia and Canada. Joseph Kekuku toured Europe after a run of "Birds of Paradise" in London and played in Paris at the

[23] Ruymar, *Hawaiian Steel Guitar*, 29, 31.

Café de Paris. Mexico, South Africa, Central and South America, Sweden and China all had home grown Hawaiian ensembles.[24] It was a worldwide phenomenon.

In spite of all the success and uproar surrounding Hawaiian music, there was a deficiency that was sure to affect the genre's long-term viability when presented in a live format. The problem was that Joseph Kekuku had taken the acoustic guitar and put it in a position for which it was wholly unqualified. The acoustic guitar was designed as a parlor instrument, not for public performance. Classical guitarists had struggled with problems of sonority for centuries.[25] The technique employed to play steel guitar to produce the beautiful sound also works against it, since only one; two, or three strings are picked at any one time. A strummed guitar produces much more volume because all six strings vibrate at once.

There had been advances in volume output of the acoustic guitar in the last half of the nineteenth century. An acoustic guitar is ostensibly a primitive amplifier. The loudest point on the guitar when the strings vibrate is nearest to the bridge. In terms of sonority, the more of the guitar that is used to transfer these vibrations, the louder it will be. By the turn of the eighteenth century, the internal structure of the guitar was braced with a ladder design, several pieces of wood glued across the inside of the top of the guitar. Classical guitar luthiers in Europe favored a fan bracing design that radiated from the sound hole.

Sometime in the 1850s, Charles F. Martin designed a support system for the interior of the guitar that involved X-bracing. The brace was two pieces of spruce

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[24] Ruymar, *Hawaiian Steel Guitar*, 31, 42, 45.
[25] Terrence Usher, "The Spanish Guitars in the Nineteenth and Twentieth Centuries," *The Galpin Society Journal*, no. 9, (Jun. 1956), 5.

crossing each other in the area between the sound hole and the bridge. The braces spread the string's vibrations across the top of the guitar from the bridge, increasing its volume.[26] The first luthier to envision the guitar as an ensemble instrument was Orville Gibson. In the mid 1890s, Gibson designed a guitar that was strong enough to support steel strings rather than the gut strings that had been used up to that time. Gibson, who started as a mandolin maker, may have been trying to solve a volume problem within ensembles made up of mandolins and guitars.[27] When Orville Gibson left the company, the pursuit of sonority continued by increasing the size of the bodies. Gibson designed an archtop guitar with an oval soundhole in 1903 called the *O* series. The archtop design created more space inside the guitar. In 1910, they produced a larger guitar called the *L-4*. In 1923, Gibson luthier Lloyd Loar introduced a radical new design that jettisoned the soundhole and replaced it with two F-shape holes. The body of the guitar was bigger as well. The *L-5* as it was named replaced the *style O*.[28]

In spite of advances in design and the introduction of the steel string, Joseph Kekuku and his contemporaries did not have access to these technological developments, at least when they were in Hawaii. The bulk of the manufactured guitars made in the U.S. were ladder braced, cheaply built, mail order, gut or possibly steel strung instruments. The Lyon and Healy Corporation claimed that they were making 100,000 budget instruments a year by the turn of the century while Martin was turning out 200

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[26] Jim Washburn and Richard Johnston, *Martin Guitars : An Illustrated Celebration of America's Premier Guitarmaker* (Emmaus, Pa. [New York]: Rodale Press ; Distributed in the book trade by St. Martin's Press, 1997), 38-9.
[27] Daryl Martin, "Innovation and Development of the Six String Guitar," *The Galpin Journal*, no. 51, (Jul., 1998), 86.
[28] Tony Bacon, *The Ultimate Guitar Book* (London: Dorling Kindersley Limited, 1994), 38.

high quality guitars.[29] More than likely, Kekuku played a guitar made on the island. As for steel strings, galvanization techniques offered little protection from the salt-air climate of Hawaii. The only other option to increase volume was to use metal or plastic finger picks, a technique that became standard for any slide player in every genre.

The first generation of steel guitar players to come to the U.S. mainland were playing what the world thought was traditional Hawaiian music. The second generation of players began to cross-pollinate it with other forms of music. Ragtime, an African-American form of music that came from the minstrel and medicine show circuits, took off in America somewhere around 1905. This heavily influenced the steel guitarists in Hawaii and when they came over had no problem musically integrating ragtime into the craze. Again, the problems associated with playing steel guitar in a string ensemble were exacerbated when piano, woodwinds, and horns were incorporated.

The second generation of steel guitarists produced many legendary names. Sam Ku West, Jim Goldstein, Ben Nawahi and Dick McIntire all became recognized steel players through their appearances and their recordings. They also assumed the roles of instructors for those that wanted to learn steel guitar. The most famous of the second-generation steel guitar players - and the name that is critical in the resonator guitar story - is Solomon Hoopii.[30]

Sol Hoopii was born in 1902. He was one of twenty-three children, and by the age of three, his parents recognized that he was a musical genius. By age seventeen, he and some friends stowed away on a ship headed for San Francisco. They were discovered on board but the trio bought their passage by playing for their fellow

[29] Martin, "Innovation," 93.
[30] Kanahele, *Hawaiian Music and Musicians,* 376.

passengers. In the early 1920s, he moved from San Francisco to Los Angeles and formed the Sol Hoopii Novelty Trio with Lani McIntire and Glenwood Leslie.[31] He may have also played in a country band with Hollywood cowboy Hoot Gibson.[32]

When Hoopii came to Los Angles, his career exploded. He was able to adapt his playing to all styles of music, whether country, blues, or the burgeoning jazz scene. The recordings he made between 1926 and 1938 were distributed all over the world. In Hollywood, he found work as an actor, technical advisor, and musician, primarily for Paramount Studios.[33] When Mary Pickford needed the proper motivation to cry in a scene, the studio brought Hoopii in to play. Dubbed the "Hollywood Hawaiian," Hoopii had become the face of the genre.

[31] Bob Brozman, *The History and Artistry of National Resonator Instruments* (Anaheim Hills: Centerstream, 1998), 115-16.
[32] Ruymar, *Hawaiian Steel Guitar*, 90.
[33] George Lewis, "Storm Blowing from Paradise: Social Protest and Oppositional Ideology in Popular Hawaiian Music," *Popular Music*, Vol. 10, No. 1, The 1890s (Jan., 1991), 56.

Blues Music—Pre-Resonator

In 1893, while serving as head of the National Conservatory of Music in New York City, world-renowned composer Antonin Dvorák came to an eerily prescient conclusion. "The future music of this country," Dvorák said, "must be founded on what are called Negro melodies. These are the folk songs of America and your composers must turn to them." The African-American press was neither gratified nor surprised. "That we needed Dvorák to tell us what we have known for the last forty years," said the 24 March 1894 edition of *The Freemen*, "is a rather curious thing." [34] Despite multiple expeditions by eminent musicologists, attempts to discover the twelve bar blues format or even its distant ancestor on the continent of Africa have failed. The reason was that the American slave-owning aristocracy and their henchmen, unlike their Caribbean counterparts, were able to largely eviscerate the African musical influence among their property.[35]

The roots of blues music are in the fields of the post reconstruction, poor, rural South. The greatest and most influential bluesmen, Howlin' Wolf, B.B. King, Son House and Muddy Waters all spent part of their lives working in the post-slavery, share-cropping system. The blues came from a triangular alluvial plain in Mississippi, which came to be known as the "Delta."[36]

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[34] Lynn Abbott and Doug Seroff, "'They Cert'ly Sound Good to Me': Sheet Music, Southern Vaudeville, and the Commercial Ascendancy of the Blues," *American Music*, Vol. 14, No. 4, New Perspectives on the Blues (Winter, 1996), 419-20.
[35]Henrietta Yurchenco "Blues Fallin' Down Like Hail" Recorded Blues, 1920s-1940s *American Music* 13, no. 4 (Winter, 1995), 449.
[36] Ted Gioia, *Delta Blues: The Life and Times of the Mississippi Masters Who Revolutionaized American Music* (New York: Norton and Company, 2008), 4-5.

According to W. C. Handy, he discovered the blues at a train station in Clarksdale, Mississippi in 1903. Handy laid claim to paternity of the Delta blues in his autobiography, *Father of the Blues,* and while musicologists and historians have questioned the veracity of his claims, his account is invaluable. Handy's case is different from the claims of Joseph Kekuku concerning the steel guitar. His parents told Handy early that where uncultured whites lived, there were sure to be uncultured blacks as well. Handy's father was the town preacher, post-emancipation, and his family as well as the rest of the black community thought well of the local whites. Handy considered himself a cultured and dignified musician. The minstrel shows in which he performed were more refined than the traveling medicine show, circus-like shows that performed blues and popular songs of the day. Handy performed in a buttoned up blue uniform and played Sousa marches and Stephen Foster songs. As a result, he was hesitant to be involved with this new musical form which, he himself thought originated from a lower class of people. Unlike steel guitar and Joseph Kekuku, the blues had been around for ten years before Handy recognized it as a new musical form.[37]

Several historians have theorized that blues was the result of a desire to perpetuate indigenous African-American folk culture by combining it with western musical traditions in a quest to produce a repeatable form that future composers could build on. The door for blues and jazz was opened by the commercialization of ragtime, a genre that was first heard in eastern Kansas, a hotbed of abolitionist activity before the war. Ragtime began its rise in the last four years of the nineteenth century and so did racial

[37] W. C. Handy, *Father of the Blues: An Autobiography by W. C. Handy* (London: Sidgwick and Jackson, 1961), 30, 74.

hatred in the post reconstruction South. The combination of these two contradictory trends gave birth to the publishing of blues sheet music from within the ragtime craze. In the prolific period from 1908-1913, W.C. Handy and others wrote blues tunes in the standardized form that the public recognizes to this day.[38]

The metal-body, Spanish version of the National resonator guitar did not appear on the market until 1927 but several events that occurred during this early period laid the groundwork for the instruments ascension within the genre. As previously mentioned, the man in Clarksdale Handy saw was playing the blues form with a guitar. It was the perfect instrument for blues. It could be carried easily — no small advantage during this time in the South's history. By 1910, 1.7 million African-Americans had left the South looking for work.[39] The guitar was there to be played when the musician was ready but when a piano might not be available, and unlike the harmonica, voice and music could accompany each other. It was the perfectly adaptable instrument for street corners and small dances.

The musician in Clarksdale that Handy observed was doing something else as well. He was using the back of a knife as a slide. If Handy's recollection is correct, he met a man playing slide guitar in 1903, four years after July Paka came to San Francisco and began his career. So much of the emotive quality of blues comes from the player's ability to blend both voice and instrument. Handy immediately recognized it as the Hawaiian style, but how a poor African-American at a train station knew about Hawaiian music is unclear. The adoption of the slide technique, which is a cornerstone of Mississippi Delta blues, may have been one of the factors that led to the acoustic guitars

[38] Abott and Seroff, "They Cert'ly Sound Good to Me", 403.
[39] Yurchenco, "Blues Fallin' Down Like Hail", 451.

employment over the banjo. The banjo's rate of decay (the speed in which sound dissipates) is much faster than the guitar's.

The blues grew out of Southern vaudeville, and Handy was at the head of the movement. In 1912, Handy published "The Memphis Blues" and two years later, "St. Louis Blues," the first blues song ever published with lyrics.[40] The first commercial blues recording took place in 1920 when composer Perry Bradford convinced Okeh Records to record Mamie Smith singing "Crazy Blues." The disk sold seventy-five thousand copies in one month.[41]

Most blues recordings of those first few years were of a woman singing with either a piano or a larger ensemble. They were featured performers from vaudeville, theaters and urban clubs. Men were recorded mostly as part of a duet. In 1923, a man named Sylvester Weaver was asked to accompany blues vaudeville star Sarah Martin for a recording on the Okeh label. They recorded a number of songs in two days, including a hit instrumental called "Guitar Rag." Years later, that tune became a country-western standard called "Steel Guitar Rag." Okeh started advertising Weaver as "the man with the talking guitar." [42]

Weaver's performance ushered blues slide into the age of recorded music. Weaver also showed the burgeoning race record industry they could turn profits on a single man and his guitar. Other blues solo artists with guitars were recorded but none were successful in combining vocal and guitar virtuosity set in the southern folk tradition.

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[40] Lynn Abbott and Doug Seroff, "They Cert'ly Sound Good to Me", 438.
[41] Gérard Herzhaft et al., *Encyclopedia of the Blues*, 2nd ed. (Fayetteville, AR: University of Arkansas Press, 1997), 67.
[42] David Evans, "Musical Innovation in the Blues of Blind Lemon Jefferson," *Black Music Research Journal*, Vol. 20, No. 1, Blind Lemon Jefferson (Spring, 2000), 84-5.

In 1926, Paramount, a label that recorded some of the most influential bluesmen, recorded Blind Lemon Jefferson, a man who had both virtuosity and the Delta blues sensibilities. Both he and his commercial rival, Lonnie Johnson, figured prominently in the construct of the lone bluesman ethos.[43]

[43] David Evans, "Blind Lemon Jefferson," 84-5.

Country Music—Pre-Resonator

There have been four major immigration movements originating in the British Isles. The Puritans came to New England from 1629-40. Small royalist elites and a large number of indentured servants came to Virginia from 1642-75. The third was a wave of English-speaking people from Wales and the North Midlands of England, went to Pennsylvania from 1675-1725. The final major English-speaking wave, people from the borders of North Britain and Northern Ireland, came to the Appalachian backcountry from the period of 1718-75.[44] It is in this last group where the origins of country music can be found.

The class make-up of this Scotch-Irish wave of immigration has been the subject of some debate. These were prideful, stubborn people. "Lord, grant me that I may always be right, for thou knowist that I am hard to turn," went an old Scotch-Irish prayer. They were insular, conservative and stubborn. They knew death to be life's capricious partner and were untroubled by it. It was not uncommon for the average backcountry immigrant to fight against both Indians and each other. Stillborn children were commonplace. They were largely Presbyterians and while they loved God, they hated organized religion, a trait that many Anglican preachers had firsthand knowledge of when they ventured into the backcountry to do missionary work. [45] Largely incapable of self-

[44] David Hackett Fischer, *Albion's Seed: Four British Folkways in America, a Cultural History* (New York: Oxford University Press, 1989), 6.

