The Significant Role of the Fingernails in the Production of Tone on the Classical Guitar

By Daniel Nistico

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This is to certify that

(i) This dissertation comprises only my original work towards the Bachelor of Music Performance Honours, Melbourne Conservatorium of Music, The University of Melbourne.

(ii) Due acknowledgement has been made in the text to all other material used,

Signed,

Daniel Nistico
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CHAPTER 1
INTRODUCTION

1.1 Need for the Study

Since the guitar is nothing without its sound, one might expect all the instruction books to be full of useful information on how to produce and vary the tone. However, this is not the case. Most of the books fail to give any detailed instructions on the action of sounding a string, and the ones that do contradict each other at every turn.

—John Taylor, Tone Production on the Classical Guitar

In the 21st century, tone production plays a vital role in the communicative and expressive powers of the classical guitar and fingernails form a core part of a guitarist’s means of providing this resource. Debate and uncertainty still lies as to how tone is specifically produced on the classical guitar. A limited amount of literature exists regarding tone production for the modern classical guitar. Within many of these limited texts, the fingernails are often overlooked, or are not given the emphasis they are due.

As opposed to the 19th century and before, the 21st century regards the classical guitar primarily as a concert instrument. The 20th century saw the transition of an instrument not taken seriously, to one that is regarded as a serious concert instrument. “During [this transition period] the classical guitar has evolved from being a rarity in the concert hall to become a familiar instrument in all the major recital centers of the world.” (Wade 1980:xi) Transition periods inevitably lead to change, and tone
production and its elements comprise one of the most significant changes of the classical guitar in the 20th century. The significance of the fingernails was one of the key elements of these changes.

The classical guitar is capable of producing a wide palette of tone colours that may be produced by a thorough understanding of the fingernails and their role in the production of tone. The popular cliché, attributed to Ludwig Van Beethoven after hearing the Italian guitar virtuoso Mauro Giuliani, that the guitar is a miniature orchestra within itself, highlights the classical guitars tone production capabilities.

As a performer, I personally believe tone to be the ultimate force that communicates musical meaning to listeners. For myself as a guitarist, the quality of the fingernails has a direct correlation to the quality of tone projected. In the past, I have personally experienced difficulties with maintaining reliable, healthy fingernails and observe this trend occurring amongst fellow students and colleagues.

From personal experience as a private studio teacher, I have witnessed a general lack of awareness amongst students toward the fingernails and their significance in the role of creating sound on the classical guitar. Once fingernails are shaped and buffered accordingly, an instantaneous transformation in the quality of tone is often evident to both the student and myself.

I believe that a general lack of awareness exists between both performers and students toward the significance of the fingernails. Furthermore, I am constantly wondering why insufficient resources exist regarding this imperative aspect of tone production that provides a holistic understanding of fingernails for guitarists.
It is common knowledge amongst musicians that instruments such as the violin and piano have significant resources to refer to regarding tone production and the components that comprise it. In comparison, the classical guitar has a significant paucity of literature that explicitly focuses on the fingernails and their significance in tone production. In addition, the utilization of the fingernails has not been long established as a norm for the classical guitar. Given these factors, it is desirable that further research in the chosen field is undertaken in order to fully understand the finer points of the fingernails and their significance in the role in tone production on the classical guitar. Without the complete understanding of this vital element of music making, the pedagogy of the classical guitar will remain ambiguous and inconsistent.

1.2 Methodology

This dissertation presents the governing principles of fingernails and their role in tone production in a methodical format and describes their practical application. In this field of research, it is important to refer to the leading pedagogues of the 20th century. Examining their methods assists us in drawing valuable conclusions regarding how and why guitarists produce the tone they do.

Before this dissertation focuses on the physiological elements that comprise the fingernails and tone production, an investigation into the characteristic elements that embrace classical guitar tone will be presented. This will be combined with a brief historical outline of the major contextual features regarding the evolution of tone on the classical guitar that took place in the 20th century. These two considerations will be
valuable in discovering the significance of the fingernails on the classical guitar in the 21st century.

1.3 Limitations of the Study

Exploring and analyzing specific physical technicalities produces difficulties, as tone production is governed by many principles, including posture and the left hand, particularly vibrato. It is also difficult to separate and analyze the different components of tone production, as they are all inter-related. The principles highlighted in this dissertation will not be fully adequate to having complete understanding and control of tone production on the classical guitar. The principles in this dissertation will serve as a foundational basis for creating desirable characteristics of tone. The main feature of this dissertation will be to highlight the significance of the fingernails and their role in producing desirable characteristics of tone on the classical guitar.

Fingernails are an inherent part of human beings, so it could be fathomed that there are as many varieties of fingernails as there are people. It is difficult to procure solutions and methods that suit each individual. Generalizations will be inevitable within research of this kind, as it goes beyond the scope of possibility to delineate a specific approach to tailor each individual’s unique needs.

The defining characteristics of tone presented in section 1.6 may alter to suit the character and spirit of the music. It may be appropriate at certain times to create tone that is contrary to these general principles. It could additionally be suitable to employ the use of flesh to create a convincingly authentic appeal. Emulating a lute or other plucked relative of the classical guitar can be done effectively with the use of the flesh.
“Beyond this, there is one particular sort of nail tone which amounts to a core of sound linking these expressive variations. It is a characteristically bell-like tone that couples expansive sonority with clarity.” (Duncan 1980:51)

Ultimately personal preference will govern these personal issues. This dissertation does not serve to be a comparison between nail and flesh playing, or between what is correct and in correct in regards to the available literature. The ultimate objective is to assist readers in cultivating a general foundation of tone containing desirable characteristics, bringing attention to the significance of the fingernails role in achieving these characteristics.

1.4 A Brief Outline of the Developments of Tone Production on the Classical Guitar in the 20th Century

The beginning of the 20th century signified a time of radical change for the classical guitar. The instrument underwent innovative developments in construction, mainly attributed to the Spanish luthier Antonio Torres. Torres increased the scale length and size of the instrument and altered the structure of the soundboard, essentially creating an increased dynamic and tonal range. (Wade 1980:133)

Performers and composers for the instrument increased in both quality and numbers, resulting in an expansion of substantial repertoire. This inevitably led to new developments in the pedagogy of the instrument that, among other factors, had considerable consequences on the concept and utilization of tone.

