

The Art of Luthiery: Impact and Backstory of the Guitar  
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## **Executive Summary**

This paper aims to educate people about the art of guitar making - Luthiery. Many people listen to guitars daily, in the background of a song, through a clip on social media, or hearing a busker playing in a square, but not many people know about the instrument's history and how it is integrated within many cultural identities. This paper is meant to teach people in a semi-technical way what goes into designing and building an electric guitar and to bring to light some prominent luthiers in the business. People should recognize that behind the music they listen to is a complex art form that has influenced musical artists and shaped American and international culture since its creation.

There are a lot of intricacies in the creation of the guitar, and many different methods and techniques that are not relevant to a general audience. Instead of delving into every possible variation of the guitar, I focus on the most integral parts and how each evolves in its own right. I also discuss some of the socioeconomic and cultural circumstances that influenced the changes in guitar.

These influences include political and cultural movements of the mid-20th century, as well as the guitar industry's effect on American foreign policy and the way American companies interact with overseas manufacturers.

After going over the history, I delve into the general categories that each guitar part falls into, and then how each part is constructed and the guitar is put together. I also briefly cover the electronic components of the guitar as well as the physics behind how it works.

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## **List of Definitions**

Stringed Instrument	-	An instrument with strings, like a violin
Tuning Pegs	-	The place where the strings of the instrument connect to the head
Solid Body	-	Guitar body without any material hollowed out
Hollow Body	-	Guitar body that is hollow
Bright/Muddy Sound	-	The tonal quality of the sound, when the sound contains more high frequencies, it is thought to be “bright” and vice versa.

## **1.0 Introduction**

### **1.1 Purpose**

This paper aims to educate people about the art of guitar making - Luthiery. Many people listen to guitars daily, in the background of a song, scrolling through social media, or a busker playing in a square, but not many people know about the instrument's history and how it is integrated within many cultural identities. This paper is meant to teach people in a semi-technical way what goes into designing and building an electric guitar and to bring to light some prominent luthiers in the business. People should recognize that behind the music they listen to is a complex art form that has influenced musical artists and shaped American and international culture since its creation. After reading this paper, I hope that whenever a guitar comes on you have a greater appreciation of the history behind the instrument, and the developments that brought it to your ears.

### **1.2 Scope**

There are a lot of intricacies in the creation of the guitar, and many different methods and techniques that are not relevant to a general audience. Instead of delving into every possible variation of the guitar, I focus on the most integral parts and how each evolves in its own right. I also discuss some of the socioeconomic and cultural circumstances that influenced the changes in guitar.

These influences include political and cultural movements of the mid-20th century, as well as the guitar industry's effect on American foreign policy and the way American companies interact with overseas manufacturers.

After going over the history, I delve into the general categories that each guitar part falls into, and then how each part is constructed and the guitar is put together. I also briefly cover the electronic components of the guitar as well as the physics behind how it works.

### **1.3 General History of the Acoustic Guitar**

The electric guitar began with its predecessor, the acoustic guitar. The acoustic guitar is one of the most well-known string instruments in the West and is a general extension of the stringed instrument family.

The exact origins of the modern-day acoustic guitar are hard to pinpoint, partly because there are so many variations of the stringed instrument; What is considered to be an acoustic guitar, at least historically, can vary depending on who you ask.

What people would recognize as an acoustic guitar began showing up in the 19th century (Team), characterised by a broader body, new wood bracing techniques, and mechanical tuning pegs. These guitars are known as classical guitars, the precursor to the steel string acoustic. Many people still use the classical guitar these days in a variety of musical styles like trap, folk, reggae, jazz, and rock.

The classical guitar was transformed into what we know today as the steel string acoustic guitar when Christian Frederick Martin, a German luthier, designed a new brace for the guitar so that it could handle the tension of a steel string versus the old nylon strings on the classical guitar (*Sweetwater X-bracing*). This allowed the guitar to project louder, and embrace a much brighter tone, letting it be much more pronounced as American music consumers gravitated towards the rock genres.

## **1.4 Developments into the Electric Guitar**

### **1.4.1 Background**

There were a couple of periodical changes to the acoustic guitar that turned it into today's solid body guitar, each evolving as people needed new things from the instruments that they played.