[45] For a complete discussion of Scotch-Irish immigration see Fischer, *Albion's Seed*, 613. In 1774, three different Irish ports agreed that the majority of passengers were paying and of the middle class. On the North American side of the Atlantic, the estimations of these new arrivals were much less charitable. One Anglican clergyman, possibly practicing his own form of nativism called the new immigrants, "scum of the universe." One

pity in their daily lives, the Appalachian immigrants of the eighteenth century poured their hearts out in their song. They sang slow, tender ballads about adventure, loss, superstition, and whatever happened to be going on in their lives at the time. The ballads were performed privately, directly and in a high lonesome voice.[46]

The music of the Appalachian immigrants changed with their exposure and kinship to African slaves. As cruel as the yoke of chattel slavery was, many poor whites of Scotch-Irish decent did not live much better than the average slave. Their lives overlapped in many ways so that cultural cross-pollination between slaves and poor whites created a folk music pool. This phenomenon has made it difficult for experts to tell where certain folk music came from at all, although it is generally agreed that African-Americans provided the lion's share of input.[47]

As early as 1701, Anglican missionaries began to proselytize slaves. Soon, African-Americans began singing the same hymns as their white counterparts and attending the same, though segregated, churches. The concept of the tunebook began to emerge. In the 1799, Amos Pillsbury, a New Englander who moved to Charleston with his father, published the *United States Sacred Harmony*, a collection of 240 songs from

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important factor that separates this group from the other major immigration movements was their motivation. The other three immigration waves shared the characteristic of being motivated by the search for religious freedom. The Scotch-Irish immigrants were escaping desperate poverty, food shortages and rapacious landlords. Their main motivation to make the deadly crossing of the Atlantic was material.

[46] Peggy Langrall, "Appalachian Folk Music: From Foothills to Footlights," *Music Educators Journal* 72, no. 7 (Mar., 1986), 38.

[47] Bill C. Malone and David Stricklin, *Southern Music/American Music*, Rev. and expanded ed. (Lexington, Ky. London: University Press of Kentucky ;Eurospan, 2003), 13.

English and American sources. Pillsbury's book was soon incorporated into Southern tunebooks.[48]

The First Great Awakening had given rise to religious freedom when the Anglican Church's attempt to squash religious sectarianism failed. The Second Great Awakening produced the abolitionist movement; it was also a critical period in the development of Southern folk music. In these great revivals, numerous religions and all races attended huge tent meetings and music was a large part of these gatherings. They heard each other's songs and incorporated what they heard into their own songbooks.

The two cultures also began to exchange elements of string ensembles. With tent meetings and the coming of the railroad, black tracklayers and their guitars were introduced into parts of isolated Appalachia. Up to that point, the Appalachians had favored the fiddle and banjo, but the guitar, which had the same portability qualities of the other two instruments, was able to smooth out many of the incomplete melodies of the whites' songs. The guitar also provided a major boost of energy into the music. In terms of public appeal and songwriting, the introduction of the guitar was a watershed moment in Southern folk music.[49]

This is not to say that the fiddle had lost its prominence among whites and blacks of the nineteenth century. Fiddles were an intricate part of the social dynamic. Planters often used slaves who could play the fiddle as entertainment. For whites, the fiddle was a mainstay of dance socials. The introduction of the guitar allowed fiddle to assume the role as a lead instrument that it occupies today. Oddly enough, after the Civil War,

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[48] David W. Music, "Seven "New" Tunes in Amos Pilsbury's United States' Sacred Harmony (1799) and Their Use in Four-Shape Shape-Note Tunebooks of the Southern United States before 1860," *American Music* 13, no. 4 (Winter, 1995), 403.
[49] Penny Langrell, "Appalachian Folk Music," 38.

popularity of the fiddle among blacks began to wane. Possibly, this was because many younger blacks associated fiddling with slavery.[50]

As in blues music, the minstrel show was a major factor in the development of Southern folk music. These shows were incredibly influential because they were itinerant. The fiddle-banjo combination that was such a large part of the minstrel show had a major influence on old time-country music of the first half of the twentieth century. Amazingly, banjo-playing styles remained roughly what an audience heard at a minstrel show until Earl Scruggs ushered in the three-fingered style as part of the bluegrass movement of the late 1940s. Minstrelsy also featured hillbilly comedy, which eventually found its way onto the radio in the early 1920s. The 1969 popular country music show, "Hee Haw" was ostensibly a nineteenth century minstrel show.[51]

At the dawn of the twentieth century, Southern folk music had undergone profound change. Music from Appalachia was starting to attract scholarly attention, particularly from English musicologists. The hillbilly ethos came out of a response to this scholarly, high-art view of Southern folk music. The Jubilee Singers traveled the country performing black spirituals, a form of music that gave birth to gospel. Records were being made and talent scouts such as the legendary Ralph Peer began scouring the South for new talent. Radio stations began to pop up across the country in the late 1920s. The commercialization of country music was about to begin.

[50] Malone, *Southern Music*, 13.
[51] Malone, *Southern Music*, 25.

Recording Technology—Pre-Resonator

In 1877, Thomas Edison gave a design to his model-builder for a machine that could reproduce the human voice. When finished, Edison uttered a nursery rhyme into the machine's sound collector and played it back for a dozen people. Although Edison did not know it at the time, he had just ushered in the age of recorded music. By 1900, the phonograph was a familiar part of the American home, but not without some cultural consequences. At the turn of the century, public music attracted families to the local concert hall to hear an ensemble playing both classical and popular music. Some aspiring family member usually performed private music, the music done at home for entertainment. With the ability to bring public music into the private sphere, the amateur musician became marginalized. John Phillips Sousa thought it would lead to, "an interruption of musical development in the country."[52]

Until the mid 1920s, recording technology was greatly limited. Acoustical recording, as it was known, involved a sound collecting, or acoustical, horn and a vibrating needle that cut grooves into a wax cylinder. The range of sound was extremely narrow, particularly on the low end. The string bass could not be picked up by the acoustical horn, and drums were precluded because they disrupted the needles etching into the wax. The critical figure in the process was the sound engineer. His job was to physically arrange the musicians so that the loudest instruments were in the back and the softest ones were in the front. If guitar were to appear at all in a recording of an ensemble, the instrument had to be closer to the horn than any other. It was a

[52] Emily Thompson, "Machines, Music, and the Quest for Fidelity: Marketing the Edison Phonograph in America, 1877-1925", *The Musical Quarterly* 79, no. 1 (Spring, 1995), 136, 138.

cumbersome process that led to real problems. The musicians had to be clustered around the acoustical horn. The existing artistic dynamic between the musicians, such as eye contact and non-verbal cues, was of secondary concern to volume level. If the musicians were accustomed to a certain configuration of the ensemble that did not satisfy the sound engineer, they might be arranged in close proximity to an instrument that they normally would not be, and it was not possible to accommodate them. The result was usually a low fidelity, sub standard performance.[53]

The condenser microphone along with the tube amplifier made electrical recording, as it was referred to then, a reality. The clustering of musicians around the acoustical horn was no longer necessary. Electrical recording solved the overall volume problem but did nothing to solve the problem of balance within the studio environment. If the balance was off, the whole performance had to be repeated. It was an inexact process to say the least. It greatly limited the recording opportunities for the 1920s guitarist.

[53] Joseph P. Maxfield, "Electrical Phonograph Recording," *The Scientific Monthly* 22, no. 1 (Jan., 1926), 74-5.

The Invention of the Resonator

Josef Dopjera, a violinmaker and miller from *Dolna Krupa,* in what is now modern day Czechoslovakia, came from a long line of luthiers dating back as far as 1662.[54] In 1908, Josef reluctantly accepted that war was coming to Europe. That same year, the Austro-Hungarian Empire annexed Bosnia, inflaming tensions among Serbs in the Balkans. Dopjera had no intention of giving his sons to Archduke Ferdinand. Three of Dopjera's children had already come to America several years earlier, and the time seemed right for the rest of the family to follow them. Joseph had ten total children, including two sets of twins. His oldest son, John, was following in Joseph's footsteps as a luthier.[55]

The trip across the Atlantic took three weeks. When they arrived in New York, the family boarded another ship, bound for Galveston, Texas. They were headed for the West Coast. On the voyage, two of the three daughters met and eventually married men headed to San Francisco to find work rebuilding the city in the aftermath of the earthquake. When they got to Galveston, they boarded a train headed across the Indian territories of New Mexico and Arizona. They eventually settled in Los Angeles as one of the seed families of the Slovak community and changed the spelling of their name to Dopyera.[56]

This period of instability in Europe and subsequent immigration produced some of the most iconic names in American lutherie. In 1903, a forty-year old Spartan *bouzouki* maker moved his family from Asia Minor to New York. His eldest son,

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[54] John Dopyera Jr., Interview.
[55] Dopyera Jr., *National,* 8.
[56] Dopyera Jr., *National,* 8.

Epaminondas Anastasios Stathopoulo followed in his father's footsteps as a luthier. Epiphone, the company that bears his name, produced some of the greatest archtop electric jazz guitars ever made.[57] Years later, a Swiss immigrant named Adolph Rickenbacher came to Los Angeles, changed the spelling of his name to Rickenbacker, to take advantage of a distant relationship with World War One flying ace Eddie Rickenbacker, and produced the first electric lap steel guitar in the 1930s.

As one of the first three Slovak families in the area, the boys took their share of nativist abuse, something John never forgot. Sometime during his teens, Joseph started a cabinet making and furniture repair business with a sideline in instrument repair. John Dopyera, who had made two violins under the tutelage of his father back in Dolna Krupa, joined his father in the business. Sometime in the 1920s, John, Joseph and his brother Rudy began manufacturing banjos, by far the most popular instrument of its day. Rudy also began making mandolins.[58]

The story of how the resonator guitar came into existence is full of acrimony and recriminations. Factions that developed within the National String Instrument Company in the late 1920s represented their own versions of the story that are contradictory. Even to this day, historians and musicologists are obliged to qualify much of what is known about the invention of the resonator guitar, however, through oral histories and interviews, it is possible to piece together the basic facts.

Sometime in the mid-1920s, a Texas-born vaudevillian and steel guitar player named George Beauchamp walked into the shop of Joseph, John and Rudy Dopyera,

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[57] Jim Fisch and L. B. Fred, *Epiphone: The House of Stathopoulo* (New York: Amsco, 1996), 12.
[58] John Dopyera Jr. Interview.

inquiring about ways to increase the sonority of his acoustic guitar. Beauchamp was a talented steel guitar player who wrote amusing songs that were the standard fare in vaudeville performances. He formed a trio with his brother Al and a Spanish guitar player named Slim Hopper called the "Boys From Dixie." When Beauchamp played as a duo with Hopper they called it "The Grasshopper and George."[59]

Beauchamp realized that most orchestra leaders in vaudeville considered the guitar to be a rhythm instrument. Almost no parts were written for the guitar because it could not be heard. Beauchamp became determined to find a solution and took inspiration from an innovation in musical instruments from across the Atlantic. In 1910, the Stroh Violin Company began marketing a violin that had a horn protruding from it. The horn connected to the instrument through a small, flat aluminum disc. When bowed, the vibrations would travel through the top of the violin and vibrate the aluminum disc. The horn amplified those vibrations producing a louder sound. The Stroh violin became popular during the early days of recording because the primitive sound collectors could pick them up. The Stroh solved the problem of having several violinists crowded around the sound collecting horns, but did it at the expense of tone. When electric microphones were invented, the Stroh stood little chance of competing against its predecessor.

It is unclear how Beauchamp came to the decision to work with the Dopyeras, but by that time, both John and Rudy were getting reputations as problem solvers among the growing community of Los Angeles musicians. In 1923 and again in 1925, the Dopyeras filed several patents related to improvements on the banjo, particularly the resonating drum. In 1927, John Dopyera filed for a patent for an improved neck attachment for the

[59] Smith and Brozman, *National*, 19.

violin. Beauchamp asked the Dopyeras to build him a steel guitar based on the Stroh design. Stroh had already produced a steel guitar with its horn design but in extremely limited numbers. Dopyera thought that the Stroh design was ill conceived from the beginning, but went ahead with it anyway. The resulting instrument was much louder than the regular guitar, but at the expense of a significant amount of tone. Beauchamp used the guitar in his act for a time before discarding it.

According to Carl Barth, who was responsible for spinning most of the aluminum cones at the National String Instrument Company during its first few years of operation, John Dopyera had been thinking about mechanical amplification for a guitar as early as 1923. According to Nolan Beauchamp, George's son, it was George who provided the inspirational spark for what became the resonator guitar. George found that while the small disc in the Stroh violin did not produce the desired sound, he was not willing to abandon the idea completely. He turned not to another instrument but to an invention from twenty-five years earlier—the Victrola.[60]

According to his son, George Beauchamp pulled a Victrola apart, removed the diaphragm or head, and gave it to John Dopyera. Dopyera began to experiment with

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[60] Smith and Brozman, *National*, 21. For a complete discussion of the invention of the Victrola, see http://www.victor-victrola.com/. In 1898, a man named Emil Berliner came into the Camden, New Jersey shop of an inventor named Eldridge Johnson carrying one of Thomas Edison's *gramaphones*. Eldridge liked the device but saw several ways it could be improved. Eldridge's invention, the *Victrola*, involved the mechanical transference of acoustic vibrations from a needle moving across a disc to a tone arm. The vibrations moved the air inside the tone arm, which in turn vibrated a diaphragm. This is the process by which mechanical energy is converted to acoustic energy. The flaw in the design, just like that of the Stroh violin, was in this mica diaphragm. Since the diaphragm had to be held in place by some method, the mechanical energy did not vibrate the diaphragm freely. The edges, where the diaphragm was held, vibrated very little while the center vibrated much more. As a result, the full sound wave could never make its way through the acoustic horn causing distortion.

different materials but settled on a wafer thin aluminum diaphragm similar to that of a loud speaker. Aluminum worked best because it could be spun on a lathe much thinner than most any other materials available. The thinner the material, the more the diaphragm could vibrate. The wood of an acoustic guitar must have a certain amount of thickness in order to be structurally sound. Then, Dopyera made a critical improvement by reshaping the flat, aluminum diaphragm into a conical shape similar to that of a modern loud speaker.[61]

It is important to note that the cone design of John Dopyera was not new. Patent #19130 was issued on 25 November 1890 to an H. Dixon for a resonator bowl. This innovation called for a metal bowl to be secured inside the guitar directly under the sound hole by a series of rods. The strings vibrated the guitar as they always had, the guitar vibrated the rods and the rods vibrated the bowl. The flaw in this design was that the strings could not vibrate the cone directly. It is also unclear what material the cone or the rods were made of or if this instrument ever made it to the prototype phase.[62]

Dopyera decided that the cones he had designed showed enough promise to be implemented. He attached the resonating cones to a cast aluminum bridge with three arms. Dopyera chose aluminum because he felt that it was a material that could transfer the most amount of vibration from the bridge to the cones. He also experimented with the number of cones. He decided that with the increase in volume, three cones provided the best tone for the instrument. Finally, they mounted the entire assembly into a sound well of a metal-body guitar with the cones facing down. When Dopyera and his brother

[61] Brozman, *National*, 21, 22.
[62] Atkinson, *National*, 47.

Rudy strung up the first prototype, they knew that they were at the vanguard of a major innovation in lutherie.[63]

On 12 October 1926, John Dopyera filed his first patent for the *Tri-cone* design. Patent #1,762,617 was granted on 10 June 1930. Unsatisfied with the original design, he changed the positions of the legs that supported the bridge and the shape of the body. On 9 April 1927, Dopyera filed a patent for the Hawaiian guitar that became the version that was produced in the first run by John and Rudy. The United States Patent and Trademark Office granted Patent #1,741,453 on 31 December 1931.[64]

[63] Smith and Brozman, *National*, 24.
[64] U.S Department of Patents, *Al Frost collection*.