The transition from using the flesh to pluck the strings, a convention that was favorable throughout the 18th and 19th centuries, began to shift towards a preference for the use of the
fingernails.¹ In the 21st century, many of the most significant guitarists, including John Williams, Manuel Barrueco and David Russel employ the use of fingernails to produce tone. The British guitar pedagogue John Duarte offers valid reasoning behind why fingernails are used by many significant guitarists:

“It cannot be proved, like a mathematical proposition, that the use of nails produces a superior sound but, because of its greater precision and the wider variety of tone it makes available, it is the way in which every concert artist of significant caliber now plays.” (Duarte 1975:18)

1.5 The Legacy of Andres Segovia – the Transformation of the Guitar

The Spanish guitarist Andres Segovia is considered to have almost single-handedly elevated the status of the classical guitar in the 20th century. Graham Wade acknowledges the extent that Segovia achieved this, stating that, “Segovia became a legend in his own lifetime, raising the guitar to the level of a serious recital instrument, establishing a repertoire, and passing on the flame of inspiration to the great players who continued his example.” (Wade 1980:149).

A major distinction of Segovia’s playing style was the innovative approach to sound that he created. “Segovia used a combination of flesh and nail to produce a ‘liquid’ sound of great fullness and volume.” (Taylor 1978:57) This liquid sound comprised a part of Segovia’s touch, attributed to his innovative fingernail utilization. Due to the increasing influence of Segovia, his

¹ For more detail on the subject of the history and development of flesh and nail playing, refer to (Wade 1980) G. 1980.
“liquid” tone proliferated amongst amateur and professional guitarists².

One of Segovia’s key visions was to create a new repertoire of substantial music, written by non-guitarist composers. Segovia commissioned composers to write substantial works for the instrument and was the first personality to do so in the history of the instrument. (Wade 1980:152) Segovia began this journey in Spain, approaching composers Frederico Moreno Torroba and Mario Castelnuovo-Tedesco among others. As the body of repertoire began to grow, Segovia approached composers from other nations of Europe and as well as South America. These encounters eventually gave rise to the “Segovia Guitar Archives series, the most significant publishing venture for the instrument that the world had seen.” (Wade 1980:153)

Many of these new works demanded subtle grades of expression from the instrument. Included among these elements are increased dynamic contrasts and complex textures and colours. These subtle shades of expression required a versatility regarding the production of tone, particularly with regards to the utilization of the fingernails. A stunning example of some of these qualities can be seen in the first three bars of Manuel de Falla’s only masterpiece for the guitar, Homenaje, Pour le “Tombeau de Claude Debussy” (Falla 1926) -

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² For more information about Segovia and his playing style, refer to (Bobri 1972)
Example 1. The first three bars of *Homenaje, Pour “Le Tombeau de Claude Debussy”* (Falla 1926)

Example 1 is characteristic of De Falla’s complete work, exploiting sudden changes of dynamics, intermingled with subtle crescendos and de-crescendos. Specific articulation markings alternating with complex and demanding rhythmic flourishes create a core part of the musical architecture. The melodic material in this excerpt is in a low tessitura for the instrument, which would be difficult to project with clarity and conviction without the appropriate use of the fingernails. Works of this idiom form a standard part of the classical guitar’s repertoire in the 21st century.

1.6 Characteristics of Tone Production on the Classical Guitar

Defining tone can be a controversial issue, as tone is a multidimensional force, which ultimately relies on the individual’s subjective views, beliefs and experiences. Tone is also a difficult phenomenon to express without aural demonstration. Despite these difficulties, definitions are presented within 20th century guitar literature that attempts to define classical guitar tone in a general sense. In order to produce valuable conclusions, the principle definitions will be drawn together. A foundation of general characteristics of tone will be developed to create a point
of reference to work toward before transmitting into physiological guidelines for the fingernails and their utilization.

One of the most significant defining characteristics of tone on the classical guitar in the 20th century is the use of the fingernails. This feature creates certain distinguishing properties in the sound produced. Hector Quine highlights this feature in his book *Guitar Technique* (Quine 1990), stating that “the nail is capable of producing a louder note, a wider range of tone color, and, above all, far greater clarity of attack.” (Quine 1990:24)

Quine approaches defining characteristics of tone by identifying the desirable and undesirable features that constitute tone on the classical guitar. The features that Quine outlines can be broken down into four categories - (1) The avoidance of extraneous noises, (2) clarity of attack, (3) the absence of tinny or thin qualities and (4) the cultivation of qualities containing weight or body of tone. (Quine 1990:26-27)

Lee Ryan, in *The Natural Classical Guitar* (Ryan 1991), formulates similar concepts by referring to significant guitarists of the time, posing the question “what is the tone concept of the major concert guitarists today?” (Ryan 1991:116)

According to Ryan significant guitarists use their fingernails as they enable a brilliance and variety of tone colours. Qualities embodying clarity, sweetness and etherealness are core elements of significant guitarists tone production along with a suppression of harsh, scratchy or other extraneous sounds. (Ryan 1991:116)

In order to describe where this particular sound emanates from, Ryan quotes Andres Segovia, who remarked, “this physical
beauty of sound is not the result of stubborn will power but springs from the innate excellence of the spirit” (Ryan 1991:116)

Alternatively, John Duarte, in *The Bases of Classic Guitar Technique* (Duarte 1975) proposes a criterion regarding the major physiological factors that affect tone - (a) The character and condition of the nails, (b) the formation and texture of the fingers and (c) the angle of the hand in relation to the line of the strings. (Duarte 1975:19)

Another aspect concerning the conception of tone production must be acknowledged, one that can be generally overlooked - *the imagination*. How can we stir the mind’s imagination to produce a conception of desirable characteristics of tone?

Ryan suggests that the imagination can be stirred by firstly forming the desirable tone’s existence in your inner ear. One valuable approach of forming this conception is to listen attentively to significant guitarists and other instrumentalists both live and recorded. (Ryan 1991:117) This produces a starting point of solid foundation in order to begin applying the physical principles associated in this dissertation.

In Abel Carlevaro’s *Guitar School* (Carlevaro 1984), some intriguing insight into the integration of the imagination into practice is presented:

“Details (which are as numerous as the notes in the music to be played) are brought fully to life only when they are incorporated in a piece as consciously studied elements. *Imagination* which is required for this work, is of extreme importance since it guides technical development; in conjunction with *systematically logical study*, it serves to order the whole cohesively.” (Carlevaro 1984:29)
1.7 Literature Review

_Tone Production on the Classical Guitar_ (Taylor 1978) by John Taylor provides scientific analyses of the study of acoustics and although published in 1978, it remains a significant text in the 21st century. The text is divided into two main sections. The first section primarily focuses on acoustics, including frequency, the behavior of a plucked string and the string’s effect on the soundboard of the guitar. Section two places the conclusions found in section one into a physiological context, describing how hand position, finger action and fingernails affect tone production and offers practical solutions for these issues. Taylor’s principle theory regarding the fingernails is their important function as a ramp, a concept that will be discussed further in Chapter 2 and is a significant concept of this dissertation.