First, the acoustic guitars were not loud enough to play in a band, so they needed to have something that would allow them to project better in a crowded environment, or with other naturally louder instruments (Jenkins). This need led to the creation of the guitar pickup, which is essentially a magnet wrapped in copper wire that picks up changes in the magnetic field caused by the vibrations of the strings. The pickup converts the vibration into current, which allows us to put it through an amplifier to change the current into sound.

The first electric guitars were old lap steel guitars, which are laid horizontally on the lap and typically have strings a few inches off the fretboard (Jenkins). These lap steel guitars are closely tied to old Hawaiian music, and that is where their journey in the United States began.

### **1.4.2 The Delta Blues**

The origin of the electric guitar in the United States began with a Hawaiian teenager, Joseph Kekuku, who invented the lap steel guitar while still in high school. The story goes that he was walking along a railroad and picked up a railroad spike, then took it back to his room and developed a new style of guitar playing, the lap steel (*How the...*).

This eventually made its way to the continental United States, picked up by guitar legends like Robert Johnson, Mississippi John Hurt, and Muddy Waters, all playing a new style of guitar called Delta Blues (*Delta blues music*). Delta Blues gets its name from where it was born, in the Mississippi Delta. The genre marks a very important moment in music history: The first black guitar recordings to make it into recorded format, on old phonograph records back in

the 1920s. The musicians sang about life as an everyday man, working hard, and facing tribulations on their journeys.

The delta blues was the start of the blues in the United States, and since then has been intertwined with black culture and black musicians, from Mississippi John Hurt to Jimi Hendrix, to the modern-day blues renaissance player Gary Clark Jr.

After the lap steel guitar made its way to the United States, a company called Rickenbacker created the very first commercially available electric guitar, targeted at these original blues guitarists (*How the...*). Then began a period of slow integration of guitar pickups into acoustic guitars, creating a hybrid which is called hollow-body guitars. These are acoustic guitars that have an electric pickup, so they can be used as either one. For a while, there were no further major developments in the guitar, that is, until Les Paul.

### **1.4.3 Les Paul and Gibson**

Les Paul was considered one of the first jazz guitar virtuosos and was well-known before he created the first solid-body guitar. He began experimenting with various electronics tinkering with his mother and father's radios, and was a musician from a young age.

In an interview with MusicRadar, Paul discusses how he originally came up with the idea for a solid-body electric guitar, telling a story of a fan's comment about his guitar playing. The fan told him “[Paul], your voice is fine, your harmonica's fine, and your jokes are funny, but the guitar is not loud enough” (*Classic interview...*).

After the conversation, Paul went back to his house and began experimenting, creating and wiring his own pickups onto a normal acoustic guitar. What he found was that plugging the guitar into an amplifier created a lot of feedback, which is a high-pitched sound emitting from the amplifier and being acoustically amplified by the guitar. This vibrates the strings, which get

translated back into the amplifier and so on, creating a feedback loop which gets louder and louder. To combat the feedback problem, he first stuffed his guitar with towels and socks to dampen the sound but had the idea of creating a solid body guitar, which would acoustically amplify the sound a lot less, mitigating the feedback (*Classic interview...*).

Out of necessity, Les Paul took a big piece of wood, attached a guitar neck to it, and strung it up with some pickups, creating the first solid-body electric guitar shown below.



*Fig 1: Les Paul's "Log" Guitar (How Les...)*

Les Paul went to already established guitar manufacturer Gibson, looking to produce his guitars en masse, but was turned away for several years. Gibson did not see the demand for solid body electrics as Les Paul did, and so they shelved the idea for 10 years, until Leo Fender, the founder of Fender guitars, put out the very commercially successful Fender Esquire, a solid body guitar (*How Les...*). Now feeling the pressure, Ted McCarty of Gibson met with Les Paul to create the Gibson Les Paul, a line of guitars that has cemented its place in music history and is one of the most well-known and best-selling guitars to this day (*How the...*).

Some well-known guitarists who are known for their usage of the Gibson Les Paul are Slash of Guns N' Roses, Jimmy Page of Led Zeppelin, Billy Gibbons of ZZ Top, Billie Joe Armstrong of Green Day, and many more.