The National String Instrument Company

The Dopyeras had made banjos and mandolins under the National name and began to hand manufacture the new resonators under the same brand. George Beauchamp, who was thrilled with the volume and tone that the resonators produced had much larger aspirations for this instrument. He convinced the Dopyeras to go into business mass-producing the instrument under the National name. Beauchamp's cousin-in-law was a newly minted trust fund millionaire in his early twenties named Ted Kleinmeyer. Beauchamp knew that Kleinmeyer was having a party in Los Angeles and asked if he could bring along some entertainment. He called a Hawaiian guitarist he had met named Sol Hoopii and asked him if his "Novelty Trio" would be interested in playing a party for the huge sum of $500. The only stipulation was that Hoopii had to use one of the new National resonating guitars. Kleinmeyer's party was a three-day event and Hoopii and the resonator was a sensation. Beauchamp broke the news to Kleinmeyer that he was looking for investors to begin production of the resonator guitar. Kleinmeyer handed him $12,500 on the spot.[65]

The Dopyeras already were making resonators in their small shop—between 1926 and 1927 approximately forty were produced—but everyone involved understood that a proper factory was needed for the venture to survive. The factory was complete enough to do almost every job involved in manufacturing the resonator. The exception was stamping the metal bodies. To do that, the de facto management running the company while incorporation was in process turned to a Swiss immigrant named Adolph

[65] Smith and Brozman, *National,* 24.

Rickenbacher, a savvy, manufacturer who owned one of the largest deep drawing presses on the West Coast.

The State of California certified the National String Instrument Corporation on 26 January 1928. The Dopyeras sold the National trademark to the company in exchange for stock. George Beauchamp was given the title of General Manager; John Dopyera was Factory Superintendent, and Paul Barth Assistant Factory Superintendent. Beauchamp had already secured a major distribution deal with the Chicago Musical Instrument Company (CMI) when he brought Sol Hoopii out to the Western Music Trades Convention in San Francisco. CMI ran an ad in one of the trade magazines extolling the resonator as the "fastest selling 'Big' item since the saxophone."

The 1927 line of instruments listed in the National String Instrument Company catalogue included the *Tricone* versions of four kinds of guitars: Spanish, Hawaiian, tenor, and plectrum, a longer version of the four-string tenor. They were made of brass, German silver, or steel. E.A. Suptin and Co. of Philadelphia, instrument wholesalers, hailed the resonator in one of its advertisements as, "The Greatest Musical Sensation Of The Age." CMI claimed the resonator was, "Taking The Country By Storm."[66]

John Dopyera quickly realized that there was an artistic advantage to making guitars out of brass, silver and steel: they could be engraved. Dopyera's wife set to work developing designs. The *Style 2* featured "wild rose' engravings in German silver. The *Style 3* version was called "lily of the valley." The *Style 4* version, by the far the most ornate, was called "chrysanthemum." These beautifully engraved instruments added to the mystique of the National resonating guitar, but not to the sound quality. The

[66] Brozman, *National*, 200-1.

mechanical speaker system within the guitar is only partly responsible for the exceptional tone that it produces. The body of the guitar played an important role as well. Engraving reduced the mass of the instrument. The more mass that is removed, the more the tone will suffer.[67]

The resonator was a phenomenon, and the company's ascension was meteoric. Every musician in Los Angeles and across the country recognized what this instrument meant for his or her careers. The *Tricone* resonator in both the Spanish and Hawaiian style was $125 or the rough equivalent of $1500 today. Hoopii's total of $1000 compensation for the investor party - he received an extra $500 for the second night after he had gambled away the first payment - had more to do with Ted Kleinmeyer's excess than what a musician could expect to make back then. Even with the exorbitant price, musicians snapped them up as fast as they could.

Sometime in 1928, tension began to emerge within the company's management. There were many issues but the overall problem was that John Dopyera had no idea what kind of people he was getting into business with. Possibly the decade of the "roaring 20s" may have been a factor, but Beauchamp was a hard driving, big drinking Hollywood entertainer. He was at ease with long nights of immense alcoholic consumption and waking up in his car. Kleinmeyer shared Beauchamp's excesses, and he had almost no control over his spending habits; he was spending the first million dollars he had inherited at a break neck pace. He asked Beauchamp for advances from the National

[67] Brozman, *National*, 55, 61, 66.

profits and Beauchamp obliged. On weekends, the Beauchamp faction of the company would take boat trips out to Catalina Island for some carousing.[68]

John Dopyera was a family oriented, perfectionist inventor with first generation immigrant sensibilities. He was shy, taciturn, and often was not treated as an equal at National. He did not appreciate the life that Beauchamp and Kleinmeyer were living on the wave of his invention and at the expense of the company. Possibly, envy over his partners' lifestyles may have had something to do with it, as John Dopyera Jr. suggested in a recent interview, but the slights and indignations towards Dopyera were beginning to mount.[69] In a 1928 edition of *Popular Mechanics*, George Beauchamp was pictured holding a Hawaiian National in an article about the resonator. The caption identified Beauchamp as the inventor.

The defining issue, though - and what ultimately led to Dopyera's departure - was a dispute over the company's product line. The *Tricone*, in Hawaiian, Spanish, tenor and mandolin models, was an outstanding innovation but limited the company's line as it related to offering products in multiple price points. Beauchamp wanted to produce a single cone model. Dopyera had experimented with a single cone biscuit bridge and thought that its sound was substandard. Part of the problem was that the biscuit lay directly on the cone and the strings lay directly on the biscuit. The pressure of the strings indirectly put pressure on the cone making it less free to vibrate. Three cones produced a smooth, flowing, and more detailed sound when played with a slide. The single cone is a louder guitar in its initial attack but has a shorter decay, similar to the banjo.

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[68] Brozman, *National*, 29.
[69] Interview, John Dopyera Jr.

To John Dopyera, the single cone was an idea that he had discarded. George Beauchamp, unbeknownst to Dopyera, filed a patent for the single cone resonator guitar. When Dopyera found out, he was livid. On 17 January 1929, he resigned from the board of the National String Instrument Company and inexplicably signed over all of his patents relating to the *Tricone* system to National.[70] The single cone *Triolian* became National's best selling line over the years.

Several writers have explored the motives for Dopyera's complete disengagement from the National String Instrument Company. His son believes to this day that he was simply disgusted with the way he was being treated and wanted no relationship at all with his former partners. It has also been suggested that Dopyera thought National would fail without him. He never had any respect for Beauchamp as an inventor and criticized him often for spending money on suspect ideas.

The reasons for John Dopyera's abrupt departure can never be fully explained, but its ramifications were profound in terms of the resonator's history. Dopyera was not enthusiastic about the single cone design that incorporated a convex cone and the biscuit bridge. The fact that he never applied for a patent on the design is testament to the veracity of those feelings, but he did realize that using a single cone had some potential. While at National, Dopyera began work at home on a single cone design that he thought would reinvent the resonator. Dopyera envisioned a design where the cone faced out with a spider shaped bridge. The strings vibrated the spider bridge, which in turn vibrated the single concave cone. The result was a more sonically open tone with more sustain than the National biscuit bridge. It had more bass, which could be controlled by the size of the

[70] Interview John Dopyera Jr.

screened sound holes. It was, as modern resonator luthier Paul Beard said, "the humanization of the instrument."[71]

John Dopyera and his brother Rudy started the Dobro Manufacturing Company soon after they left National. Dobro was both a contraction of Dopyera brothers and a Slovak word for "good." The spider bridge was a major improvement in the resonator guitar, and it was done by design. The second major change came out of necessity. With a lack of start-up capital, they could not afford to buy the deep presses that Rickenbacker had to make metal guitar bodies, nor could they use the same equipment. Rickenbacker was closely aligned with George Beauchamp and took a confrontational attitude towards the Dopyera family. Over the years, Rickenbacker's caustic attitude towards the Dopyeras, who he referred to as "fiddle repairers," only intensified.[72]

As a result, the only realistic option for John Dopyera was to make the bodies out of wood. National had experimented with several models made from wood. In 1928, they contracted the Harmony Guitar Company to build a number of wood-body, single cone instruments and sent them to the Chicago Music Instrument Company to gauge market reaction. They cut a similar deal with Harmony in 1933, to contract out the wood-body *Trojan* in both a deluxe model and a model that was to be sold through Sears. These guitars sold well because of their price points, but the biscuit bridge did not interact with wood in the same agreeable way that metal bodies did. This was not the

[71] Interview Paul Beard.
[72] Tom Wheeler, *American Guitars : An Illustrated History*, Rev. and updated ed. (New York: HarperPerennial, 1992), 332.

case with Dopyera's spider bridge set in a wood body.[73] Although it took some time for the wood-body, spider bridge resonator to assume its iconic place, Dopyera had stumbled on a groundbreaking sound at an affordable price. The spider bridge humanized the instrument, but the wood bodies democratized it.

On 6 June 1929, John Dopyera filed for a patent for the spider bridge under his brother Rudy's name in an attempt to avoid trouble with his former partners at National. It did not work. George Beauchamp claimed that Dopyera's spider bridge, single cone design was an infringement on the single cone biscuit bridge, but rather than taking his case to court, he made a critical error, one that eventually cost him his job. Dobro and National had the same customer base and Beauchamp thought that the best way to deal with Dopyera's new company was to kill it in its infancy.

Beauchamp began making some dubious claims and accusations within the instrument dealer community. He told the dealers that it was he who had designed both the biscuit and spider bridges and that he intended on enforcing those patents in court. Should an instrument dealer purchase a Dobro guitar, he threatened, it was possible that the court could seize the instruments without remuneration. It was an effective ploy because the dealer community began to cancel orders. The Dopyeras found out and initiated legal action.

Beauchamp's scheme began to unravel when a dealer visited the Los Angeles factory for a meeting. He pulled out the old patents that Dopyera had signed over to National and showed them to the dealer as proof that National had owned the patents, but

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[73] Board of Directors Meeting, National String Instrument Company 9 February 1932 and Jay Krause, Harmony Guitars, letter to Jack Levy, National String Instrument Company, 4, October 1933, *Al Frost Collection.*

he had not realized that Dopyera's name was listed on the patents as the inventor. When the dealer asked for a letter affirming that Beauchamp had invented the spider bridge, he was refused. Later, the dealer met with Paul Barth who confirmed that no one at National had worked on the spider bridge.

Aside from the corporate intrigue, Beauchamp and the rest of the management at National set out to make the single-cone biscuit bridge design a reality. In 1928, their catalogue offered the *Style 0* through *5* in different price points. The lowest was the silver-body, plain *Style 0*, which retailed for eighty-five dollars. The *Style 4* listed for one hundred and ninety five dollars, was cast in German silver and featured ornate engravings. Also in that same catalogue was the *Triolian* in both the Spanish and Hawaiian style. This instrument retailed for forty-five dollars and was National's first foray into the field of lower priced instruments.[74] In 1931, National offered an even lower price point. The *Duolian* was offered with the National label on it for thirty-two dollars and fifty cents, but they also furnished a twenty-nine dollar, unlabeled version to Sears to sell out of their catalogue. These models are credited with keeping the company afloat during the Great Depression, although without sales figures, it is hard to assess their importance.[75]

In spite of the growing popularity of the single cone design, there were continued problems at the National String Instrument Company. Shifting board members, an attempted takeover by the Chicago Musical Instrument Company, the Depression and some financial malfeasance by an employee had weakened National considerably. In addition, George Beauchamp had put National into a legal bind with Dobro. The

[74] *National String Instrument Company catalogue,* 1928.
[75] Brozman, *National*, 96.

Dopyeras' case was solid, and they soon realized that rather than killing National they might be able to seize control of it. In November of 1931, the National board decided to remove Beauchamp from the day-to-day operations of the company.[76] A year earlier, Beauchamp began working on an electric guitar with Adolph Rickenbacker, and that may have been the reason the company removed him. More likely, it was the reckless actions that had exposed the company legally. In 1932, Ted Kleinmeyer sold his stock to Louis Dopyera and left the company permanently. This cleared the way for a settlement. The National board sent Louis Dopyera over to Dobro to settle the lawsuit. On 1 July 1935, the National String Instrument Company became the National-Dobro Corporation. The Dobro Manufacturing Company and the National String Instrument Company ceased to exist.[77]

Whatever George Beauchamp's sins were, he was the main architect of the National String Instrument Company. He brought Ted Kleinmeyer and his financial backing into the company and enlisted the help of Sol Hoopii to establish the instrument's visibility. More importantly, Beauchamp made the single cone concept a reality, something John Dopyera had discarded. Dopyera's *Tricone* was an innovative idea, but the single cone produced the sound that the public associates with National.

[76] National String Instrument Company, Special Meeting, Board of Directors, November 14, 1931, *Al Frost Collection.*
[77] Correspondence, Al Frost to Richard Smith, 10 August 1986, *Al Frost Collection.*

The Dobro Manufacturing Company

While the Dopyeras' were involved in legal action, they still had a company to run. From 1929 to 1934, the vast majority of resonators were made under the Dobro name were wood-body and used a spider bridge. Dopyera's lack of startup capital and his subsequent decision to use this combination was a fortuitous event at the outset of the Great Depression. Dobro had produced some metal guitars before the merger. The most interesting model involved assembling and securing the guitar by crimping the stamped metal pieces together creating a fiddle edge. Dobro equipped this guitar with a sound-well that could accommodate both a spider and a biscuit bridge single cone. Just like the single cone and wood, the spider bridge in metal was not the most popular combination.[78] Over the five-year span that the company operated independently, Dobro was successful in offering product at a wide array of price points.

The method for naming product line among guitar manufacturers in general is not complicated and is helpful to historians in providing economic context for analysis. The Dobro *Model 27* retailed for twenty-seven dollars in 1929, roughly three hundred and twenty dollars in today's currency. The *Model 27* was made out of a three-ply white birch, had a rosewood fret board, and sawn, slotted headstocks. It was the most popular seller in the Dobro line even after the two companies merged.

The company's product line included a *Model 37*, made out of all mahogany and a *Model 45*, also made out of mahogany but with a spruce top. The *Model 60* was made from a three-ply birch and had ornate sandblasted designs that originated in Slovakia.

[78] Telephone interview, Don Young, 27 March 2009.