Issues regarding guitar technique from a physiological and psychological perspective are covered in Lee Ryan’s book _The Natural Classical Guitar_. Ryan investigates issues concerning visualization and quieting the mind. An extensive amount of information is presented regarding fingernails, filing and nail care. Charles Duncan also covers these fingernail issues in detail in _The Art of Classical Guitar Playing_ (Duncan 1980). There are no two texts within guitar pedagogy that cover issues concerning fingernails to the extent of these two.

_Classical Guitar Pedagogy_ (Glise 1997) by Anthony Glise is one of the most extensive books written on guitar instruction, primarily aimed at teachers as opposed to students. Glise presents issues concerning posture, teaching, practicing, performing, stage etiquette and anatomy of the hands. In terms of physiological guidelines, Glise emphasizes the importance of the knowledge and understanding of anatomy. Glise does not include information
in regards to nail filing, stating, ‘...there is absolutely no way to generalize and say ‘this is correct, and this isn’t.’” (Glise 1997:33) This dissertation will seek to demonstrate that generalizations can be explored regarding nail filing, from which individual preferences may alter. Glise explores issues concerning nail shapes and arches, which are valuable for the purposes of this dissertation.

The Bases of Classic Guitar Technique by John Duarte and Guitar Technique by Hector Quine are two classic 20th century guitar technique expositions. Both texts present a substantial quantity of information regarding right hand position, finger action and tone production, however do not present substantial information on fingernails. Quine’s text is more substantial overall, covering issues in depth concerning posture, interpretation and practicing. Quine provides detailed information on finger action, tone production, the thumb, right hand faults, dampening and chords.

Abel Carlevaro was one of the most influential guitar pedagogues of the 20th century. Carlevaro’s Guitar School offers insights into techniques such as pizzicato, dampening and fixation – among one of the most extensive texts in guitar pedagogy. Carlevaro’s text contains very brief and general information regarding the fingernails, which is a mystery considering the great scope of the text.
1.8 Chapter Outline

Now that general guidelines regarding characteristics of tone and the significance of the fingernails have been covered, this dissertation will present two main chapters. Chapter 2 will be the most substantial section, analyzing and highlighting the significance of the fingernails and their effect on tone production. Issues concerning nail filing, nail shape and nail care will be covered in detail.

Chapter 3 will cover concepts regarding the utilization of the fingernails, drawing from the theories of major 20th century pedagogues. Chapter 3 will be comparatively brief, primarily focusing on the angle of the wrist and the action of the fingers. Their affect in regards to creating desirable and undesirable characteristics of tone will be highlighted. The position and action of the thumb will be analyzed, as it requires special consideration. This dissertation will close with a brief conclusion, which will summarize the major concepts presented throughout all chapters.
CHAPTER 2

THE FINGERNAILS

The shape of the nail is the most important factor in producing a good sound and will indirectly affect the right hand position.

—Anthony Glise, Classical Guitar Pedagogy

Introduction

This dissertation will now begin dealing with the function and mechanics of a seemingly insignificant part of the human body - the fingernails. For classical guitarists, the fingernails are anything but insignificant, as they produce a core part of the process of the production of sound for the classical guitar. As stated in section 1.6, the character and condition of the nails comprise one of the key physiological criteria affecting tone on the classical guitar. Additionally, the introduction outlined the significant, defining role of the fingernails in the production of tone within the 20th century.

Fingernails are prone to brittleness, cracking, splitting and tearing; they are affected by climate, humidity and diet, and as a result can cause many portentous issues for a guitarist. Fortunately there are artificial fingernail systems and fingernail products available that can produce effective results.6 This chapter will primarily focus on the process of filing the fingernails and will provide information and analyses regarding

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6 For further reading regarding fingernail products and artificial nail systems refer to (Stover 2005)
fingernail shapes, contours and arches. The issue of nail care will conclude the chapter.

2.1 Onset Transients

The behavior at the onset of a note can be defined as its' starting or onset transient, which characteristically distinguishes the timbre from one instrument to another, or indeed from one instrumentalist to another on the same instrument.

The character and condition of the nails play a significant role in determining the onset transient on the classical guitar – rough nails are inclined to produce a rough tone and thin nails will have a propensity to produce a thin tone. (Duncan 1980:50)

The onset transient of the string has an instantaneous effect on the soundboard, which is very sensitive to the manner and direction in which the string is plucked. On the classical guitar, the onset transient results as a secondary sound in a faint thudding sound at the initiation of a note. (Taylor 1978:42)

In addition, onset transients are drastically influenced by the angle and manner at which the fingernail is presented to the string. (Taylor 1978:53) In order to facilitate the production of desirable characteristics of tone, the fingernail must essentially function as a ramp.
2.2 The Fingernail Functioning as a Ramp

The ramp created by the fingernail comprises two dimensions, as shown in figure 1 – (1) its length, represented by ‘l’ and (2) its depth, represented by ‘d.’ (Taylor 1978:53)

![Diagram of nail functioning as a ramp](image)  

**Figure 1. The two dimensions of the nail that function as a ramp.** (Taylor 1978:53)

In order for the fingernail to function effectively as a ramp, it performs a double action. The first is a gradual release of the string, which is vital, as “...any abruptness in the initial motion of the string tends to give a hard edge to the sound.” (Taylor 1978:53) This is due to the fact that upper partials are excited by the discontinuity of two variables, space and time. In regards to space, the use of sharp pointed objects tends to excite the upper partials of a string. Suppressing these upper partials is a matter of utilizing a rounded plucking object. (Taylor 1978:25) In regards to a discontinuity of time, if a string is put into motion suddenly, the sudden removal of force will excite the upper partials of a string. (Taylor 1978:26)
The second ramp like function of the fingernails – releasing the string in a downward manner, increases the perpendicular vibration component of a string. This results in facilitating body and weight of tone. (Taylor 1978:46)

When the nail is presented perpendicular to the string, the ramp created by the two dimensions - its length and depth, create such a steep angle that the string will be unable to slide smoothly across the ramp. (Taylor 1978:55) This results in a sudden release of the string and is likely to excite the upper partials, resulting in tinny and harsh qualities of tone. However when angled correctly using its edge, the nail creates a gradual ramp, enabling the string to ride smoothly along it. (Taylor 1978:55) Due to this factor, in order to allow for the production of desirable characteristics of tone, it is necessary to avoid presenting the tips of the fingernails to the strings.\(^7\)

Another crucial element of the ramp like function of the fingernail, which comprises and influences fingernails length and depth, is its shape.