#### **1.4.4 The Rise of Rock**

Once Fender and Gibson each put out their first solid-body guitars, the demand swung upwards as musicians started adopting the new technology. Before, when people playing guitar could only really achieve a clean tone, musicians could add effects to their sound, like reverb, distortion, delay, and more. These variations to the guitar tone could be achieved through the amplifier or through a separate unit called a pedal, the creation and innovation of which are incredibly rich in history and are not covered in this paper.

These additional effects let musicians play with the intensity of the guitar, allowing it to be more present in the mainstream music media. What was previously only laid-back blues and jazz guitar riffs, the radio now began to play rock, with heavy guitar tones and fuzzy licks, inspiring youths all around the country. Alongside these developments, America's post-depression and post-war economy was booming, and American consumers rallied behind the waves of rock, everybody wanting to get their hands on a guitar.

Suddenly, guitars were not only desired by professional musicians but by millions of Americans all wanting to emulate popular early rock musicians like the famous Chuck Berry, who used an electric Gibson guitar to energise his music. Gibson and Fender, the two major electric guitar manufacturers at the time, could not come up with the supply to meet this demand, creating an opportunity for other companies to make their mark. Some of these guitar manufacturers took the same designs from Fender and Gibson, and released them under their name, incurring numerous lawsuits by the two companies to protect their intellectual property. The guitars involved in this lawsuit are referred to as the lawsuit-era guitars.

#### **1.4.5 The Lawsuit Era: Japan and the US**

The relationship between overseas manufacturers and American companies has been and will continue to be a hotly debated topic, and it is no different from the story of guitars. As American guitar companies ramped up their production in the states, there was a shortage of supplies, both in terms of capital inputs and manufacturing infrastructure. As a result, Gibson and Fender guitars began to see a decline in quality, leaving consumers wanting more. One of the people who capitalised on this gap was Harry Rosenbloom (Anbar).

Rosenbloom, a local luthier, attempted to fulfil some of this demand by himself, hand-making guitars and selling them out of his shop in Pennsylvania. In an interview with NAMM (National Association of Music Merchants), a music foundation, Rosenbloom tells the interviewer that he would run the store by himself, selling guitars and teaching students, working 20 hours a day if need be (*Harry Rosenbloom*).

In response to the demand, Rosenbloom turned to a Japanese guitar manufacturer, the Hoshino Gakki company, contracting them to make guitars to sell to the American market. To American consumers, East Asian manufacturers were looked down upon, so the Japanese company sold their guitars under the name Ibanez, named after a Spanish luthier (Anbar).

These guitars, at the beginning, posed no threat to Fender and Gibson, as the product was enormously inferior both in material and quality. However, by the 70s, these guitars were on par, if not better than some of the American guitars, at a much lower price point. These guitars were based on the designs by Gibson and Fender, but they could not do anything about it until one of the trademarks was violated (Anbar).

Gibson has a trademark on the ‘open book’ headstock, which they used to go after numerous Japanese-made guitars, some of which are depicted in the image below.



*Fig 2: Lawsuit Era Headstocks (Anbar)*

Each of these guitar manufacturers had to redesign their headstocks and create new variations. Ibanez did so, and in turn created many of their designs of guitars, cementing themselves as a major player in the worldwide guitar market. To this day their instruments are widely used, especially within the hard rock and metal genres by guitarists like Steve Vai, Joe Satriani, Paul Gilbert, and many more.

The lawsuit era of guitars is an important stepping stone for the relationship between American companies and overseas manufacturers - most American guitar manufacturers these days have invested heavily in overseas manufacturing to create cheaper products of equally high quality, building manufacturing in Mexico, China, Japan, Indonesia, and many other countries.

This development made many guitars much more affordable so that anybody who wants to try their hand can do so, something which decades after this happened, allowed me to purchase my first guitar and learn on it.

Nowadays, foreign policy is an incredibly important topic that is debated in almost every political debate, and much of it has to do with overseas contracting. The impact that the guitar industry had on these relationships has not and will not be forgotten, leaving a lasting impression and impact on American trade.