The *Model 76* was made from a three-ply white birch with ivory bindings. In addition there was an entire line of walnut guitars that ranged from the *Model 90* to the *Model 200*. All models were offered in both a Spanish and Hawaiian style.[79]

The Dopyeras made another shrewd decision, one that allowed the company to ultimately triumph in a horrific economic climate. In 1933, they began shipping resonator parts to the Regal Guitar Company of Chicago. The Regal Musical Instrument Company was formed in Chicago in 1908. They started out making wood-body tenor guitars. In 1932 they released their first concert acoustic guitar, an auditorium model that retailed for forty-five dollars. In 1933 they entered into an agreement with Dobro whereby Regal would take delivery of resonator parts and put them in their own wood-bodies. The guitars bore the "Regal" brand name. The Dopyeras no longer had the quality control but they had just tapped into a huge distribution system, rid themselves of the task of manufacturing a huge amount of wood-bodies and were able to take advantage of the economies of scale that Regal had. They signed agreements with other companies as well. They bought guitar bodies from Harmony, a company owned by Sears and the largest manufacturers of low-end guitars in the world, and started selling both resonators and electrics through the Sears catalogue. The result was a wide assortment of new brands offered at virtually ever price point desired. Anyone who wanted to own a wood-body resonator had access at prices that were affordable, even during the Great Depression. The Dobro Manufacturing Company's bottom of the line guitar in the first year of operation was the *Model 45* while in 1941; the *Model 45* was Regal's top of the line.

[79] Dobro catalogues, *Al Frost collection*.

The National-Dobro Corporation

At the head of National-Dobro were the three Dopyera brothers—Rudy, Emil, and Louis. John had left Dobro in 1932 to pursue an amplified violin. The idea for moving the company to Chicago was officially floated first on 18 November 1935 at the regular meeting of the board. Management ultimately decided that to be in three separate manufacturing ventures—metal-body resonators, wood-body resonators and electric guitars—and still be out in California made little sense in terms of synergy with other manufacturers. They moved to Chicago, the instrument manufacturing capital of the world. The move was intended to put National-Dobro closer to the where integral parts for electric guitars were being manufactured, but in terms of the wood-body resonator, the democratization that started in the early 1930s with the Regal relationship became complete.[80]

Instrument manufacturing during the Great Depression was communal. There were no advantages for companies to be vertically integrated. National-Dobro cut agreements with many of their fellow manufacturers for different parts of their product line. Instead of equipping the new factory with a capability to manufacture wood-body guitars, National-Dobro reversed their relationship with Regal. Instead of sending them parts, they bought guitars from Regal and installed the resonators in their factory. Almost all the wood-body resonators made after the move were made with Regal bodies. Wood-body resonator enthusiasts deride this era of National-Dobro but in reality, Regal had

[80] National-Dobro, Regular Meeting, Board of Directors, 18 November 1935, *Al Frost Collection*.

much more expertise in building guitars. There bodies were deeper, improving the range of sound produced by the instrument.

The electric guitar was going to be a reality, regardless of whether the resonator was invented or not. Sometime around 1915, a vaudevillian named Henry Kublick devised an act where he put a transmitter from a telephone under the strings of a zither and placed hidden receivers around the theater. The transmitters picked up the vibrations of the strings and amplified them throughout the theater to a stunned audience. In the mid 1920s, musicians tried pulling the needle assembly out of phonographs, putting them inside their guitars, and piping it through the "B" channel of a radio. The first electromagnetic pick-ups showed up in the early 30s. Rickenbacher produced the *Frying Pan*, the first electric lap steel ever made. The first electric Spanish guitar was produced by National-Dobro in 1934. They also offered customers the option of sending their existing resonators back to be retrofitted with a pick up, for a fee.[81]

From the time of the move to Chicago until the company ceased making guitars at the outset of the Second World War, electric guitars steadily overtook the resonator in both sales and corporate energy. As it had with the resonator, National put famous professional musicians using their electric guitars in all their advertising. Mostly they were the new breed of guitar soloists in big bands and theater orchestras.[82]

By the late thirties, resonators made up less than twenty percent of the sales of the National-Dobro Corporation. When Ed Dopyera left the company in 1939, Al Frost became the president. Ed was representing the rest of his family's patent royalties and

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[81] Correspondence, Emil Dopyera to Richard Covini, 16 February 1937, *Al Frost Collection*.
[82] National-Dobro catalogue, *Al Frost Collection*, 1936.

made some inquiries into Frost's mindset concerning the future of the resonator and National's commitment to it. He also made some thinly veiled threats about licensing the resonator to another company in an attempt to negotiate a higher royalty rate. National-Dobro had maintained only the most optimistic tone when communicating with the industry at large concerning the resonator. Frost's reply to Dopyera is one of the rare occasions where members of National's management feuded on the corporate record. Frost pointed out that it was Dopyera himself who had been saying, in front of other National employees, that the resonator was on its way out. Frost also took issue with some of Dopyera's decisions when he was running the company. The licensing and sub-licensing deals that allowed National, Dobro and National-Dobro to increase their profit margins, had a downside, particularly for Dobro. All the companies that purchased resonating systems from Dobro were all using their own brand names. As a result, the value of the trademark and of the goodwill at Dobro was a subject of much concern.[83]

The series of letters between Frost and the Dopyera family were rancorous. They represented a real airing of all the grievances that had accumulated over the years. A big part of the problem was that the Dopyeras had hired Frost, and now they had to negotiate with him. In the end, Frost called their bluff and was wiling to let them take their business elsewhere. Frost said that he believed he was doing a good job representing the patent holders interest but would not stand in the way if the Dopyeras wished to go elsewhere. "The electric guitar," Frost said, "is here to stay." He got the entire board to

[83] Correspondence 22 December 1939-18 January 1940, Al Frost, Rudy and Ed Dopyera, *Al Frost collection*.

agree that, while they did not want to see it happen, the company was willing to stake its entire future on the electric guitar.[84]

All the haggling over patent revenues seemed inconsequential in the end. When the Second World War started, the War Production Board ordered a ban on the making of musical instruments out of materials critical to the war effort. Order *L-37* sealed National-Dobros corporate fate. The company was dissolved and immediately switched over to the manufacturing of airplane parts. Louis Dopyera took possession of the original dies.[85] It was not until the late 1950s that a trickle of new resonators began to appear on the market.

[84] Correspondence 22 December 1939-18 January 1940, Al Frost, Rudy and Ed Dopyera, *Al Frost collection.*
[85] Correspondence, Louis Dopyera to War Production Board, 28 February 1942, *Al Frost Collection* and Notice of Dissolution, State of Illinois, 5 January 1942, *Al Frost Collection.*

Alternate Technological Advances in Sonority

John Dopyera was not the only luthier pursuing acoustic plagency. French luthier Lucien Gelas, a mandolin maker from the early part of the twentieth century, believed that a freestanding soundboard was the key to increased volume. In 1932, Gelas presented a Hawaiian style instrument with two soundboards, one that descended inside the body of the guitar at an angle and one that lay parallel to the back of the instrument. The parallel soundboard was there strictly for structural purposes; only the descending soundboard vibrated. The result was a warm, resonant, unique sound that was louder than a top of the line Martin but softer than Dopyera's resonator. The problem with the instrument was that the bridge was secured to the descending soundboard, causing the strings to pull up on it. Few of these exist today because years of upward tension on the bridges caused them to detach.[86]

Free vibrating elements within the guitar were also a theme for Italian luthier Mario Maccaferri. Maccaferri realized that when the guitarist played, his or her arm was embracing the instrument, damping the soundboard. When he worked for Selmer, a French company made famous when Django Reinhardt created a new style of jazz using one of their guitars, he installed internal resonators detached from the top of the guitar. The instrument produced a greater volume, but the resonating chambers tended to buzz.[87]

The most famous of the competing acoustic technologies and the only invention of that period other than the resonator to survive the onslaught of the age of electrification was the work of a German immigrant named Herman Weissenborn.

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[86] François Charle, "Great Acoustics: 1932 Gelas Hawaiian," *Acoustic Guitar Magazine*, 114.
[87] Michael Wright, "The Guitars of Mario Maccaferri," *Vintage Guitar Magazine*, April 1995, 47.

Weissenborn, who was possibly influenced by Norwegian luthier Chris Knutsen, built a Hawaiian style guitar with a hollow neck. The theory was that the increased internal space created additional volume. The hollow neck produced a unique and agreeable tone but could not compare in terms of volume to Dopyera's resonator. They were also structurally weaker and, as a result, were not nearly as durable as the resonators.[88]

[88] http://www.weissenborn.es/g_history_hermann.html.

Ephemeral Resonator Usage

For certain genres of music, the resonator was an evolutionary link between the acoustic and electric eras. The musicians that used guitars, either Spanish or Hawaiian, in genres like jazz, Texas swing, and Hawaiian all traded their resonators for electric instruments when they became available starting in the mid 1930s. The Great Depression forced the American public to seek respite from the considerable challenges facing the country. Overwhelmingly, Americans chose dance as a form of escapism. The dance marathon, a partly scripted endurance contest that started in the late 1920s, became an incredibly popular form of entertainment during the Great Depression. The bands employed were mostly jazz, and they were playing to both dancers and an audience. These dance marathons were not held in acoustically sophisticated concert halls but rather tents, armories, and coliseums. Volume became even more of an issue when some of these contests were broadcast on the radio.[89]

The resonator had a cameo appearance in Texas swing as well. Texas was a cultural melting pot in the late nineteenth century. German, Bohemian, Cajun, Tex-Mex and blacks all came to the state with their own musical forms. Many of the whites that came were former cotton workers from the southeast, and they brought with them the string band tradition. Texas swing bandleader Milton Brown combined these forms with jazz and started playing to a dance crowd. Brown's bass player, a man named Wanna Coffman, also played a National *Tricone* steel guitar. Coffman lent his National to a steel player named Bob Dunn so that he could audition for Milton Brown. Dunn was a trombone player and emulated similar runs on the steel guitar. His unique style and

[89]Carol Martin, "Dance Marathons: 'For No Good Reason,'" *The Drama Review: TDR* 31, no. 1 (Spring, 1987) 55, 56.

musicianship earned him a job working for Brown. For a while, he borrowed Coffman's National but soon found a Houston inventor who installed an electromagnetic pickup on his Martin. He convinced Brown to purchase for him one of the early amplifiers that were out on the market. Milton Brown did not hesitate in jettisoning the resonator in favor of electrification so that he could play to the maximum amount of dancers. Dunn's innovation, which one historian described as the "most important event in country music history," secured the future of both the lap and pedal steel in that particular genre.[90]

[90] Cary Ginell and Roy Lee Brown, *Milton Brown and the Founding of Western Swing*, Music in American Life. (Urbana: University of Illinois Press, 1994), and Bill C. Malone, *Country Music, U.S.A*, 2nd rev. ed. (Austin: University of Texas Press, 2002).

Hawaiian Music—Post-Resonator

The resonators hegemony in Hawaiian music was short-lived, approximately eight years, but it can make a significant claim to catapulting the genre into what George Kanahele called "The Golden Era"—the years 1930-1960.[91] John Dopyera estimated that the resonator was approximately seven times louder than an acoustic guitar, which was still the instrument of choice among steel players at that time.[92] Every Hawaiian steel player understood that the louder he or she was, the bigger the rooms they could play and the greater their exposure. For most of them, the decision was not difficult but it was expensive.

There were many great Hawaiian steel players who were playing National resonators in the pre-electrification age, but no one was more important in establishing the instrument in America's collective memory at both the audio and visual level than Sol Hoopii. Hoopii's strength was that he could take the traditional Hawaiian lines he learned on the island as a young boy and infuse them into the American musical genres that were taking the country by storm at the time.

It is important to note that at the time Hoopii and his contemporaries appeared with their resonators and were being asked to expand on their Hawaiian repertoire, there was no guitar method. Joseph Kekuku's problem was how to be heard. Sol Hoopii's problem - now that the guitar could be heard and orchestra leaders were no longer hesitant about incorporating and featuring it – was what would he play? His response had a profound influence on country, Texas swing, and bluegrass music. Hoopii

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[91] Kanahele, *Hawaiian Music and Musicians*, XXV.
[92] Tom Wheeler, *American Guitars : An Illustrated History*, Rev. and updated ed. (New York: HarperPerennial, 1992), 290.

understood that the value of any slide instrument was that it could emulate virtually any other lead instrument including the human voice. Bix Bederbecke, a jazz cornetist, was a major influence on Hoopii. Soon the Hawaiian began emulating cornet lines on the resonator.[93] He quickly was doing the same with both trumpet and trombone lines.

The record industry saw Hawaiian music as an extremely viable genre. Sol Hoopii recorded popular music from 1925-1938. In 1938, Hoopii went through a religious conversion and went to work for Pentecostal evangelist Aimie McPherson Semple. The vast majority of his recordings, which were incredibly popular, were made with a National Hawaiian guitar. The resonator allowed him to cut through the primitive microphones of the day. It also allowed him to take advantage of the subtle techniques that he had developed on an acoustic Martin but could never publicly be heard because of sonority issues. He recorded Hawaiian songs, blues, ragtime and jazz. He recorded his own versions of "Twelfth Street Rag," "I Ain't Got Nobody," "Tin Roof Blues" and "Saint Louis Blues." Almost every Hawaiian, bluegrass, country, and Western Swing style guitar player, of his time and for generations to follow, studied these recordings. His influence on these musicians was significant.

In the 1920s and 30s, radio's growth was exponential, and Hoopii and his National guitar were in the middle of it. The 6 March 1931 edition of the *Los Angeles Times* reported that radio station KHJ received 383,000 letter of support. By 1928 that number was up to 775,000 and by 1930, 1,000,000 people were writing in. Hoopii and

[93] Andy Volk, *Lap Steel Guitar* (Anaheim: Centerstream, 2003), 12.

his "Novelty Trio" were regulars on KHJ.[94] He also appeared regularly with Rudy Vallee on the nationally syndicated show "Vallee's Varieties."[95]

From an audio standpoint, Hoopii was exposing the nation and indeed the world to the National guitar. The resonator guitar changed the dynamics of virtually all-small ensembles in every genre of music. It also changed it visually. Steel players are visually interesting to watch and almost always get more attention than anyone else in the band. With spotlights accentuating his National steel guitar's effulgence, the experience of watching Hoopii play was captivating, and Hollywood recognized it immediately. Hoopii appeared as a musician in many films with his silver National, including the 1932 hit "Birds of Paradise," several Charlie Chan movies and "Waikiki Wedding." He also did the soundtrack for an animated Betty Boop film, which established a tradition to this day of using steel guitar, whether resonator or lap steel, in animated cartoons.

National's debt to Hoopii cannot be overstated. In 1929, some three years after Hoopii made his first recording, 90% of the Hawaiian recording artists were using National resonators and they were taking them across the world.[96] Sam Ku West, who was less flamboyant than Hoopii but nearly as talented, recorded for Victor in the late 1920s and early 30s before taking his *Style 2 Tricone* across Europe. In Hawaii, Bucky Shirakata took his wood-body resonator made by the Dobro Manufacturing Company to Japan, the first to ever do so. During that period, Japan had the greatest number of

[94] John Daggett, "Voice of Radio Rises," *Los Angeles Times*, March 6, 1931, 18.
[95] "On The Radio," *New York Times*, November 22, 1934, 24.
[96] Brozman, *National*, 116.