\(^7\) Except for the thumb which will be discussed in more detail in section 3.6
2.3 Fingernail Shapes

Fingernails form multitude of shapes. In regards to finding a suitable shape to utilize on the classical guitar, Glise remarks that there can be no specifications as to what is correct and incorrect. However fingernails generally work most effectively when shaped in one of two categories - rounded or angled. (Glise 1997:33)

Rounded Fingernail

A rounded shape follows the contour of the fingertip. This encourages a straighter right hand wrist position, allowing the presentation of either the left or right side of the nail to engage the string. (Glise 1997:33). Rounded nail shapes allow a greater versatility of their utilization, permitting a greater spectrum of tone colours to be achieved within one hand position.

Figure 2. A rounded nail shape (Glise 1997:34)
**Angled Fingernail**

An angled shape will generally slope upwards towards the right side of the nail, at the point which the nail engages the string.\(^9\) Generally an angled shape enables a slightly arched wrist position. An angled nail eliminates the possibility of effectively using both sides of the nail to attack the strings. Angled nail shapes are capable of producing a warm, dark sound. (Glise 1997:34) This is partly because the ramp created by the increased angle is more gradual than the ramp of a rounded nail shape.

![Figure 3. An angled nail shape (Glise 1997:34)](image)

**2.4 Nail Arches**

The contour of the fingernails when seen from their tips defines their arch. Although nails can have an infinite variety of arches, they may be categorized into three distinct types, (a) flat arch, (b) semi-flat arch and (c) curved arch (Figure 5). (Glise 1997:35)

Generally the fingernails should be filed flatter according to the extent of the arch; the greater the arch the flatter they should be filed. (Glise 1997:35) This is to ensure the surface area of the fingernails is enough to create a sufficient ramp, but not so great as to cause a delay of the release of the string.

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\(^9\) When playing with the right side of the nail this will be the reverse. Refer to section 3.1, Figure 17
2.5 Nail Filing

Equipment

The process of nail filing consists of three stages, (1) shaping, (2) sanding and (3) buffing. Specific equipment must be utilized for each stage in order to achieve quality results and avoid detrimental effects on the nails.

Ideally, a diamond dust file should be used to shape the nail. Ryan recommends avoiding the use of emery boards or similar materials as they create a ripping action leaving nails in a less than ideal condition. (Ryan 1991:117) Duncan likewise advocates the use of a diamond dust file as they leave nails in a neat condition with little weakening or damage of the nails occurring, stating:

"The most common file (crosshatch scored blade) literally shreds, and consequently weakens the nail. The emery board is a partial improvement, but again the essentially abrasive action weakens the edge of the nail and makes finishing problematic. Cutting the nail with clippers avoids fraying the edge, but is an appallingly crude approach to a delicate task." (Duncan 1980:57)
The process of sanding requires a piece of 1200-grade wet/dry paper or equivalent material, which removes the leftover roughness from shaping. Buffing, which leaves an extremely smooth, glassy like finish on the nails, requires the finest 12000-grade micromesh or equivalent material.

A nail file containing all three pieces of equipment in one is to be avoided. The material contained on these products is customarily of low quality and does not produce sufficient results for the finesse required for the nails of a classical guitarist. Strict adherence to the materials presented above will tend to produce the greatest results.

**Fingernail Length**

Effective results tend to be produced from nails that are not exceedingly long or short. Ryan presents a general guideline length of the fingernails being one-sixteenth of an inch over the flesh, with the thumbnail slightly longer - around one-eighteenth. (Ryan 1991:118)

Duncan concurs with Ryan's guidelines, however stresses that the contour of the fingernail and flesh plays a crucial role in determining this length, as the contour of the flesh influences the length of the fingernail when seen from underneath. (Duncan 1980:52)

![Figure 5. The recommended length of the fingernails and thumbnail](Ryan 1991:118)
Exceedingly short fingernails will not present a ramp sufficient enough for the string to travel across. The release of the string will be delayed if exceedingly long fingernails are presented, as the ramp created will take the string excess time to travel across.

**General Guidelines**

A slightly rounded nail shape that follows the contour of the fingertips is necessary as this will assist in preventing the strings catching on the fingernails. (Ryan 1991:118) Sharp angles may result in the nail getting caught on the string for a fraction of time, producing undesirable characteristics of tone and coordination issues between the left and right hands. As demonstrated in figure 6, the string hypothetically begins its journey from the left side\(^{11}\) of the fingertip and releases at the opposite side. A slightly rounded nail shape will allow the string an uninterrupted path along the surface of the ramp created by the fingernails. (Ryan 1991:118)

![Diagram](image)

**Figure 6. The placement of the fingertip and nail on the string** (Ryan 1991:119)

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\(^{11}\) Unless adopting a hand position which angles the fingers from their right side, in which case it would be the reverse. See figure 17 for more details.
Carlevaro presents a similar case, highlighting the generalization that fingernails are commonly of rounded shape, stating, “with respect to the nails of the other fingers ... it can be observed that when allowed to lengthen naturally, their shape almost always has [a rounded] cross section.” (Carlevaro 1984:33)

Carlevaro implies that rounded nail shapes are more common. Carlevaro advises that this rounded nail shape must be altered to present only one point of contact between the nail and the string. (Carlevaro 1984:33) Two points of contact will lead to a loss of clarity in tone as the nail will not be able to effectively function as a ramp.

Duncan offers a general piece of advice regarding nail profiles, recommending that, “a simple but effective rule is to file the nail ... so that its edge meets the flesh at the corner.” (Duncan 1980:53) However, excessive filing of the edges may result in a nail shape that is excessively pointed, which is to be avoided.