## 2.0 Electric Guitar Components

### 2.1 Pickups

The most important part of the electric guitar is the guitar pickup, it is what actually “picks up” the vibration from the strings and converts it into sound that is output from the guitar into an amplifier. There are hundreds of different pickup types, but they broadly fall under three categories: Single coils, humbuckers, and P90s. Each of these types are shown below.



*Fig 3: Different types of Pickups (Electric Guitar Tonewood...)*

Single coil pickups are wound around one set of magnets, and as a result, have a lower output than humbuckers. This means that the single coils sound brighter than humbuckers, and the main drawback is that they are less able to handle distortion, so they are less used in heavier genres like metal or hard rock. Another drawback is that they suffer from 60-cycle hum, which is essentially electrical noise that gets amplified.

The humbucker is designed to eliminate this problem, as it is two single coils wired so that it produces a sound that is out of phase from each other. This means that the 60-cycle hum, when the waveforms are combined, will cancel each other out and not generate any noise. As a result of having two single coils, the output is much greater and is well-suited for most genres.

The P90 pickup is a medium between the two, and is essentially a single coil with more winds in it, giving it a higher output. Unfortunately, it does fall to the problem of the 60-cycle hum.

Since their creations, many more variations have been created, and there are even variations within the basic categories, like the type of magnet, the number of winds, or even the height of the magnets above the casing.

## 2.2 Guitar Shape Options

The electric guitar does not need to project its own sound, as the sound is instead played through an amplifier, allowing infinite variations to the body. As such, many luthiers have taken advantage of this to create far-out designs, some of the variations of which are shown in the following image.



Fig 4: Different Body Shapes of Guitar (Electric guitar body)

Ultimately, the shape of the guitar body is completely up to the builder, but most of the commercially available bodies resemble some small variation of the body of the original Fender Stratocaster or the Gibson Les Paul, both of which are shown below.



*Fig 5: Les Paul and Stratocaster (GuitarQuarter)*

## 2.3 Neck Joinery Options

There are multiple ways to fasten the neck of the guitar to the body, and each has some impact on the guitar tone and sustain. The three main methods are the bolt-on neck, the set neck, and the thru-neck.

The bolt-on neck is generally the cheapest and easiest of all of the options and involves building the neck and the body separately, then attaching the neck to the body via screws. This method is how Fender constructs nearly all of their electric guitars, and it offers versatility in terms of changing out necks if something breaks, or if the player wants to change it up. This comes at the expense of sustainability, which is how long a clear note can ring out.

The set neck is another way that the neck is attached to the body. The neck is set into the guitar body and glued so that it is very hard to separate the two. Because this connects both together so well, the guitar is better in terms of sustain, but if something breaks it is a lot more expensive to repair the guitar.

The last option, the thru-neck, refers to the fact that the neck is carved from the same piece of wood as the body, and extends itself all the way the length of the guitar. The sides of the

guitar are then glued to the centre channel. This yields a great sustain, but suffers from the same issue as the set neck, in addition to being more expensive to produce in terms of labour and skill.

## 2.4 Neck and Fretboard Options

Generally, the neck has a limited amount of variety. There can be more frets, like Gibson's standard 22 frets versus Fender's standard 21. The biggest difference across necks is the profile which is the curve on the back of the neck. The differences in how they are profiled are small, but in the hands, the difference between a C shape and a D shape is immediate. Here are some common profiles.

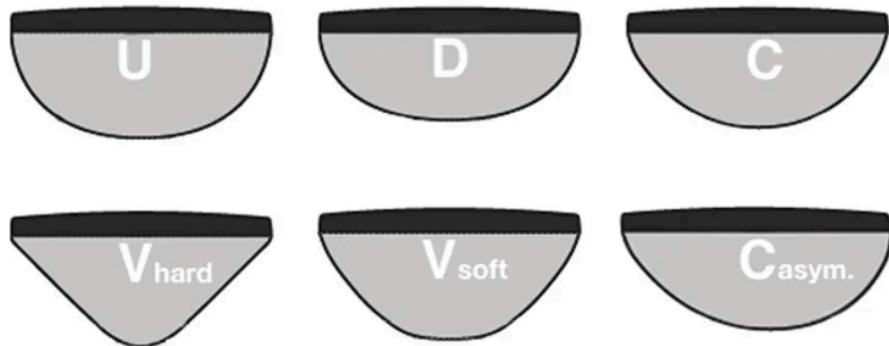


Fig 6: Different Neck Profiles (Thin...)