Hawaiian steel guitarists outside of Hawaii.[97] The resonator was showing up in bands in Australia, Canada, and every other place where the genre was popular.

Blues Music—Post-Resonator

In American popular culture, no guitar is more closely associated with the Delta blues than the National Spanish resonator, with the possible exception of the Gibson *L-1*, made famous by the Faustian Robert Johnson and his mysterious life and death. Sonically and functionally, the resonator and the Delta bluesman were a natural fit.

In 1903, as mentioned earlier, W.C. Handy saw a man using the back of knife to block the strings on his guitar to create a sliding effect. Dopyera did not realize it when he invented the resonator, but the guitar, particularly the single cone *Triolians* and *Duolians* that he was not enamored with, was exactly what the bottleneck slide player was seeking. The resonator allowed the slide player to produce much more volume from a single string than previously possible. The resonator had a fast, biting attack—the rate in which sound approaches its peak—similar to the banjo. When the resonator's sound reached its peak, it was able to sustain the sound far longer than the average acoustic guitar.

The ethos of the bluesman as the itinerant, professional stranger going from town to town singing lyrics over the twelve bar form, was only partly accurate. In truth, the bluesman had to be able to adapt to his audience, some of which was white. In Chicago, blues musicians might be asked to play the hits of the day, polkas, dance numbers, and they had to do it under difficult acoustic conditions. The resonator allowed for the musician to sing in his full voice without fear that the guitar could not be heard. In the

[97] Kanahele, *Hawaiian Music*, 348.

mid to late 1930s, when electric guitars were what the urban musician was playing, the resonator still made sense to the Delta bluesman because electrification was not yet countrywide.[98]

In the black community, the bluesman played juke joints, unmarked, dual-purpose buildings that sometimes doubled as a home or a store. They were generally clandestine operations with a predetermined signal to indicate whether the place was open or not. This method of operation came from the days of slavery when whites tried to stop blacks from meeting. They served beer but often people brought hard liquor in with them. The buildings were crude and, as the night went on, they got noisier. The resonator was able to offset these challenges. It was, in effect, a guitar and sound system built into one unit. The honky-tonks that were popping up all over Texas presented the same acoustic problems.

Then, there was the resonator's durability. Acoustic guitars are delicate instruments. There size changes with the weather and the Mississippi climate was particularly harsh. The combination of heat and humidity caused the bodies of acoustics to warp and caused the necks to bow. The truss rod, a metal rod on the inside of the acoustic guitar's neck, was a feature that allowed for some adjustment but these were only available in the top of the line guitars. The resonator guitar was a sturdy all-metal instrument that was impervious to the elements. It was built to last a millennium. The only aspect of it the required care was the micro thin resonating cone.

Finally, the resonator guitar looked and sounded like what was going on in the South in the 1920s and 30s. The resonator was an invention of the industrial era and it

[98] Michael Taft interview (Head of the Archive of Folk Culture, Folklife Center, Library of Congress), in discussion with author, January 18, 2009.

looked the part. Blues musicians wrote deeply haunting lyrics about loneliness, migration and temptation but they wrote music based on the sounds they heard around them. The train was the most influential of these new industrial sounds and the metal-body resonator emulated it much better than a wooden, acoustic guitar.

The combination of bluesman and resonator seemed a perfect fit. There was only one problem. Very few of the Mississippi Delta bluesmen that became synonymous with the resonator guitar could afford to own one when they first debuted. H.C. Speir, a record store owner in Jackson, Mississippi and a legendary blues talent agent said in an interview that the overwhelming guitar of choice among bluesmen was a twelve dollar acoustic guitar made by the Oscar Schmidt Company called a *Stella*. For more than a decade, the *Stella* was considered the best sounding guitar for the money among bluesmen. The most inexpensive National instrument during the 1920s was the *Style 1, Tricone,* which retailed for seventy-five dollars.

It seems logical, certainly in the modern context, that National would be interested in seeing their guitars in the hands of these bluesmen. In 1927, race records accounted for as much as five percent of 104 million 78s that were sold. Modern guitar companies and luthiers routinely gave guitars to prominent players in an attempt to increase their instrument's visibility. The Dopyera family never endorsed this practice, and the reason goes back to the investor party at Ted Kleinmeyer's house before there ever was a National String Instrument Company. Dopyera personalized two guitars for Sol Hoopii to play. Very shortly after, it came to the attention of the Dopyeras that Hoopii had pawned one of them. After that experience, the Dopyeras agreed never to give away any of their instruments to musicians. In the 1970s, Mike Auldridge, second

in the line of bluegrass resonator masters between Buck Graves and Jerry Douglas, was used in many of the Dopyeras' print advertising during the period when they reacquired the Dobro name. Auldridge played a *Model 45* from the 1930s. The Dopyeras never gave him any instruments *gratis*. "The Dopyeras," Auldridge said, "never felt that they had to give away any of their instruments." [99]

The first and most famous of bluesmen to use a metal-body resonator was Tampa Red, and he, as his name suggests, was from nowhere near the Mississippi Delta. Born Hudson Whitaker in 1903, Tampa Red did not come out of the post-reconstruction, share cropping system. Where the Mississippi Delta artists played a country blues style, Red was playing for those blacks that were headed north. He was among the first of a long line of sidemen, musicians hired to play in support of other artists, a profession that thrives to this day.

Red's break came in Chicago in 1928 when, while playing in Ma Rainey's band, he met Georgia Tom Dorsey. Dorsey provided Red with a tune that eventually became "It's Tight Like That." White America's understanding of blues lyrics comes mainly from the Robert Johnson legend. Johnson was perceived as the tortured soul who turned his back on god and cut a deal with the devil in return for his amazing talent. In reality, the best selling blues records were bawdy, audio erotica rooted in double entendre lyrics. "It's Tight Like That," recorded for the Vocalian label, was a typical example of that and it was a huge seller. With his share of the first royalty check, the princely sum of $2000, Red went out and purchased a National Spanish *Tricone* with a gold cover plate.

[99] Mike Auldridge (wood-body resonator player) in interview with author, February 13, 2009.

Lonnie Johnson and Blind Lemon Jefferson had shown that virtuosity and the country blues were not necessarily strange bedfellows. Red's playing was urbane and the National *Tricone* was at the center of his single string, bottleneck style. Bottleneck slide is a subtle art. It requires an innate mastery over intonation. Red had just such mastery. The best example of what Red could do with a resonator and a slide is his 1931 recording of "Things 'Bout Comin' My Way," originally written by Walter Vinson. Red's performance was relaxed and incredibly clean, and his resonator cut through the limitations of the early microphones. The sound of the Red's guitar was unlike other recordings. Years later, Robert Johnson used Red's interpretation in one of his most famous songs, "Come In My Kitchen."

Like Sol Hoopii, Red understood the aesthetic value of the National guitar. The guitar's natural effulgence on stage and being the first bluesmen to record with one gave him a critical advantage over other players. He began to be called "The man with the golden guitar." He played this same National until, like most Chicago bluesmen, switched to the electric in the 1940s.

Red recorded ninety sides between 1928-32, most of them with Georgia Tom Dorsey. When Dorsey quit blues to compose gospel, Red formed a quintet with various members in the Chicago music scene, but the resonator was always at the center of the group's sound. In 1934, he signed with RCA Victor's budget label, Bluebird Records. He and four other musicians became the regular session band for the label and established the Bluebird sound.[100]

[100] Kevin Wharton, "Now Before We Forget: Tampa Red," *Blues Matters*, issue 45, p 160-1.

Red played with some of the greatest names of the era - Memphis Minnie, Ma Rainey, Sonny Boy Williamson, and Lil Johnson. His influence on future generations cannot be understated. Muddy Waters and Ry Cooder both were heavily influenced by Red's playing. Kevin Wharton of *Blues Matters* magazine called Red, "the most influential bottleneck guitarist in blues history." He died in Illinois in 1981, and was buried in an unmarked grave.[101]

Tampa Red made his name playing slide guitar but the Spanish National was a versatile instrument, quite capable of accentuating other styles. Fulton Allen, who used the name Blind Boy Fuller, like Red, was not from the Mississippi Delta but he was not urbane either. Fuller was from the tobacco country in the Carolinas. The harsh climate in Mississippi coupled with the brutal share cropping lifestyle produced a heavy and intense kind of blues. The people of the Piedmont did not see the blues this way. Many musicians found happiness in the genre. One of the reasons was the immense diversity of the musicians who took to the genre. There were vaudeville divas, fiddle players, harmonica blowers, street musicians, and bandleaders.[102]

Fuller was born 10 July 1907 in Durham County, North Carolina. His first job was in the coal yards but at age 27 he began to lose his eyesight due to ulcers. When he became totally blind, the migratory Fuller turned to music in order to make a living, not an uncommon story. From 1929-34, Fuller made his living playing as a street musician at the local factories. In 1934, James Baxter Long, a store manager turned talent scout, also a trend in blues, found Fulton on a street corner and was taken by his voice. Long

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[101] Herzhaft, *Encyclopedia*, 202.
[102] Barry Lee Pearson, "Appalachian Blues," *Black Music Research Journal* 23, issue 1/2, 25.

took Fuller and Blind Gary Davis to New York for a recording session under the American Record Corporation label. This began one of the shortest yet most prolific recording careers in blues history. From 1935 to his death in 1940 Fuller recorded 135 sides for various labels.[103]

Fuller used a 1933 National *Duolian* in both the 12 and 14 fret style. This was a single cone instrument with fast attack and long decay. He experimented with slide early in his career but his Piedmont finger style was what he was most remembered for. While there is no concrete evidence as to why Fuller played a National, it is not difficult to determine how he made his choice. Fuller was a street musician, and he played in front of factories; he needed a portable instrument that was loud. There is, however, another theory that may explain Fuller's choice. Appalachian-Piedmont blues was steeped in a banjo tradition. When the banjo began to decline in popularity, many musicians began to learn banjo tunes on guitar. The *Duolian*'s attack is very similar to that of the banjo, but is distinguished by its long decay.[104]

Fuller and Red recorded an immense amount of material, searing the National sound into the collective memories of those who listened to race records. The National was also working its way into America's visual memory as well and in some controversial ways. Sister Rosetta Tharpe, an energetic singer-guitarist who came out of the Pentecostal church, was redefining gender roles at the dawn of the swing craze. Tharpe introduced the unbridled emotion of Pentecostal singing into secular music. Neither the public nor the critics knew what to think about her, but the management of

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[103] Bruce Bastin and Blind Boy Fuller Stefan Grossman, *Stefan Grossman's Early Masters of American Blues Guitar: Blind Boy Fuller* (New York: Alfred, 1993), 4.
[104] Barry Lee Pearson, *Black Music Research Journal*, 30 and Brozman, *National*, 149.

the Cotton Club in New York City knew that *unusual* translated into profits, and they booked her as part of the fall 1938 lineup. Tharpe retained a talent manager named Moe Gale who booked a photo publicity shoot. Until that time, gender roles in music were very specific. Women posed with instruments as ornaments. This was prominent in the all-girl swing bands of the 1940s. Tharpe, however, showed up for her shoot in a modest gown by Cotton Club standards and a 1935 National *Duolian* guitar. The way she held it, in this now iconic photograph, made it clear that she knew how to play. It was a defining moment in gender perception realignment, and her National guitar, which she played well into the 1940s, was at the center of it.[105]

The National guitar began to make cameo appearances in the Delta blues in the late 1930s due to a number of factors. The sonority advances in the resonator guitar during a time of sweeping changes in radio; movies, and the recording industry proved to every major player in the instrument manufacturing business that volume was what the professional musician wanted. George Beauchamp and Adolph Rickenbacker had teamed up in the early 1930s to produce an electromagnetic pickup. They formed a corporation outside the National String Instrument Company to produce an early version of the lap steel, which was nicknamed the "Frying Pan." In 1934, the Dobro Manufacturing Company produced a Spanish resonator version of an electric guitar with an improved amplifier. Shortly after, electric hollow body guitars began showing up on the market. The musicians who had made a significant investment in the resonator when it first came out sold them to buy electric guitars just as fast. When the National String Instrument Company was formed, one hundred percent of the company's revenue came

[105] Gayle Wald, *Shout, Sister, Shout! : The Untold Story of Rock-and-Roll Trailblazer Sister Rosetta Tharpe* (Boston: Beacon Press, 2007), 40-1.

from resonator guitars. By the late 1930s that number had dropped to eighteen percent the remaining was from electric instruments and amplifiers. This led to a large redistribution of the metal-body resonators. It is during this time that resonators began to show up in junk and pawnshops at significantly lower prices. In a peculiar twist, the instrument that was supposed to set the resonator on a course of extinction, the electric guitar, actually aided it to its ultimate survival.

There have been cases where an instrument redistributes among new players but not for the same reason the resonator did. In the early 1920s, the mandolin band craze began to fade. As a result, mandolins began to decline in price. Ultimately this period put some top of the line Gibson mandolins into the hands of the players who could not afford them otherwise. This was one of the factors that eventually entrenched the mandolin in country and bluegrass music. This redistribution occurred as a result of changing trends, not as a result of advancements in sonority, like the resonator's case.[106]

Another factor was the changing dynamics of media in general during the 1920s and 30s. During the silent era, live music accompanied movies in theaters. This created an opportunity for employment among musicians across the country. A person going to see the same movie in three different theaters was treated to an entirely different experience each time. With the advent of the talking picture, musicians were no longer

[106] George Gruhn (Founder, Gruhn Guitars, Nashville, TN), interview with author, March 13, 2009.

needed.[107] In 1930, some 18,000 union musicians were laid off because of talking movies.[108]

Radio's growing popularity was also a factor and at several levels. Any business that had employed musicians, such as a restaurant or bar, could easily turn on a radio, rather than pay for live music. For the recording industry, radio was lethal. Between 1927 and 1932, record sales fell from 104 million units to six million units. The American public immediately took advantage of the low cost alternative of radio rather than buying 78s.[109]

The first of the most famous Delta bluesmen to own or at least use a metal-body National in recording was Booker White. By the time Booker White was serving time at the Parchman farm in 1939 at the age of twenty-nine, he had already lived a full life. He was married at the age of sixteen and watched his wife die of a burst appendix in the hospital. He was a prizefighter in Chicago, a hardened transient, a semi-pro baseball player, and a cotton picker. In 1930, he recorded four sides for the Victor label, was paid several hundred dollars, and given a guitar.[110] Whether this was the National that he later became famous for playing is subject to debate. The guitar used on the recording was a *Stella*, suggesting that that the National was acquired later.