Duncan advises against curving the edges into an excessively acute angle, which can be a common error in shaping the nail, which may be attributed to the misconception that the flesh precedes the nails contact to the string. (Duncan 1980:51) Excessively curving the edges will risk wearing away the playing edge of the fingernails after long periods of being in contact with the strings, consequently resulting in extraneous sounds in the form of nail clicks. (Duncan 1980:51)

Carlevaro reinforces Duncan’s warning of excessively filing the edges, indicating that the sides should not be filed to create an excessively sharp angle. (Carlevaro 1984:34) This is detrimental to producing desirable characteristics of tone as the surface area of the ramp is pointed and likely to excite upper partials (Figure 7).
Duncan distinguishes nails into two general categories, stating that “the simplest distinction is between nails that are symmetrically arched, but in the one case broad and flattish, in the other, narrow and with a high peak which grows from the flesh.” (Duncan 1980:52) Duncan infers that all nail shapes will ultimately have a similar appearance, stating that, “in all cases .... properly filed nails will appear similar when seen in profile.” (Duncan 1980:55)

The index, middle and annular fingers are virtually always of different length. Compensating according to the differing lengths of each finger will enable them to work most efficiently. This differentiation becomes especially prominent when the fingers are utilized together, as in chord playing. Essentially this requires filing the ‘m’ (middle finger) fingernail slightly shorter than the ‘a’ (annular finger) and ‘i’ (index finger) fingernails. (Duncan 1980:55)

Now that general issues regarding nail shapes, arches and other general guidelines have been established, an analyses and method for filing the fingernails will be presented.
The Filing Process

Filing is a delicate procedure that can require many years of experience to perfect. Filing is a small but significant part of the process of producing desirable characteristics of tone production on the classical guitar. Important guidelines have been established within 20th guitar pedagogy. These guidelines should be altered through experimentation to suit the needs of each individual.

When shaped and buffered appropriately, fingernails will function as a ramp more effectively and as a result will produce desirable characteristics of tone with greater ease. Filing alters the dimensions of the fingernail's ramp; length and depth, therefore affecting the tone produced. Ultimately it is the sound that dictates the effectiveness of the filing method, and "the ear must obviously be the final judge as to whether a nail is doing its job properly." (Taylor 1978:60)

Step 1: The angle of the file in relation to the fingernail

Ryan recommends that when viewed from the side, the nail should be angled onto the file at approximately a 70-degree angle. This angle produces a ramp that is likely to ensure that the fingernail will have an easy release from the string. An angle smaller than 70-degrees will tend to create a ramp that will cause snagging between the nail and string. (Ryan 1991:120)

Figure 8 demonstrates a model starting point from which slight adjustments may be made to suit individual preferences.
Duncan produces differing conclusions to Ryan regarding the angle of the file, recommending an approximately 45-degree angle. (Duncan 1980:58) This suggests that filing may essentially rely on personal preference.

For the sake of clarity, based on these conclusions this dissertation will recommend angling the file anywhere between 45 and 70-degrees. The precise angle will depend on factors including the length of the fingers, nail arches, flesh contours, the desired nail length and the desired nail shape.

**Step 2: Filing**

Once the appropriate angle has been found, begin moving the file in both directions, left and right, using short movements. Short movements enable greater precision than long one-directional movements. (Duncan 1980:58)

Once the appropriate shape of the nail has been sculpted, round off any jagged corners that may have been left in the process. (Duncan 1980:58)

Ryan reinforces the utilization of short and quick strokes and also advises rounding off the corners to prevent snagging between the nails and strings. (Ryan 1991:120)
The angle of the finger in relation to the file may be adjusted according to the desired nail shape.

For an evenly rounded nail shape, the lateral angle of the file can be angled perpendicular to the fingertip, around 90-degrees. (Ryan 1991:120)

Figure 9. Filing perpendicular to achieve a rounded nail shape (Ryan 1991:120)

If an angled nail shape is desired, adjust the file in accordance with the slope of the desired nail shape (Figure 10). This can also be effective in order to flatten out the irregular curvature of a fingernail, an example of which is seen in figure 11. (Ryan 1991:121)

Figure 10. Altering the angle of the file (Ryan 1991:121)
Step 3: Sanding

This process removes the roughness produced from the filing process. A piece of 1200 grade wet/dry paper or equivalent material is ideal for this step.

One effective method of sanding is to firstly wrap the paper around the nail file and lightly stroke your nails along this in a similar fashion to the filing process. (Ryan 1991:122)

Ensure that the complete nail surface is smoothed out, including the top, the edges, underneath and the side that releases the string - usually the right side. (Ryan 1991:122)

Many sections of the nail can often be overlooked in the sanding process, and it is imperative that the fingernail contains a very minimal amount of roughness. A smooth nail will facilitate a gradual, uninterrupted release of the string, serving to produce desirable characteristics of tone.

Step 4: Buffing

This final step creates an extremely smooth, glassy finish of the nails. This is done ideally with a piece of 12000-grade micromesh or equivalent material, which can be used in a similar manner to the sanding process.
One effective way of ensuring fingernails are smooth is to rub them, one by one, on a treble string\textsuperscript{12}, listening and feeling for any friction that suggests roughness. Ensure that the whole nail is smooth enough so that there is no friction when being rubbed on the string. “Since the string is in contact mostly with the \textit{inside} of the tip, this needs particularly careful polishing, especially on the leading side.” (Taylor 1978:61)

\section*{Filing the Thumbnail}

As the thumb is utilized quite differently to the fingers, factors regarding its shape and filing method will be considered in isolation.

The shape of the thumbnail plays a vital role in producing sounds in the bass register with clarity. If not shaped accordingly, flesh will dominate striking the string, resulting in a bass register lacking clarity. However a flesh tone can be used for special techniques including pizzicato. (Duncan 1980:56)

Filing the thumb essentially follows the same procedure as filing the fingernails. It is usually more effective to file the thumb as an angled nail shape, as opposed to a rounded one. (Ryan 1991:123) Generally, it is more effective to file with a slope down towards the playing side as in figure 12; however, it may suit certain thumbnails to be shaped in the reverse approach. (Ryan 1991:123)

\textsuperscript{12} From personal experience I find that the 1\textsuperscript{st} string, ‘$E$,’ provides the most accurate results as it is the thinnest string and tends to expose roughness to the greatest extent.
Angling the thumbnail with a slope towards the playing side ensures that clarity is preserved in the bass register, as the nail will present only one point of contact to the string and will be less likely to produce extraneous noises by scraping along the string during a stroke.

Figure 12. Thumbnail sloped down towards the playing side
(Ryan 1991:123)
2.6 Care of the Fingernails

In the same way that a singer’s vocal cords influence his voice quality, a guitarist’s nails intimately affect his tone.

—Lee Ryan, The Natural Classical Guitar

Fingernail Anatomy

In order to instill a deeper understanding of fingernails, a brief outline of the anatomy of the nail will be presented. This will provide a context for understanding how to keep nails in quality condition.

Fingernails are comprised of keratin, a type of protein and the same substance that forms the hair and skin. The nail is comprised of six main parts.