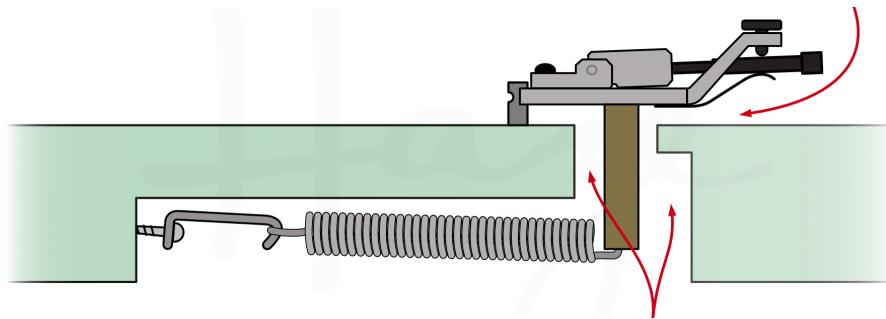
The fretboard generally is sorted into two types, the finished fretboard, and the unfinished fretboard. Unfinished fretboards are typically a separate wood from the neck, and a dark wood, like ebony or rosewood, that does not need to be protected as much as a wood like maple. Maple does need to be protected, so it is finished over with a smooth lacquer. Ultimately, it falls to the musician to determine which one they like better, but some companies like Gibson, make exclusively unfinished fretboards, while Fender offers the option between the two.

## 2.5 Bridge Types

The last choice for making the guitar is what kind of bridge you wish to use. There are broadly two options, a floating bridge and a fixed bridge.

The fixed bridge is extremely simple and is essentially just a place on the guitar that you can attach your strings to and forget about.

The floating bridge is a little more complicated than a fixed bridge. Floating bridges are similarly a place to attach your strings, but it is not a static system. It is attached to the body on one side like a lever, allowing you to move it up and down to tension and de-tension the strings, allowing for quick and smooth changes in pitch. This system is more commonly known as the “whammy bar,” and an image of it is shown below.



*Fig 7: Side View of Tremolo System (Hayes)*

## 3.0 Making of a Guitar

### 3.1 Woodworking

Woodworking is perhaps the most important and the most labour-intensive part of the process. This paper goes over each step, but realistically, many luthiers and tinkerers only make some of their parts and purchase the rest of them.

### 3.2.1 Making the Body of the Guitar

The first step in the process is making the body of the guitar. This is usually done by taking the piece of wood that you are going to be using, and putting it through a planer. A planer is a tool used to flatten a piece of wood so it is the same thickness everywhere. You then take the piece of wood, draw on your shape design, and then cut it out using a router. From there, you route out all of the cavities that you are going to need to house all of the electronic components. For reference, here is what a finished guitar body would look like.



*Fig 8: Finished Stratocaster Body ([Source](#))*

### 3.2.2 Making the Neck of the Guitar

Making the neck of the guitar is a similar initial process, but in general, it is much harder to get right. First, you take the wood you will be using and cut it to width. After this, you have to sand down the front of the neck where the headstock is, so that it is lower than the rest of the neck. After this, you have to carefully measure and drill holes for the tuning pegs that the strings will be attached to.

An incredibly important part of the neck is the truss rod. The truss rod is essentially two parallel rods that you can change the tension off to bow it in any direction. When the guitar is

assembled, the neck may be too ‘loose,’ resulting in the strings being too far off the fretboard.

With the truss rod, you can adjust the tension to ‘tighten’ the neck, lowering the string height to a more playable level. This is incredibly important, as some guitarists, like the infamous Stevie Ray Vaughan, play with very thick strings, and the truss rod is used to counter the increased bowing caused by the greater tension from the strings.

The back of the neck is often hand-sanded and checked regularly by the luthier to make sure that the desired neck profile is achieved. The neck profiles are outlined in section 2.4.