In 1939, archivist John Lomax travelled to Parchman farm to record several bluesmen. White was well known within the prison and was giving guitar lessons to the warden's son. He was so popular that the prison took a collection up to buy him a guitar,

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[107] George Gruhn (Founder, Gruhn Guitars, Nashville, TN), interview with author, March 13, 2009.
[108] Anders S. Lunde, "The American Federation of Musicians and the Recording Ban," *The Public Opinion Quarterly* 12, no. 1, Spring, 1948, 46.
[109] Gioia, *Delta Blues*, 133.
[110] Gioia, *Delta Blues*, 89-91.

almost certainly a National metal-body, since that is what was used on the Lomax recordings. White was not impressed that Lomax wished to record him for the Library of Congress and only agreed to record two songs. Booker White knew that he was a talented slide guitarist and was used to being paid for his work. In 1940, White recorded a handful of songs for the Vocalian label with a Gibson electric guitar that he had borrowed from Bill Broonzy. Those were some of White's most famous recordings, but the National played no role in it.

By the time World War II began, the blues scene was coming to an end for several reasons. Unlike country music, the musicians that performed blues were uneasy with its content. Many blacks that played blues felt that it was the devil's music. Some were able to play the blues and religious music, but most could only do one or the other. The previously mentioned Georgia Tom Dorsey stopped recording in 1932 in order to focus on gospel music. Eddie "Son" House, a man who is the most responsible for National's association with the Delta blues, went back and forth between playing blues and preaching. He once said that he despised the sight of a guitar because of his pious views but when he heard a bluesman by the name of Willie Wilson play bottleneck slide, House was overcome with the desire to learn it.[111] Legendary bluesman Skip James recorded some incredibly influential songs for Paramount and then promptly quit to become a Baptist minister. For this cultural reason, the lineage of blues to the modern day lacks continuity.

The guilt associated with the genre was only part of the bluesman's problem. In Chicago, American Musicians Federation (AMF) union local boss, James Petrillo, had

[111] Samuel Barclay Charters, *The Bluesmen : The Story and the Music of the Men Who Made the Blues* (New York: Oak Publications, 1967), 58.

been watching technological advances in the media quickly erode opportunities for musicians during the 1930s. Finding little success in his efforts to get his musicians a greater share of royalties from recordings, he decided to try controlling the issue at its source. In 1942, the "Petrillo Ban" called for a complete and total cessation of recorded music. The AMF and the recording companies came to an uneasy agreement in 1944, but the ban went back into effect in 1947. By 1948 only fourteen percent of the AFM membership could claim that music was their full-time job.[112] The effect was devastating for the bluesman, and a great many of them put their guitars down.

Before the Second World War, the National guitar's permeation into acoustic blues was only partially complete. For some like Blind Boy Fuller and Tampa Red, the National was an important part of their images. For musicians like Kansas Joe and Memphis Minnie, who came back to Mississippi with resonators after a successful trip to Chicago in 1930, their experience with the National was ephemeral. They switched to electric guitars once they were available.[113]

[112]Lunde, *The Public Opinion Quarterly,* 48, 50.
[113] Interview, Steven James (National bottleneck slide player), in interview with the author, January 31, 2009.

The Folk Revival

The American Folk Revival that peaked in the 1960s began during the Great Depression. Franklin Roosevelt's New Deal sent thousands of urban workers into rural areas, exposing them to cultures, sounds and instruments that they may never have seen or heard otherwise. There was also funding available for both the Library of Congress and the Works Progress Administration to send field recorders and cultural researchers into rural America. John Lomax, born in Mississippi in 1867, was socially conservative when he started his career as a folklorist and archivist. His 1910 book, *Frontier Songs and Cowboy Ballads*, virtually ignored the contributions of Mexican and Black cowboys but did win the praise of Theodore Roosevelt whose letter to Lomax became its preface.[114]

When Lomax met other researchers involved in the New Deal Federal Writer's Project during the Great Depression, his views began to change. His fellow researchers had different backgrounds, and their haughty views towards Southern culture in general turned Lomax from a social conservative to a racial romantic. Part of the reason he went to prisons to record bluesmen was so they could benefit from hearing a white man speak. His racial attitudes aside, Lomax argued that the natural state of the music of blacks at the time was its strength and not its weakness.

There were two factions that developed in the early days of the Folk Revival. The first was the Woody Guthrie-Pete Seeger view, that folk songs were the music of an abused working class. Guthrie, and Seeger believed folk music was a challenge to the *status quo* in American society. The protest song, so popular in the radical 1960s, came

[114] Jerrold Hirsch, **"**Modernity, Nostalgia, and Southern Folklore Studies: The Case of John Lomax," *The Journal of American Folklore* 105, no. 416 (Spring, 1992), 189.

out of this faction of the folk revival. The second faction of the Folk Revival took less interest in the political, instead taking a preservationist view. Men who had never seen a banjo, mandolin, or resonator guitar were now building bridges and roads in the heart of the country where these instruments were being played. The men who founded this faction of the Folk Revival after the Great Depression believed that these were threatened instruments amid the mass urbanization sweeping across America.[115] It was this group that had a real voice in shaping the revival's content.

The Folk Revival gained slow but steady momentum in the post war years. In 1947, a group of folk artists, enthusiasts, and archivists started publishing a left leaning newsletter called the "Peoples Song." It published songs from rural America that would have otherwise been unavailable to the general public. The Cold War and the activities of Joe McCarthy made this magazine's future untenable, however, and after only three years, the newsletter closed its doors. The founders decided to tone down the leftist rhetoric, and in 1950, they launched another periodical called "Sing Out!" It quickly became the voice of the Folk Revival. [116]

Sometime in 1957, three Hawaiians calling themselves the "Kingston Trio" recorded a nineteenth century murder ballad called "Tom Dooley." Over the next two years, that song sold over four million records. Musicologists and social historians generally agree that this song's success marked the official birth date of the Folk Revival. More importantly, the 1950s saw a huge increase in higher education, and folk singers

[115] Ron Eyerman and Scott Barretta, "From the 30s to the 60s: The Folk Music Revival in the United States," *Theory and Society* 25, no. 4 (Aug., 1996), 501-2.
[116] Sing Out! Website, http://www.singout.org/sohistry.html.

made significant inroads into college campuses. These college young adults were the foundation of the huge commercialization that folk music underwent in the 1960s.

In 1959, several folk artists and live music promoters banded together to develop a solution to presenting folk in a live, festival format. The Newport Folk Festival debuted that same year, and its egalitarian structure was a critical part of National's success. The board of the festival cleverly interspersed popular acts of the day with performers none of the college age audience had ever seen. Appalachian, Cajun, bluegrass, country, and blues musicians began playing in front of crowds larger than they had ever seen, much entertained. Soon, performers who had only cult status were getting introduced to a young, white audience.

The Folk Revival and the Newport Folk Festival sent music enthusiasts, agents, and record labels on a quest to locate the Delta bluesmen that had disappeared into obscurity after the Second World War. Dick Waterman, writer, photographer and editor of "Broadside Magazine," tracked down Booker White sometime in the early sixties. In 1964, White gave Waterman a tip as to the whereabouts of Eddie James "Son" House, Jr., a musician Muddy Waters called simply "the king." Waterman, along with Dick Perls and Phil Spiro went on a 4,000-mile trek to find House. While in Detroit, Waterman got an address for House in Rochester, NY.

Son House had stopped playing the blues in the 1950s, when he realized that most all of his contemporaries were dead. He moved to Rochester and got a job with the railroad. In spite of Waterman's enthusiasm, House was doubtful that people wanted to hear these old songs from a different time, and he was also reluctant because of health issues. In spite of his hesitations, House agreed to come out of retirement. In 1964,

House and Dick Waterman visited Stefan Grossman in New York City. Grossman, a blues scholar and accomplished musician, had a 1931 National *Duolian* that he was not enamored with. He gave it to Son House.[117] It was thirty-seven years from the time of the founding of the National String Instrument Company, but the instrument's most iconic user finally had one of his own.

Son House used *Stella* guitars for most of his recording sessions. In 1930, Art Laibly, agent for Paramount Records, asked guitarist Charlie Patton to come to Grafton, Wisconsin, to record. Patton agreed but also persuaded Laibly to include Son House, Willie Brown and pianist Louise Johnson in the recording session. House's performance during those sessions set a standard for the Delta blues. Stefan Grossman called House's Grafton performance "probably the finest example of Delta blues."[118]

In the summer of 1941, John and Alan Lomax tracked Son House down in Mississippi. Lomax was doing a series of recordings for the Library of Congress. House and a small backing country band delivered a number of sides. Lomax said later that the experience was better than any he had had, including his experience with Leadbelly. House was not paid for his performance.

When the Newport Folk Festival heard that Son House had been found, they immediately offered him a spot in the 1964 lineup. House spent the week in the Newport Hospital and was unable to perform, but those who were opining that the Folk Revival

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[117] Stefan Grossman (blues scholar), telephone interview with the author, March 19, 2009.
[118] Jas Obrecht, "Possessed by a Song: The Deep Delta Blues of Son House," *Acoustic Guitar*, July 2003, 74.

was on the descent may have been premature. The 1964 Newport Folk Festival set a record for attendance, drawing more than 15,000 listeners.[119]

House returned in 1965 with a host of legendary names, including Skip James and Booker White. The Newport Folk Festival drew over 70,000 that year, and whether they were of the political faction of the folk revival or the preservationist was irrelevant.[120] At that point, most young, white adults of college age were becoming radicalized. The civil rights movement was in full swing and Lyndon Johnson was only months away from Americanizing the Vietnam War. When House took the stage, his sonorous voice and trance-like movements captivated the audience. The crowd began to make their own assumptions about these men, who seemingly were from another century. They saw them as victims of a cruel and inhumane labor system. They knew that both House and White were jailed at Parchman farm during different periods and just assumed that it was the South's racially biased justice system that had put them there. The young whites wanted to emulate these great men. They wanted to dress and talk like them, and they wanted guitars like theirs, too. A version of this phenomenon repeated itself in the mid 1990s when white suburban teens began to adopt Hip Hop culture as a way to express individuality and protest.[121]

Son House went on to a full, national touring schedule after he signed a record deal with Columbia. He gave interviews and made multiple appearances on national television. Both he and Booker White began to earn substantial money, amounts that

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[119] Robert Shelton, "Folk Music Gains In Newport Event," *The New York Times*, July 26, 1964, 56.
[120] Robert Shelton, "Music: Folk Fete Opens; Newport Expects Over 70,000 for Weekend, *New York Times*, July 23, 1965, 19.
[121] Michael Quinn " 'Never Shoulda Been Let out the Penitentiary': Gangsta Rap and the Struggle over Racial Identity," *Cultural Critique*, No. 34 (Autumn, 1996), 86.

dwarfed what they made during the their early recording careers. Every television appearance, interview, and live performance increased the interest in the old National guitars that were hanging in pawnshops across the country.

In 1970, George Gruhn, the Dean of the vintage guitar business, opened shop in Nashville. By that time, the demand for the old Nationals, which began to ratchet up in the early 1960s, was already brisk. In 1987, Don Young opened the National Guitar Company's doors again and manufactured a National line from the 1920s and 30s.

Country Music—Post-Resonator

Ed Dopyera once said that he and his brothers never thought wood-body resonator would ever be used in country music.[122] In truth, the instrument's survival mechanism was that it was fully adaptable. In the pre-National 1920s, steel guitar, an acoustic guitar with a nut riser, began to appear on some major country records. The Carter Family, Jimmie Rodgers, Frank Hutchinson and Vernon Dalhart all used some form of steel guitar in their recording sessions, but the styles were varied. Hutchinson used a flat knife to play, evoking the influence of the bottleneck blues players, while Jimmie Rogers hired musicians who were rooted in the Hawaiian style.[123]

After the metal-body Nationals came out in 1927, Hawaiian style players gravitated to them instantly. In 1928, when the Dobro Manufacturing Company began producing the wood-body resonator, the musicians that ultimately played them could not get access to them. Unlike the bluesmen, price was not the obstacle; the Dobro line was extremely affordable. The problem was that the Dopyeras were unable or perhaps unwilling to secure distribution in the south. Getting a Dobro brand guitar required special ordering at an instrument store, assuming that the musician even knew what one was.

The story of how the wood-body resonator ultimately succeeded to the position of prominence it now holds in bluegrass involves two separate innovative musicians. The first musician, with the help of his prescient benefactor, successfully implanted the sound of the wood-body resonator into America's subconscious through the exploding medium

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[122] Tom Gray, "Dobro: The Resonator Guitar That Would Not Die," *Bluegrass Unlimited*, January 1999, 51.
[123] Malone, *Country Music USA*, 127.

of radio. The second musician developed a method and playing style that ultimately influenced the first of the great bluegrass resonator masters.

In 1932, a young, sunstroke prone fiddler from Tennessee named Roy Acuff was approached by a local doctor and asked to join a medicine show that was appearing in Knoxville. A year later Acuff put a small band together called the "Crackerjacks," which included Clell Summey, who had a *Model 27* from the Dobro Manufacturing Company. In 1934, the band began to play on a local Knoxville station called WROL but soon switched to WNOX and a regular show called the "Mid-Day Merry Go Round." Refused a pay raise, the "Crackerjacks" went back to the station they started at and changed their name to the "Crazy Tennesseans." Between radio appearances, the band played modest shows in the backwoods of Tennessee. Roy often asked other musicians to sit in with the core group; at other times he needed an outright substitute.[124] Being a regular on Knoxville radio was no small accomplishment, but to take full advantage of the potential of the exploding medium of radio required going to Nashville and getting on the Grand Ole Opry.

The first marriage of commercial radio and country music occurred in 1922 at a 500-watt station in Atlanta called WSB. The first radio barn dance happened in 1923 when WBAP out of Fort Worth featured a five string Hawaiian band. In 1924, WLS in Chicago launched *The National Barn Dance*, a variety show of both the popular tunes of the day and hillbilly music. In November of 1925, a radio announcer from Chicago named George Hay convinced the owners of WSM in Nashville to allow him to present a

[124] Elizabeth Sclappi, *Roy Acuff: The Smoky Mountain Boy* (Gretna: Pelican 1978), 24.

hillbilly radio show called the WSM *Barn Dance*. Later that year, the show was renamed the *Grand Ole Opry*.[125]

As previously mentioned, radio was critical in destroying the recording industry during the Great Depression because of its many advantages. It required an investment in a radio as opposed to a phonograph and the clumsy 78. Unlike the 78, radio did not degrade with each playing. The sound quality of radio was generally better because the hiss of the needle scratching across the grooves was not present. It was free and offered a variety of entertainment as opposed to a singular song. Finally, unlike the 78, radio did not require a trip to the store.[126]

In October of 1937, Roy Acuff was invited as a fiddler to fill a fifteen-minute spot at the *Grand Ole Opry*. He brought some other band members and, although the details remain incomplete, their performance was spotty and not well received. In spite of that performance, the band was invited back. On 5 February 1938, Acuff and his band, including Clell Summey on wood-body resonator, played a rousing version of "Great Speckled Bird." It was the first time the wood-body resonator had ever been played at the *Grand Ole Opry*. Acuff and his band were offered a permanent spot sponsored by the R.J. Reynolds Tobacco Company.[127]

Acuff understood that the hillbilly ethos had gotten real traction among the *demos,* but not everyone was enamored with it. The upper crust of Nashville, who fancied their city the "Athens of the South," was not impressed by the homespun humor, nicknames and costumes associated with hillbilly music. Neither was the majority of

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[125] Malone, *Country Music*, 70-1.
[126] Bob Coultman, "How the Depression Changed Country Music," *The Journal of Country Music*, 6-7.
[127] Schlappi, *Acuff*, 44.