The nail root, which can also be referred to as the germinal matrix, lies behind the fingernail and beneath the skin. The lunula can be viewed as the white, half-moon structure at the base of the fingernail and is the edge of the nail root. (Stover 2006:5)

Underneath the fingernail lies the nail bed, which contains cells that produce melanin, nerves and blood vessels and make the nail thicker by adding material underneath. The Dorsal or topmost layer, Intermediate or middle layer and Ventral or bottom layer comprise the complete nail bed. The cells forming these three layers determine the condition of the fingernails in regards to their physical make-up, the less keratin fibers, the thinner the fingernail will result. (Stover 2006:5)

The nail plate is what is commonly referred to as the fingernail and is comprised of keratin fibers intersecting in tough bands, which forms a moderately solid structure. (Stover 2006:5)
The nail bed is surrounded by two anatomical structures that protect it from water, bacteria and other substances.

The cuticle, or Eponychium is present between the skin and the nail plate lays the cuticle. The Hyponychium lies between the fingertip and nail. (Stover 2006:6)

The free edge is perhaps the most relevant to guitar playing, as it is the extended part of the nail, which requires filing and engages the strings. (Stover 2006:6)

Figure 13. The Anatomy of the Nail (Stover 2005:6)
Fingernail Facts

Strength, hardness and flexibility are three characteristics of a healthy nail. The combination of these characteristics result in toughness, which result in the ideal nail. *One or more of the three factors may be altered by exposure to water, chemicals or other substances.* (Stover 2006:7)

As the age of a person increases, nails produce less oil and moisture and grow at a slower rate. Healthy nails tend to grow at a rate of around one-millimeter per week, taking around five to seven months to replace itself entirely. (Stover 2006:7)

The rate of growth is made variable by many conditions including nutrition, age and climate. Warmer climate favors nail growth, as nails allegedly develop faster during summer. (Stover 2006:7)

Handedness also plays a role in the development of nail growth: nails on right-handed people grow at a faster rate on their right hand and vice versa. (Stover 2006:7)

Fingernail Health for Guitarists

Keeping nails in a clean state and well groomed should be adequate to handle the majority of nail problems. As mentioned above, nails are affected by exposure to water and other substances. Avoiding the contact of these substances with the fingernails will help prevent major issues, such as prolonged growth or brittleness. Duncan highlights the negative impacts of contact with dirt stating that “dirt retains moisture, and that, plus the minute abrasions it causes will weaken the nails. (Duncan 1980:59)
Despite all active measures that can be taken, nails are still easily prone to breaking, tearing or other issues and require special consideration.

Nails that are weak are especially prone to breaking. As nails are essentially comprised of keratin, a kind of protein, introducing a diet rich in protein may improve weak nails. Ryan recommends natural sources including milk and poultry, as opposed to supplements, which can tend to produce inconsistent results. (Ryan 1991:124)

If the alteration of diet is not sufficiently adequate to facilitate weak nails, external nail products may be utilized on the nails themselves. Ryan advocates that, “the best kinds are made from natural ingredients that soak through the nail and strengthen it.” (Ryan 1991:124)

Commercial nail hardeners tend to have negative effects on fingernails and tone. In order to minimize these effects, Ryan suggests avoiding the application of these substances on the free edge of the nails. (Ryan 1991:124)

Formaldehyde, a substance found in many external nail products should be avoided. Frequent application of this substance encourages brittleness and hardness, which may result in tone containing harsh qualities and nails that have an increased likelihood of breaking. (Ryan 1991:124)

Occasionally providing relief from nail hardeners by cycling their utilization weekly or fortnightly may provide a minimization of negative side-effects. Excessive application of these substances may result in a further weakening of the nails as opposed to their prescribed function of strengthening them.

Refer to (Stover 2006:15 – 17) for a full list of natural based nail care products
Nails comprising irregular curvature\textsuperscript{14} are prone to catching on the strings when plucking. Ryan outlines a three-step procedure for altering irregular curvatures of the nail. Ryan contends that various concert artists employ this process. (Ryan 1991:124)

(1) Soak the nails in warm water for ten to fifteen minutes until softened. (2) Form a regular curvature of the nail by pinching the nails with your left thumb and index finger (3) Apply nail hardener in order for the nails to maintain this alteration. (Ryan 1991:124)

Regular care and maintenance of the nails is beneficial for their well-being. Buffering of the nails should be made habitual \textit{before each playing session or performance}. Any kind of contact with the string may eventually produce roughness of the fingernails, especially when utilized forcefully such as in rasquado passages. Habitual buffering of the nails also stimulates nail growth as “buffing the nails also stimulates the base of the nail, where all new growth occurs.” (Duncan 1980:59)

Duncan presents a prevention method for the breaking or tearing of the nails, suggesting that guitarists should avoid using their right hand for everyday activities, instead habituating the left hand to perform these tasks\textsuperscript{15}. (Duncan 1980:59)

Despite any solution nails inevitably tear or break and it is imperative for guitarists to have solutions for this reality. According to Ryan, applying super glue to the rip or tear combined with nail hardener is the most effective and immediate solution, even if the nail is completely torn off. (Ryan 1991:124)

In the dire case of a complete tearing of the nail, many artificial nail systems are available as a solution. Many of these products

\textsuperscript{14} Refer to figure 11

\textsuperscript{15} Or vice versa if left-handed
require the use of toxic adhesives, which is detrimental to the health of the fingernails. However there exists one particularly effective product titled RICONAILS\textsuperscript{16}. This dissertation will briefly outline the use of the RICONAILS product.

\section*{RICONAILS}

The main advantage of this product is that they do not utilize any toxic adhesives, as many other commercial artificial nail systems do. Additionally, RICONAILS are nonpermanent, enabling the alteration between real nail and artificial nail. (Stover 2005:18)

\section*{Shaping the RICONAILS}

RICONAILS should be shaped and polished to the desired degree in a similar fashion to the nail filing process in section 2.6. The artificial nail plate should cover the entire surface of the nail, including the cuticle and should be slightly longer than the free edge of the natural nail. If no natural nail is present, then it may act as a full substitute for the free edge. The artificial nail plates may be altered by lightly flattening them on a hard surface to suit the desired nail arch. (Stover 2005:18)

\footnote{RICONAILS were invented by Rico Stover, the author of \textit{The Guitarists Guide to Fingernails}.}
Attaching the RICONAILS

Firstly, the natural nails must be washed in alcohol in order to remove oils that may weaken the bond between the adhesive glue dot and artificial nail plate. The adhesive dot must be pressed firmly onto the nail surface. If forceful playing techniques such as the rasguado are utilized, applying tape, specifically 'Nexcare Flexible Clear' to the edge of the nail cuticles and the artificial nail plates may provide extra security. (Stover 2005:19)

Removing the RICONAILS is simple and is achieved by peeling of the artificial nail plates and the adhesive dots that are attached. (Stover 2005:19)
CHAPTER 3

UTILIZING THE FINGERNAILS

Introduction

Once fingernails have been shaped, buffered and cared for adequately, a foundation point for creating desirable characteristics of tone on the classical guitar will be attainable. Tone production is comprised of many variables aside from the principles highlighted in this dissertation. The effective utilization of these principles takes much practice and experience. The angle of the right hand wrist and the action of the right hand fingers are two of the major variables that influence tone production on the classical guitar, as they inadvertently govern the fingernails’ presentation to the strings, altering their ramp.