An image of what a finished neck might look like is below. The blue channel is a truss rod, and it is tightenable by an Allen wrench from a cavity at the top of the neck, by the headstock.

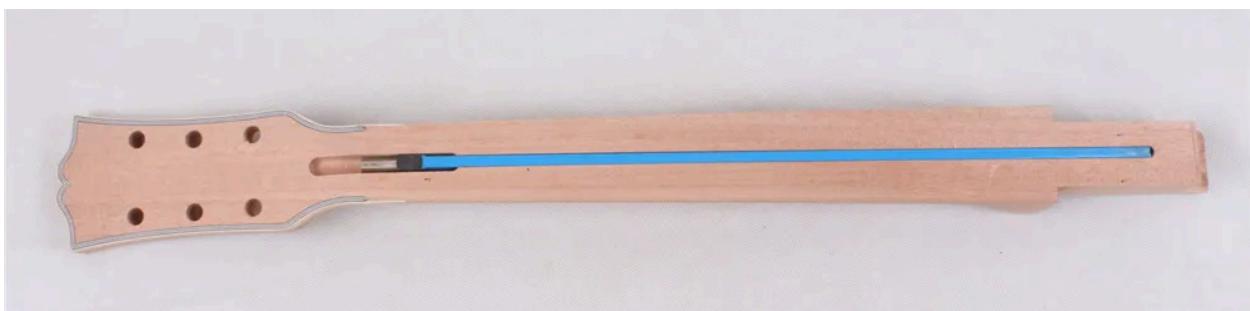


Fig 9: Unfinished Guitar Neck ([Source](#))

### 3.2.3 Making the Fretboard of the Guitar

The fretboard of the guitar is a fairly simple process, but quite tedious. This is because the placements of the frets require high precision so that the right note rings out on each fret, and is in tune. Often, what a luthier will do is put the fretboard on the neck without the frets, put the guitar together, and then mark down where each note is experimental. Then, they would put the frets in each of the correct places.

The wood for the fret is glued on top of the neck over the truss rod channel. Once dried, the measurements for where each fret goes are drawn and then cut out with a routing bit or a

computer-controlled cutting machine to guarantee precision. After this, a special fret wire is tapped in place with a mallet, then ends cut off and filed down.

### **3.3 Hardware Components**

The main hardware components of the guitar are the bridge, the nut, and the tuners. The placement of the bridge needs to be precise on the body, because of the way that the Western musical system is standardised. The Western music system functions on whole notes, A, A sharp, B, C, and so on. The difference in frequency of each of these notes goes up exponentially, which is the reason why frets get thinner as they get to higher registers. The distance between each fret has already been calculated for certain scale lengths, or the distance between the nut (where the strings rest on the top of the neck), and the bridge (where the strings rest on the body). As a result of this, the bridge needs to be placed an exact distance away from the nut, so the construction of the neck can be simplified.

Once the bridge and the nut are drilled and glued onto the guitar, the purchased tuning pegs are installed onto the headstock. There are two main types of tuners, free tuners, and locking tuners. With a floating bridge, it is better to use locking tuners, as they prevent the string from slipping at the peg. This is important so that when using the whammy bar, the strings return to perfectly in tune. With a fixed bridge, this is less necessary, so the cheaper free tuners will work fine.

### **3.4 Electronic Components**

Four main electrical parts are on most electric guitars. The pickup, the potentiometers (pots), the pickup selector, and the output jack. Pickup selection is covered in section 2.1.

### **3.4.1 Wiring Pots and Switches**

The pots and switches can do many things on a guitar, but for a lot of guitars, the functions are fairly simple. Assuming there are multiple pickups, the switch changes which of the pickups is outputting sound. There are usually at least two pots, and one of them will control the tone of the outputted sound, and the other will control the volume.

The output from the pickups is first sent to the tone potentiometer. This potentiometer is attached to a capacitor, which in guitar electronics essentially functions as a filter for frequencies. Changing the resistance of the potentiometer will allow frequencies beyond a certain range to flow through the rest of the circuit.

Next, the output is sent to another potentiometer which controls the volume of the circuit. By turning it up, the resistance from the potentiometer increases, causing the sound to stop being transmitted.