Acuff's band. Summey and two others in Roy's band were unhappy that Acuff was unwilling to croon the popular songs of the day and the dispute finally came to a head. In the early part of 1939, they resigned from the band.[128]

Acuff was a visionary and was unwilling to part with the wood-body resonator as part of his ensemble. He called a musician named Pete Kirby, who had been a substitute during the Knoxville radio years. Kirby, whose hillbilly name became Bashful Brother Oswald, agreed to join the band and made his way to Nashville. Pete Kirby was born in the Smoky Mountain region of Tennessee in 1911. He had a third grade education and was initially illiterate when he joined Acuff's band. During the Depression, Kirby went to Flint, Michigan, to get a job at the Buick manufacturing plant. He also got a job playing Spanish guitar on a local radio station. The station manager needed Hawaiian style players to keep with the times and told Kirby that if he wanted to keep his job, he needed to learn this style. Kirby purchased a metal-body National, probably a single cone *Style O* that he played, at the beginning of his association with Acuff and his "Smoky Mountain Boys." A month into the Opry residency, Kirby went down to a local instrument store and ordered a *Model 45,* wood-body resonator from the National-Dobro Guitar Company.

Pete Kirby, unlike Clell Summey, understood the role he was asked to play as an actor and as a musician. His musical style was part Hawaiian, part country and part vaudeville. He would do long, machine gun like, repetitive lines that captured the audience's attention. He commented later in life that when the show was over, he almost always got lions share of attention from music fans. Acuff immediately understood

[128] Schlappi, *Acuff,* 39.

Kirby's value. In addition to singing harmony, Kirby could also emulate the Acuff's fiddle lines if it was so desired. Again, the instrument's versatility, combined with the human vocal element produced by the combination of convex cone and a spider bridge, made it a versatile part of any string ensemble.[129]

What Kirby was doing was testing the limits of the instrument; the southern audience was mesmerized by what it was hearing. WSM had 50,000 watts and, in those days, could be heard as far north as Canada. The fan mail began to roll in. A sixteen-year-old Tut Taylor, a legend on the resonator himself and George Gruhn's first partner in his Nashville instrument store, wrote to the *Opry* inquiring as to what Kirby was playing.[130] Almost all the bluegrass resonator legends got their indoctrination in the sound of the instrument from Pete Kirby's radio performances at the *Grand Ole Opry*. Kirby had successfully planted the sound of the wood-body resonator into country music.

But it was a Kentuckian named Cliff Carlisle who was responsible for developing a method for playing the instrument. In retrospect, Cliff Carlisle was an obvious candidate to be at the vanguard in the development of a method for playing steel guitar in country music. In the 1920s and 30s, country music was a *mélange* of performers and influences. The fiddler still held a prominent role but there were also cowboy singers, family groups, and string bands that included mandolin players and yodelers. Carlisle, who sang, wrote songs and was among the first few musicians in the south to have a wood-body resonator, had been labeled an imitator of the great yodeler, Jimmie Rodgers, but there the similarities ended. Country music had a moralistic tone to its songs, but

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[129] Jimmy Heffernan (wood-body resonator recording artist), in interview with the author, January 7, 2009.
[130] Gray, *Bluegrass Unlimited*, 52.

Carlisle was among the few that routinely refused to follow that particular course. Instead, Carlisle followed the black blues singers of the day by writing racy, risqué songs with double entendre lyrics.

That was not all Carlisle borrowed from the bluesman. Sol Hoopii could play jazz, blues and virtually any other style on his resonator, but Hawaiian music was the base from which his music emanated. Carlisle also played Hawaiian but used blues as his foundation. The result was a more intense, hard-driving sound that was completely different from what Kirby was doing at the *Grand Ole Opry*. Carlisle's records sold as poorly as everyone else's did during the Great Depression, but unlike the bluesmen, radio offered the country artist an opportunity to reach a mass audience. Cliff and Bill Carlisle teamed up to perform at lunchtime on Knoxville, Tennessee's WNOX. A young boy named Burkett Graves tuned in one day, heard Carlisle's intriguing style, and promptly dropped out of his Hawaiian guitar class. On a *Stella* with a raised nut, Graves devoted all of his spare time trying to learn the musical lines he heard Carlisle playing on the radio.[131]

Bluegrass and the resonator share one important characteristic: they both have a strange history few understand. The musical genre invented by Bill Monroe is lyrically rooted in the old broadside tradition that came to North America with the Scotch-Irish during the their eighteenth century migration to Appalachia. Bluegrass represents the gothic side of country music. Its songs are about the occult, death, incest and a fallen world of darkness. It was no coincidence that the soundtrack of the 1972 movie *Deliverance,* an adaptation of James Dickey's chilling and controversial novel, used an

[131] Gray, *Bluegrass Unlimited*, 52.

abundance of five-string banjo played in the three-finger style perfected by bluegrass legend Earl Scruggs in the late 1940s.[132]

In terms of instrumentation, the bluegrass ensemble did not become solidified until the 1950s. Bill Monroe started on guitar but switched to the mandolin in order to compliment his two brothers who were playing guitar and fiddle. In the mid 1930s they began to perfect a vocal harmony style that became synonymous with bluegrass. In 1938 the "Monroe Brothers" split due to sometimes-violent personality conflicts. Bill Monroe moved from singing harmony parts to singing lead in a new band called the "Kentuckians" but soon reformed under the name the "Blue Grass Boys." In 1939, the "Blue Grass Boys" appeared on the *Grand Ole Opry* radio show, but at that point, only parts of the bluegrass sound had been solidified. Monroe's chopping mandolin style and high tenor voice were certainly pillars of what became bluegrass, but Monroe was trying other instruments as well, such as accordion and jug.

In 1945, a young banjo player from North Carolina with an odd playing style joined the "Blue Grass Boys." Earl Scruggs, born in 1924, came from a family of banjo players. Western North Carolina banjo players used a three-finger style that produced a melodic, syncopated sound. There is some question as to who actually invented what became "Scruggs style" banjo. Bluegrass legend Ralph Stanley credited Snuffy Jenkins, a banjo player from the same area as the Scruggs' family. What is not in question was the effect it had on bluegrass. Scruggs could play at break-neck speed with this new style, and the energy it infused launched Monroe's band into the national arena. It also

[132] Cecelia Tichi, *Reading Country Music : Steel Guitars, Opry Stars, and Honky-Tonk Bars* (Durham: Duke University Press, 1998), 49.

ended the banjo's association with comedy, minstrelsy and vaudeville. It was now a serious, hard driving instrument.

In 1945, Scruggs and guitarist Lester Flatt left the "Blue Grass Boys" to strike out on their own. Monroe was disappointed in losing the musicians, but he had missed the bigger point. Hordes of musicians were buying, listening, and copying Monroe's sound. By 1948, Ralph and Carter Stanley recorded "Molly and Tenbrooks," a Monroe song, with a Scruggs style banjo player and high tenor singing. Historians point to this event as the moment when the genre of bluegrass was officially created, but the word itself did not appear until the mid 1950s.

As for Flatt and Scruggs, they named their new band the "Foggy Bottom Boys," and they were in high demand. They were asked to play a variety of venues from folk festivals to Carnegie Hall. The "Foggy Bottom Boys" de-emphasized the mandolin and accentuated the banjo and fiddle in an attempt to differentiate themselves from Monroe. In 1955, they added one final instrument—the wood-body resonator guitar.

In the 1940s, Burkett "Buck" Graves was backing WROL star Ersco Haskins on wood-body resonator. Graves knew and respected Pete Kirby, but he worshipped Cliff Carlisle. He played a blues infected style of resonator just like Carlisle and was getting work backing other artists. He became fascinated with the three-finger picking style of Earl Scruggs and began imagining its application on the wood-body resonator. In 1949, Graves was on a double bill with the "Foggy Bottom Boys" when he went backstage to talk to Scruggs. Graves asked Scruggs to show him his finger-style technique, and the two hit it off immediately.

One of the problems for Graves was that his resonator was tuned in A, but Scruggs' banjo was tuned in G. It is unclear exactly when the G tuning became what some call the "standard Dobro tuning," but it was probably first used by Graves. The second problem Graves had was how to get the D string to ring as a drone note. To accomplish this, he had to reverse Scruggs' finger roll. With those two adjustments, the only challenge left was how to integrate this new playing style into the method he had developed while listening to Cliff Carlisle.

In 1955, Graves was asked to join the Foggy Bottom Boys on wood-body resonator, thereby finalizing the bluegrass ensemble. The sight of the resonator disconcerted some purists because Monroe had not used it in the early days. This is a curious notion considering that the genre was still in its developmental stage, and Monroe himself had used jug and accordion, instruments that were quickly jettisoned. These protests by some fans exposed an interesting duality that exists in bluegrass. Supporters of the genre find comfort in its perceived conservatism, but it is the innovations that exhilarate them. While it is true the lyrical and instrumental roots of bluegrass belong to seventeenth century, its musical style was purely modern. There was little "old-timey" about it, even when they performed songs from the early part of twentieth century.

Graves and his resonator were a perfect fit for "traditional" bluegrass for several reasons. The live presentation of bluegrass in the 1940s and 50s involved four or five musicians standing around an omni directional microphone. When a particular musician's solo came around in the song, he or she stepped forward and the other musicians stepped back. By doing this, the musicians control the mix—the audible aggregation of what is being played—instead of a sound engineer. This process involves

choreography and almost all fans of the genre will comment that it is beautiful to watch. When Graves' solo came up in the song, he would point the headstock of the resonator down so as to get the cone close to the microphone. Bluegrass eventually incorporated an extra bar of music in order to facilitate the changing of the soloist.[133] Just like Hoopii and Tampa Red discovered, Graves realized that the visual aspect of his instrument was as important as its sound.

Musically, the wood-body resonator was perfectly at home with the other instruments. Graves could cover fiddle parts if need be or he could "chop"—a muted, raking technique—a rhythm part while someone else was soloing. He could even cover a vocal harmony line, something the banjo and mandolin could not do. The wood-body resonator was the only instrument from the twentieth century that had made it into the bluegrass ensemble, yet it had a sound that made it seem like it had arrived during the Appalachian migration some three hundred years earlier.

It was Buck Graves who single-handedly saved the wood-body resonator from extinction. Almost all of country music had jettisoned it for the electric lap steel. Even Pete Kirby stopped playing resonator and moved over to acoustic guitar while a lap steel player was brought in to be part of Acuff's band. When Flatt and Scruggs went on the road, music fans were introduced to the wood-body resonator and they loved what they heard. Soon, musicians began scouring the pawnshops for old wood-body resonators from the days of the National-Dobro Guitar Company. In 1962, Emil Dopyera saw the rising prices as sign that the resonator was not going to go away. Wood-bodies were selling for twice as much as the National metal-bodies, a relationship that certainly does

[133] Jimmy Heffernan (wood-body resonator recording artist), interview with the author, January 5, 2009.

not exist today. Dopyera and his brothers started the Original Music Instrument Company but no longer had the legal rights to the name Dobro. They manufactured wood-bodied resonators under various names including *Hound Dog*.

A slew of immensely talented bluegrass resonator players followed Buck Graves, Tut Taylor and Shot Jackson, to name just to name a few. In the 1970s, Mike Auldridge began developing his own style, apart from traditional bluegrass. Auldridge took advantage of the instrument's versatility and began performing completely different forms of music on it. Jerry Douglas, the modern master, took Auldridge's sound and completely redefined the resonator much the way Bella Fleck had done with the banjo.

Conclusion

To assess the full impact of the Dopyeras' invention, it is helpful to consider their work from two separate viewpoints, lutherie and speaker design. In regards to lutherie, the Dopyeras had mixed results. Clearly the use of steel, brass and German silver in the metal-body was a stroke of genius. The interaction of these metals with both styles of bridges, the tri-cone and the biscuit, produced individual timbres that music enthusiasts recognize, consciously or otherwise, to this day. The wood-body National guitars do not enjoy the same stature. In later years, Al Frost, who started as a clerk with the Dopyeras, continued the tradition of using alternative materials in guitars when he became president of the company. In the 1950s and 60s, the Supro and National electric lines included guitars made out of fiberglass and reinforced plastics.

In regards to body design, the Dopyeras did not exhibit the same innovation. At National, the metal guitar bodies stayed the same size. By 1928, John Dopyera was out of National, which may explain why they never experimented with different body sizes. National's management certainly had both Gibson's and Martin's example to follow in regards to body design. The reason that National never experimented with body design is that they probably never felt they had to. They owned the patent on an innovation that was responsible for the single greatest leap in sonority prior to the advent of the electric guitar. In addition, they were selling everything that they were making. With no competition there was no economic incentive to experiment.

At the Dobro Manufacturing Company, John Dopyera had full control over the design elements of the wood-body resonator, yet he chose a thin-bodied guitar in which to set the spider bridge. The "traditional Dobro sound," as most people familiar with the

instrument have called it for decades, covers the mid and high ranges of the musical spectrum. Bass was never a consideration. It is convenient to apply the same thought process to the Dobro Manufacturing Company as the National String Instrument Company. Dobro had no competition for their product and was not motivated to make any changes. The problem with this line of reasoning is that it does not take into consideration John Dopyera's penchant for perfectionism. This was the same man that refused to patent the single-cone design at National because he thought it did not sound as good as the tri-cone design. In addition, Dopyera, his father and his brother were all luthiers. They understood the effect size has an instrument's sound quality.

The reason for the thin-bodies probably has to do with two factors. First, the Dopyeras were trying to stay afloat during the most trying economic times in modern world history. They were selling what they were making, but there were times when they had trouble making their payroll. The second factor has much to do with Emil Dopyera's statement regarding the wood-body and country music. They really did not know that the wood-body resonator was going to be such a huge part of country and bluegrass music but even if they had, they certainly could not have imagined the cross-over appeal the instrument now enjoys. Mike Auldridge and Jerry Douglas have pushed this instrument into genres unimagined seventy years ago. Luthiers like Paul Beard and Tim Scheerhorn responded by greatly improving the instruments musical range. The instrument now sounds like an acoustic guitar, capable of playing jazz, Latin music, and virtually anything else the musician wishes to play. The current era of resonator lutherie rivals the first in innovation.

As speaker designers, the Dopyera's legacy is much clearer. The tri-cone system produced an increase in acoustic sonority in the guitar greater than all the other innovations in lutherie combined going back two thousand years. The subsequent single-cone and spider-bridge design were both a major improvement on the tri-cone, volume wise. The advent of the resonator ushered in an era of new playing techniques among the growing community of guitar players. Musicians who were working on subtle techniques, unappreciated on an acoustic guitar, were now being amply rewarded for their efforts. They were also being put out front for the first time, a position guitarists to this day still enjoy.