3.1 Right Hand Wrist

An excessive rightward twist of the right hand wrist is detrimental to producing desirable characteristics of tone. Duarte highlights how this position produces undesirable characteristics of tone, stating “the tone produced by playing in this way is thin, hard, and to be avoided.” (Duarte 1975:15)

An excessive rightward twist of the wrist presents the tips of the fingernails to the strings. As previously seen in section 2.3, this presentation of the nail will present a ramp too steep for the string to release gradually from. (Figure 14)
Quine speculates that guitarists have intentionally developed an excessive rightward twist of the wrist, as it "appears to have the virtue of 'geometrical tidiness'" (Quine 1990:14). Figure 15 demonstrates this position from an overall perspective of the body.

Figure 14. A wrist angle held parallel to the strings (Duarte 1975:15)

Figure 15. A commonly seen presentation of the wrist based on an excessive rightward twist (Quine 1990:15)
When the hand is slightly displaced from this parallel position, desirable characteristics or tone are more likely to ensue as the fingernails strike from their edge rather than their tips. This helps enable the fingernails to act as an effective ramp.

The precise degree of this displacement depends on the unique physiological characteristics of each individual. However, starting at a point as seen in figure 16 can produce markedly large improvements on the tone produced. (Duarte 1975:15)

![Figure 16](image)

**Figure 16. Fingers angled to play with the left side of the nails**
(Duarte 1975:15)

Alternatively the hand may be angled to enable the right side of the nails to engage the strings as seen in figure 17. However, it is generally more customary to angle the hand as in figure 16, as the wrist has a natural tendency to hang rightwards. (Duarte 1975:15)

![Figure 17](image)

**Figure 17. Fingers angled to play with the right side of the nails**
(Duarte 1975:15)
If engaging the nails from a rightward angle creates no physical discomfort, there is no reason to impose a change of position. Many significant guitarists, including Ida Presti\textsuperscript{18}, have produced remarkable results using this technique. (Duarte 1975:15)

### 3.2 Right Hand Thumb Position

The thumbs position can have a major role in dictating the action of the whole hand.

— Anthony Glise, *Classical Guitar Pedagogy*

A general height of the thumb approximately four to five inches, (approximately a hands span) away from the soundboard of the guitar will serve to produce effective results. (Ryan 1991:66) The angle produced by this height plays a crucial role in the thumbs effect on tone production.

The thumbnail will facilitate the production of desirable characteristics of tone when angled so that its presentation is within close proximity to the string\textsuperscript{19}. (Ryan 1991:66) Figure 18 demonstrates an example of these principles.

\textsuperscript{18} For more information regarding the guitarist Ida Presti refer to (Marilla and Presti 2005)

\textsuperscript{19} Why the thumbnail should be presented clearly to the string will be discussed further in section 3.5
Duncan correspondingly indicates that "good thumb position is based on a tip turned back so as to lie nearly parallel to the string, with a clear presentation of the nail [emphasis added]." (Duncan 1980:44)

This principle will also help avoid an excessively flat wrist position as seen in figure 19. This position creates an excessive separation between the thumb and fingers, resulting in the presentation of the fingernails tips to be more certain. (Duncan 1980:44) Furthermore, a flat wrist position will result in a loss of clarity in the bass register, as the tip of the thumbnail cannot present itself to the string.

Figure 18. Position of the Right Hand Thumb (Ryan 1991:66)

Figure 19. An excessively flat wrist position (Duncan 1980:44)
3.3 Rest Stroke

The rest stroke, or *apoyando* is a commonly used device in right hand technique. It is executed by resting the finger on the adjacent string behind that which it strikes. It enables greater volume and security by providing additional support. The rest stroke is generally employed for scale passages and for highlighting essential melodic notes. (Bobri 1972:43)

As previously discussed in section 2.3, in order for a tone to contain fullness or body, the string must be projected in a downward direction, towards the soundboard. This increases the perpendicular activity of the string. To accomplish this, the string must be released from a position beneath the plane of the remaining strings. (Taylor 1978:46)

As the nature of pushing the finger back into the adjacent string produces downward force, the rest stroke will involuntarily produce a tone containing body and warmth – desirable characteristics of tone. Figure 20 demonstrates a rest stroke in action and its effect on the strings motion during the stroke.

![Figure 20. The Trajectory of the finger and string during a rest stroke](Taylor 1978:46)
An interesting feature of the rest stroke is that the direction of the strings movement does not emulate the direction of the stroke of the finger. (Taylor 1978:47) Whilst the finger moves in a horizontal plane, the string opposes this, producing a relatively vertical plane of movement. This differentiation is represented by figure ‘a’ in figure 21.

If the angle of the finger is aimed in an excessively downward direction, it may consequent in unwanted noise or ‘fret-rattle’. As a result of this “there is generally nothing to be gained by adopting a downward-sloping attitude of either fingers or thumb.” (Taylor 1978:50)

Duarte accordingly concedes that fret rattle can be produced if the strings are struck excessively downwards. Duarte recommends cultivating an action that sets the strings in motion parallel to the guitar’s soundboard, as it will inevitably impart a vertical motion of the string, as demonstrated by figure 21. (Duarte 1975:16)
Flexing of the Fingertips

It has often been advocated for the third tip segment of the finger to flex slightly just before the string is released, due to the increasing pressure of the string created, as shown in figure 22 (Duarte 1975:17)

![Fig 22](image)

Figure 22. A rest stroke demonstrating a flexing of the third tip joint (Duarte 1975:17)

The flexing of the third tip segment creates a secondary movement, which occurs in the opposite direction to the finger’s path. This action produces a delaying factor and complicates the movement of the stroke. Due to these factors there is debate over whether the third tip segment should flex at all, let alone to any degree. (Duarte 1975:17)

Quine indicates that utilizing a flexing movement of the fingers during a stroke demonstrates a misunderstanding of the mechanics of the finger’s action. (Quine 1990:32) Flexing appears to have the advantage of producing a softer sound, similar to that of a flesh tone. (Quine 1990:32)

Taylor alternatively presents some advantages to this concept, asserting that many fine players utilize it. (Taylor 1980:70) Flexing the tip joints reduces the steepness of the ramp presented
by the nail, allowing the string to pass the nail with greater ease. (Taylor 1980:70) Additionally it can assist with utilizing a very deep rest stroke and allows for a greater directional scope for the string to be released from one hand position. (Taylor 1980:70)

Based on this information, flexing the tip joints during a stroke is predisposed to producing negative effects for the production of desirable characteristics of tone. If utilized correctly however, this technique may serve to enhance certain desirable features of tone. Flexing the tip joints may also occur with the utilization of the free stroke.