Lastly, the output is sent into the output jack, which sends it along a mono TRS cable to an amplifier, which converts the frequency from your guitar output into vibrations of the speaker, creating audible sound for us to hear.

### **3.4.2 How Pickups Work**

Pickups are extremely fascinating in the way they are constructed and in how they work. A pickup is six magnets all with their poles lined up, surrounded by thousands of loops of copper wire. The physics behind it is separated into two schools of thought, the magnet-centric, and the string-centric model. Both of these rely on a physics concept called magnetic flux, which at its core explains that when an object disturbs a magnetic field, it creates a current in any conductive material around it.

The magnet-centric model posits that as the string vibrates over the magnetic field caused by the magnets in the pickup, it causes a flux in the field. This flux translates into a movement of current along the copper coils which is then sent throughout the rest of the circuit into the amplifier.

The string-centric theory is very similar, however, it states that the magnets only exist to magnetise the strings, which means that the strings themselves create their flux while vibrating, which would then change the current. Either way, the result is the same.

### **3.4.3 Electronic Installation**

There are two options for installing electronics: directly onto the guitar, or onto a pickguard that is then screwed to the guitar. Fender makes most of their electronics onto a pickguard, which is useful for people who don't know that much about electronics and just want to buy a pickguard which has everything attached and install it themselves. The other option, which is seen on most Gibson instruments, is mounting the electronics individually onto the guitars. The guitars have channels drilled into the body to allow wires to go where they need to, but overall the finish is cleaner.

## **4.0 Luthiers**

### **4.1 Yuriy Shishkov**

There are thousands of incredibly qualified luthiers all around the world, but there are a few that have stood out in terms of their story.

The first luthier is Yuriy Shishkov, who has created some of the most intricate guitars for the Fender Custom Shop in years. He grew up in Soviet Russia, where rock music was banned. Despite this, he would still listen to it on the radio but was unable to play the music he wanted to because of the closed economy (Garfinkel).

Instead, Yuriy taught himself how to make his guitar, building guitars for the people out of the root cellar under his house (Garfinkel). Below is a picture of where he worked.



*Fig 10: Yuriy's First Shop (Garfinkel)*

Yuriy then moved to the United States, working for a company called Washburn, before moving to Fender and becoming a Master Builder, one of the highest stations a luthier can hold (Garfinkel). One of his most famous works is a Fender Stratocaster, bejewelled with \$450,000 worth of diamonds. This guitar was displayed at the National Association of Music Merchants showcase in 2019.

## **4.2 Paul Reed Smith**

Paul Reed Smith is the gold standard of every luthier's dream. He began his guitar-making journey much different from Shishkov, starting as a teenager in high school, challenged by his teacher to make a guitar (Drozdowski). From there, his love of luthiery grew, and so did his business. It started as a small-scale operation, building his guitars and trying to sell them to gigging musicians that he would go to concerts to meet. One of these musicians was the electric Carlos Santana, who still plays a PRS to this day as his signature guitar. From there he kept on expanding, and now is the owner of one of the most popular guitar brands in the world.

Furthermore, he still holds to the community around luthiery. PRS prides itself upon their inspections and quality control and consistently puts out well-made instruments. Smith doesn't sit

in his office, but instead walks on the factory floor, helping people out with their tasks and making sure everything is flawless (Drozdowski). I have tremendous respect for what he does and what the PRS brand does for luthiery.

## **5.0 Conclusion**

The art of luthiery combines multiple disciplines and has shaped American culture, from the people that it inspired, to the relationships it helped build. It represents one of the functional arts that has made it past the age of automation, where you can still find a handbuilt instrument made by someone passionate about their art. I hope that in reading this paper, you found it even a little bit interesting, and it inspired you to look at the everyday guitar in a new light - seeing the impact it has had on so many people and the progress it helped drive, from directing American foreign policy to the proliferation of ideas and musical styles across the world.

The guitar industry has grown with American culture and has touched everybody, whether you play the instrument or not. It has shaped the way music is recorded and produced and has been the driving force behind musical movements since its inception. It is an important part of history, and even if you didn't know it, has affected the way you appreciate music and life around you.

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