There is also evidence that the Dopyeras were not just influencing musicians and other luthiers. From 1934-36, just before the move to Chicago, National-Dobro was located at 6900 South McKinley Avenue in Los Angeles. At 6920 were the factories and offices of the Lansing Manufacturing Company. Jim Lansing was a well-known designer of loudspeaker systems. In 1934, Lansing was working on the *Shearer Two Way* Horn system that MGM was using in theaters when movies went from silent to talking. Before Lansing was involved, the Shearer system used Bell Laboratories' two-piece welded speaker cone. After Lansing began manufacturing sound systems for theaters on his own, he began using a spun cone design almost identical to the cones the Dopyeras were using in their resonators. The Lansing cone was thicker because it was being powered by electricity and not string vibration, but the shape and process by which it was manufactured was almost identical to the Dopyeras. That same year, the Dopyeras produced the first Spanish electric guitar with an amplifier that used the Lansing speaker system. The two companies definitely had a business relationship, but an inspection of

the Dobro Manufacturing records would ultimately prove that Lansing's cone design came from the Dopyeras.[134]

How did the resonator survive the age of electrification? For the metal-body Hawaiian style National guitar, the answer has several parts. The Hawaiian craze allowed the resonator to establish itself both sonically and visually into the American publics' mind through radio and talking movies. The adaptability of both Hawaiian music and the resonator caused a cross pollination with other musical forms. This is critical in the wood-body resonator story as well. Even though the resonator's hegemony in Hawaiian music was ephemeral, the techniques developed on it spilled over into lap and pedal steel.

For the Spanish, metal-body resonator, the story is more convoluted. Tampa Red, Blind Boy Fuller and a host of lesser-known musicians successfully planted the sound and sight of the resonator into the cultural memories of those that purchased race records or went to live performances. This group was made up of blacks and other musicians. Racial prejudices largely excluded blues from the public airwaves of radio, denying the advantage the wood-body enjoyed. With the advent of the electric guitar, professional jazz and swing musicians jettisoned their resonators in favor of the electric guitar. This phenomenon and the Great Depression put pricing pressure on the Spanish metal-bodies, causing redistribution among the musicians who ultimately elevated the instrument to iconic status it currently holds.

Overwhelmingly though, the metal-body Spanish National was made part of the Delta blues ethos by the Folk Revival of the 1960s. The migrant workers from urban

[134] Steve Schell (loud speaker technology historian), email, March 3, 2009.

areas who worked in the south during the Great Depression became exposed to instruments they were not familiar with. When the revival started in the 1960s, instrumental preservationists lumped the resonator into the same group as the banjo and the mandolin. The Newport Folk Festival put the old bluesmen from the 1920s and 30s, who had cult status at best, onto a national stage and they came with their National guitars. This established the National, probably retroactively, as the mythical instrument of the 1920s and 30s Delta bluesman. This condition intensified as British and American musicians began re-crafting these old blues songs into rock and roll.

For the wood-body resonator the story has some similarities. Again, Hawaiian music's versatility encouraged men like Sol Hoopii and Cliff Carlisle to introduce the resonator into country music. Hoopii did it with Hawaiian music as his base while Carlisle used blues as his foundation. The combination of wood-body and spider-bridge, a choice made by necessity, created a more open sound at an inexpensive price, allowing the instrument to permeate into the lower classes of society. Pete Kirby introduced the wood-body resonator into the living rooms of the radio listening public when he became a regular on the *Grand Ole Opry* radio show with Roy Acuff. Buck Graves, who was influenced by Cliff Carlisle, developed a method for playing country music on wood-body resonator but secured the instruments future in bluegrass when he adapted Earl Scruggs three-finger banjo playing style to the instrument. Graves passed the mantle to Mike Auldridge, who re-defined it as an instrument capable of other forms of music. From there Jerry Douglas took over and has pushed the instrument farther than John Dopyera could have ever conceived.

For the historian, the resonator is a thorny subject because it involves an intangible that no amount of research into recording technologies and lutherie can help explain. Five-time Grammy winner Cindy Cashdollar, lap steel player from the modern Texas swing band, "Asleep at the Wheel," said recently that she left the band because she just got tired of the sound of the lap steel. "Every lap steel sounds the same," Cashdollar said, "but every Dobro sounds different."[135] It all comes back to the human element of the instrument combined with mechanical amplification. It was a brilliant innovation.

[135] Cindy Cashdollar (wood-body, lap and pedal steel recording artist), interview with the author, January 31, 2009.

Bibliography

Interviews and Correspondence

Mike Auldridge—February 20, 2009
Auldridge was the first of resonator masters to redefine the instrument. His band, Seldom Scene, is still in exsistence. He has played on numerous recordings of other musicians, produces instructional DVDs and holds workshops across the country. Beard guitars produces a "Mike Auldridge" model of wood-body resonator,

Paul Beard—February 13, 2009
Beard is resonator guitar luthier. The best musicians in both country and bluegrass play his wood-body Hawaiian style resonators. Cindy Cashdollar, Jimmy Heffernan, Mike Auldridge and Jerry Douglas all use Beard's guitars.

Bob Brozman—Correspondence
Brozman is *the* expert on the National guitar and a recognized musicologist. He maintains an extensive touring schedule where he plays both Hawaiian and blues on a resonator guitar. His instructional videos are among the best sellers in the Homespun instructional video line.

Cindy Cashdollar—January 31, 2009
Cindy has won five Grammy awards with Texas swing band, *Asleep at the Wheel*, as their lap steel player. She has played with Ryan Adams, Rod Stewart, Van Morrison, Bob Dylan and a host of others.

George Gruhn—March 13, 2009
Gruhn is the dean of the vintage guitar business. In 1970 he established a store in Nashville, Tennessee with wood-body resonator pioneer Tut Taylor. He has authored dozens of articles for most of the major guitar magazines and publishes his own newsletter.

Jimmy Heffernan—January 5, 2009
As a wood-body resonator player, Heffernan has played on over 150 separate records. He has made multiple instructional DVDs on every aspect of wood-body resonator playing.

Steven James—January 30, 2009
James is a professional slide guitarist and author. He has recorded several solo records and has played on numerous records of other musicians. He has contributed dozens of

articles to all the major guitar magazines on bottleneck slide instruction and music history.

Steve Schell—Correspondence
Steve is an amateur luthier and is an expert on the history of loudspeaker technology.

Michael Taft—January 13, 2009
Taft is the head of the Folklife Center at the Library of Congress. He is a blues scholar and has authored several books on the subject.

Don Young—Correspondence
Don Young is the President of the National Resophonic Guitar Company. He worked for the Dopyera brothers in the 1960s and 70s until he commenced manufacturing guitars under the National name in 1987.

Primary Documents

Al Frost Collection
Al Frost was made head of shipping by the Dopyeras when the company moved to Chicago in the mid 1930s. In the late 30s he became president after Emile Dopyera left the company. Frost donated over 1500 documents from the National String Instrument Company, the Dobro Manufacturing Corporation and the National-Dobro Corporation to the National Association of Music Merchandisers, located in Carlsbad, CA. The collection includes all corporate correspondence, board of director minutes, catalogues, stock certificates, photos and records of legal proceedings.

Journals and Books

Abbott, Lynn and Seroff, Doug "They Cert'ly Sound Good to Me": Sheet Music, Southern Vaudeville, and the Commercial Ascendancy of the Blues," *American Music*, Vol. 14, No. 4, New Perspectives on the Blues (Winter, 1996).

Bacon, Tony. *The Ultimate Guitar Book*. London: Dorling Kindersley Limited, 1994.

Brozman, Bob. *The History and Artistry of National Resonator Instruments*. Anaheim Hills: Centerstream, 1998.

Charters, Samuel Barclay. *The Bluesmen : The Story and the Music of the Men Who Made the Blues*. New York: Oak Publications, 1967.

Coultman, "How the Depression Changed Country Music," *The Journal of Country Music.*

Evans, David. "Musical Innovation in the Blues of Blind Lemon Jefferson," *Black Music Research Journal*, Vol. 20, No. 1, Blind Lemon Jefferson (Spring, 2000).

Eyerman, Ron and Barretta, Scott "From the 30s to the 60s: The Folk Music Revival in the United States," *Theory and Society* 25, no. 4 (Aug., 1996).

Fischer, David Hackett. *Albion's Seed : Four British Folkways in America,* America, a Cultural History. New York: Oxford University Press, 1989.

Fred, Jim Fisch and L. B. *Epiphone: The House of Stathopoulo*. New York: Amsco, 1996.
Ginell, Cary, and Roy Lee Brown. *Milton Brown and the Founding of Western Swing*, Music in American Life. Urbana: University of Illinois Press, 1994.
Gioia, Ted. *Delta Blues: The Life and Times of the Mississippi Masters Who Revolutionaized American Music*. New York: Norton and Company, 2008.
Handy, W. C. *Father of the Blues: An Autobiography by W. C. Handy*. London: Sidgwick and Jackson, 1961.
Herzhaft, Gérard, Paul Harris, Jerry Haussler, and Anton J. Mikofsky. *Encyclopedia of the Blues*. 2nd ed. Fayetteville, AR: University of Arkansas Press, 1997.
Hirsch, Jerrold **"**Modernity, Nostalgia, and Southern Folklore Studies: The Case of John Lomax." *The Journal of American Folklore* 105, no. 416 (Spring, 1992).
Hood, Mantle "Musical Ornamentation as History: The Hawaiian Steel Guitar," *Yearbook For Traditional Music*, no. 15 East Asian Music, (1983).
Johnson, Orme "Musical Instruments of Ancient Hawaii", *The Musical Quarterly*, Vol. 25, no. 4 (1939).
Kanahele, George S. *Hawaiian Music and Musicians : An Illustrated History*. Honolulu: University Press of Hawaii, 1979.
Langrall, Peggy. "Appalachian Folk Music: From Foothills to Footlights," *Music Educators Journal* 72, no. 7 (Mar., 1986).
Lewis, "Storm Blowing from Paradise: Social Protest and Oppositional Ideology in Popular Hawaiian Music," *Popular Music*, Vol. 10, No. 1, The 1890s (Jan., 1991)
Lott, Eric. *Love and Theft : Blackface Minstrelsy and the American Working Class*, Race and American Culture. New York: Oxford University Press, 1993.
Lunde, Anders S. "The American Federation of Musicians and the Recording Ban," *The Public Opinion Quarterly* 12, no. 1, Spring, 1948.
Nelson, Scott Reynolds, and ebrary Inc. "Steel Drivin' Man John Henry, the Untold Story of an American Legend." New York ; Oxford: Oxford University Press, 2006.
Malone, Bill C. *Country Music, U.S.A.* 2nd rev. ed. Austin: University of Texas Press, 2002.
Malone, Bill C., and David Stricklin. *Southern Music/American Music*. Rev. and expanded ed. Lexington, Ky. London: University Press of Kentucky ; Eurospan, 2003.
Martin, Carol. Dance Marathons: "For No Good Reason", *The Drama Review: TDR* 31, no. 1 (Spring, 1987).
Maxfield, "Electrical Phonograph Recording," *The Scientific Monthly* 22, no. 1 (Jan., 1926).
Music, "Seven "New" Tunes in Amos Pilsbury's United States' Sacred Harmony (1799) and Their Use in Four-Shape Shape-Note Tunebooks of the Southern United States before 1860," *American Music* 13, no. 4 (Winter, 1995).
Pearson, Barry Lee. "Appalachian Blues," *Black Music Research Journal* 23, issue 1/2.
Quinn, Michael "Never Shoulda Been Let out the Penitentiary": Gangsta Rap and the Struggle over Racial Identity, *Cultural Critique*, No. 34 (Autumn, 1996).
Ruymar, Lorene. *The Hawaiian Steel Guitar and It's Great Hawaiian Musicians*. Anaheim Hills: Centerstream 1996.
Sclappi, Elizabeth. *Roy Acuff: The Smoky Mountain Boy*. Gretna: Pelican 1978.

Stefan Grossman, Bruce Bastin and Blind Boy Fuller. *Stefan Grossman's Early Masters of American Blues Guitar: Blind Boy Fuller*. New York: Alfred, 1993.
Thompson, Emily. “Machines, Music, and the Quest for Fidelity: Marketing the Edison Phonograph in America, 1877-1925”, *The Musical Quarterly* 79, no. 1 (Spring, 1995).
Tichi, Cecelia. *Reading Country Music : Steel Guitars, Opry Stars, and Honky-Tonk Bars*. Durham: Duke University Press, 1998.
Usher,Terrence “The Spanish Guitars in the Nineteenth and Twentieth Centuries,” *The Galpin Society Journal*, no. 9,(1956).
Volk, Andy. *Lap Steel Guitar*. Anaheim: Centerstream, 2003.
Wald, Gayle. *Shout, Sister, Shout! : The Untold Story of Rock-and-Roll Trailblazer Sister Rosetta Tharpe*. Boston: Beacon Press, 2007.
Washburn, Jim, and Richard Johnston. *Martin Guitars : An Illustrated Celebration of America's Premier Guitarmaker*. Emmaus, Pa. [New York]: Rodale Press ; Distributed in the book trade by St. Martin's Press, 1997.
Wheeler, Tom. *American Guitars : An Illustrated History*. Rev. and updated ed. New York: HarperPerennial, 1992.
Yurchenco, Henrietta "Blues Fallin' Down Like Hail" Recorded Blues, 1920s-1940s *American Music* 13, no. 4 (Winter, 1995).

Recommended Discography

The challenge for listening to early recordings of resonator guitars is that many of the recordings were released on 78s. Luckily, several labels that specialize in blues, country and world music have taken the time to compile these “sides” as they were referred to. Another problem is that some of the historically significant recordings, particularly at the Library of Congress, were recorded by John and Allan Lomax with recording equipment loaded into the back of a pickup truck. Dixon and Godrich produced a reference book of all blues and gospel records released from the period of 1890 to 1943 but even they were forced to publish a second edition to correct the healthy amount of errors made in their first attempt.

Fuller, Blind Boy
“Truckin My Blues Away, 1936, *Truckin My Blues Away*, Yazoo, 1060
“Untrue Blues,” 1937, *Truckin My Blues Away*, Yazoo, 1060

Graves, Josh(Lester Flat, Flat and Scruggs)
Foggy Mountain Gospel, 2005 remaster, Legacy, 92574
Foggy Mountain Jamboree, 1957, Legacy, 723932

Red, Tampa
“Things Bout Comin’ My Way” 2007, *The Road to Robert Johnson* , JSP Records, B000PSJA8U

Sol Hoopii
“Twelfth Street Rag,” October 12, 1927, Columbia, 1189-D
“Manao Hea Aloha,” October 12, 1927, Columbia, 1310-D
“I Ain't Got Nobody,” March 27, 1928, Columbia, 1384-D