3.4 Free Stroke

Bobri gives a fitting description of the free stroke or tirando, illustrating that:

"The fingertip describes a shallow arc toward the palm of the hand, and clears the next string instead of resting on it. The stroke is used in playing chords, fast arpeggios, and in all instances when the neighboring strings should vibrate simultaneously" (Bobri 1972:46-47)

The main objective of the free stroke is to minimize the upward pulling of the string during the stroke, as this can result in an extremely harsh sound containing high proportions of fret-rattle. It is useful to “think of the tirando as a ‘frustrated’ apoyando – one that fails to come to rest against the next string.” (Duarte 1975:17)

Taylor concurs with this idea, stating that “it is indeed possible for a nail to project a string downwards, release it, and then come clear of the next one.” (Taylor 1980:47)
The essential difference between rest stroke and free stroke is the angle at which the string is released. The rest stroke results in a steeper and more pronounced perpendicular angle of the strings release. (Taylor 1980:48)

In comparison to figure 21 the angle has been displaced horizontally to a slight degree. This suggests that the free stroke and rest stroke have very similar actions and repercussions on the string’s deflection.

*Figure 23. The string’s differentiation to finger (nail) movement during a free stroke* (Taylor 1978:47)
3.5 Action of the Thumb

As the thumb is a powerful digit – the most powerful of all on the hand, its action influences the action of the fingers. In severe cases the thumb may impart an unstable movement of the hand. (Bobri 1972:50)

The main consideration in regards to tone production is that the tip of the thumbnail is clearly presented to the strings. Unlike the fingernails, the thumbnail may effectively produce desirable characteristics of tone when utilized in a perpendicular manner to the string.

The thumb should be placed somewhat laterally to the fingers, as it functions in the opposite direction to them. (Carlevaro 1984:29)

A straight line can be drawn to illustrate the ‘ideal’ perpendicular path of the thumb’s motion (Figure 24). (Carlevaro 1984:29)

If the thumb functions in an oblique motion, it may create undesirable extraneous noise due to the friction created by the thumbnail sliding on the string. (Carlevaro 1984:29)

Figure 24. A perpendicular attack of the string versus an oblique attack (Carlevaro 1984:29)
In a similar manner to the fingers, the thumb may function more effectively by avoiding flexing from the tip joints. A loss of power, flexibility and freedom may result from flexing the tip joint of the thumb. (Carlevaro 1984:30) Clarity may be sacrificed as this compels the thumb to move in an oblique motion.

Duncan additionally recommends that the midpoint, or tip of the thumbnail should contact the string and release it from the right side of the nail. (Duncan 1980:46) Figure 25 demonstrates the contact (C) and release (R) points of the thumbnail engaging the string.

![Figure 25. The thumbnail’s contact and release point on the string (Duncan 1980:46)](image)
Conclusion

The evidence produced in this dissertation strongly suggests the significance of the fingernail’s role in tone production on the modern classical guitar. General guidelines have been established in 20th century pedagogy regarding the tone concept of the instrument and the physiological principles that govern it.

This dissertation suggests that fingernails comprise a substantial component of the principles of tone production. The ambiguous and contradictory guidelines regarding tone production that can be found throughout classical guitar pedagogy must begin to be made clear. A broadening of the insufficient literature regarding fingernails and their significance on the guitar will be imperative for the understanding and dispersing of this valuable tool in music making.

Tone production could be argued as being one of the most essential elements of music making on any instrument, let alone the classical guitar. Variations of tone are an inherent strength of the classical guitar and have the ability to impart musical messages of significance through the instrument. Therefore, issues regarding tone production should be of foremost concern, research and practice.

The fingernails create one of the most significant issues regarding tone production on the classical guitar. Fingernails directly affect the onset transient of the string, which is instantly transferred to the soundboard and further amplified. This creates a core component of the classical guitars sound. The fingernail’s function as a ramp is one of the key features of their role in producing tone on the classical guitar.
Developing the process of filing fingernails may take many years of trial and error and can instantaneously transform the quality of tone produced on the classical guitar. Guidelines may facilitate in making filing a formal, systemized process that can deliver consistent and effective results. This will bring the desirable characteristics of tone one step closer to being fully realized on the guitar.

Maintaining a consistently healthy state of the fingernails produces challenges, as they are prone to many variables as mentioned in this dissertation. Fortunately, adequate and numerous solutions including liquid enhancers and artificial nail systems are available in the market. However, many of these products can produce detrimental effects on the fingernails as they contain toxic substances. RICONAILS are one of the most effective artificial nail systems available, as they do not employ the use of toxic adhesive and are easily removable.

The utilization of the fingernails is governed by two main principles – the angle of the right hand wrist in relation to the line of the string, and the action of the fingers (and thumb). Throughout 20th century pedagogy these two aspects have been covered in detail, however they have not been specifically culminated with a holistic approach to the fingernails.

The angle of the wrist has significant consequences on tone. The angle of the wrist affects the steepness of the ramp created by the fingernails. If presented and utilized at a parallel angle, the fingernails produce a ramp so steep that the release of the strings is sudden, resulting in harsh, tinny tone.

As the thumb is the strongest digit of the hand, it can dictate the position of the hand. The thumb generally works most effectively when positioned slightly left of the fingers in a fairly upright, perpendicular manner. This enables the thumbnail to contact the
string at its tip, producing clarity in the bass register. An oblique path of motion may produce extraneous sounds, as the thumbnail will be predisposed to create a scraping motion on the strings.

Finger action essentially relies on projecting the string in a downward manner, although if excessive can result in fret-rattle. Due to the nature of the rest stroke, it automatically produces a downward motion of the string. The free stroke should aim to resemble the sound and action of the rest stroke.

In the 21st century the classical guitar is elevated to a status that enables it to perform a versatile and substantial array of music. Ultimately, physical mechanics ideally become forgotten in the pure act of making music. An understanding and practice of the physiological principles involved, combined with an active imagination can communicate a deep musical message of significance through the wonderful medium of the classical guitar.
References


