UNIVERSITY OF CALIFORNIA
RIVERSIDE

Rock Guitar: Individuality, Creativity, and Musical Expression From Edward Van Halen to Guthrie Govan (1978-2021)

A Dissertation submitted in partial satisfaction
of the requirements for the degree of

Doctor of Philosophy

in

Music

by

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September 2022

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ABSTRACT OF THE DISSERTATION

Rock Guitar: Individuality, Creativity, and Musical Expression From Edward Van Halen to Guthrie Govan (1978-2021)

by

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Doctor of Philosophy, Graduate Program in Music
University of California, Riverside, September 2022
Dr. Walter A Clark, Chairperson

The purpose of this dissertation is to provide an historiography and technical analysis of the electric guitar as an instrument and the associated styles developed on it by several key players from Edward Van Halen to Guthrie Govan (1978-2021).

To accomplish this task, I utilized the integration of two major methods: comparative analysis and historiography. My comparative analysis concentrated on analyzing and comparing specific elements in rock guitar such as tone creation, sound, and improvisation. My historiography focused on the changes in values, the emergence of new genres, styles, and new paradigms of artistic thinking. Such an integrated approach made it possible to develop structured conclusions on the progression of electric guitar development and the technical advancements of several key rock guitarist's musical styles.

To research the problem, I collected and investigated resources that included books and periodicals that contain my subject's biographical and historical data, interviews, podcasts, guitar instructional materials, guitar transcriptions/tablatures, sound recordings, pictorial documents, films, and the latest instances in musical instrument development and guitar technology.

I conclude that developing one's own voice on the guitar will render one a more accomplished musician with their own style and sound. Accomplished rock guitarists develop an individualized approach to their technique, musical sensibilities, and the specific gear essential in creating their tone. In addition, musical style is shaped by political, economic, social, and intellectual developments. Whether or not what separates one artist from another is the result of their "innate talent" or differences in experience is a matter for investigation.

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Chapter One

ILLUMINATION THEORY

Introduction

The purpose of this study is to analyze how the development of the electric guitar as an instrument with associated playing techniques relating to the style of a particular guitarist's technical advancements helped to facilitate towards the cultivation of their musical style. Topics of interest related to my research include the creative process, musical expression, composition, improvisation, and guitar technology.

I believe the most indefinable attribute a musician (in this case, guitarist) can possess is an immediately identifiable style. In support of my argument, American-born world-renowned guitar virtuoso and Japan's resident shredder Marty Friedman wrote in his *Guitar World* column "Full Shred," "When it comes to evaluating a musician, individuality is the characteristic that I hold in highest regard."[1] The achievement of developing an immediately identifiable style extends beyond the rock guitar context of this dissertation or any specific genre, as examples of guitarists possessing this trait include Andres Segovia, B.B. King, and Pat Metheny. Each of these artists has cultivated a signature style through their musical vocabulary, the development of their technique based on their strengths and weaknesses, musical tastes, choice of repertoire, and selection of gear.

Rock guitarist Joe Satriani said developing an individual style is not that complex. He stated that recognizable styles are created by "committee," equally divided between

[1] Marty Friedman, "Full Shred," *Guitar World* (July 2014): 92.

artist neurosis, luck, commerce, and the audience's fault for encouraging repetition.[2] In other words, Satriani is saying that the artist can recognize what musically works, what does not work, and what people are responding to, either consciously or subconsciously.[3] Whether or not what separates these artists from others is the result of their 'innate talent' or differences in experience is a matter for scientific investigation.[4] Musicologist Roger Kamien wrote that style refers to a characteristic way of using melody, rhythm, tone color, dynamics, harmony, texture, and form.[5] The particular way these elements are combined can result in a total sound that's distinctive or unique. He said that musical style is shaped by political, economic, social, and intellectual developments as well.

What musical attributes do I find that most virtuoso guitarists possess? I believe that virtuoso guitarists may defy musical categorization (e.g., country, blues, jazz, funk, rock) due to their command of multiple musical genres, techniques, and tones. Often, these guitarists are labeled a type of "fusion" player (e.g., jazz-fusion, rock-fusion) to categorize their style. Repeatedly, I find that virtuoso guitarists will have developed an individualized approach to their technique, musical vocabulary, musical sensibilities, and the specific gear essential in creating their tone. Major breakthroughs in a guitarist's development, whether related to technique, finding a voice, or an approach to soloing, develop by way of extensive gigging.

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[2] Curtis Fornadley, *Tone Wizards: Interviews With Top Guitarists and Gear Gurus On the Quest for Ultimate Sound* (IF6WAS9 Publishing, 2015), Loc 4569-4571. Kindle.
[3] Ibid., 4572.
[4] John Sloboda, "What Makes a Musician," The Music Student Network Blog, accessed on November 6, 2020, https://web.archive.org/web/20160113144342/http://raagabox.com/blog/what-makes-a-musician-john-sloboda/.
[5] Roger Kamien, *Music: An Appreciation,* 8th ed. (New York: McGraw-Hill, 2004), 76.

The questions I ask in conducting my research include the following: What is one's approach to nurturing their creativity, expression, and vision as an artist? How does one develop their musical vocabulary and find their own voice on the instrument? How does one cultivate an original, identifiable tone?

Musicology research on jazz, rock, and popular music commonly uses an integration of two major methods: comparative analysis and historiography.[6] These methods are the tools I utilized to conduct my research.

Scope of Project

The contents of my research are organized into six chapters. The following section will serve as an overview of the topics discussed within each chapter.

In Chapter One, following the introduction I discuss the research methods and materials employed to create a theoretical premise for the dissertation. I summarize each chapter and offer a review of the literature pertinent to my subject, establishing the foundation of my research.

In Chapter Two, I begin with the innovations and guitar style of Edward Van Halen. Van Halen "hot-rodded" his guitars, attenuated his amplifiers, developed a two-handed legato tapping technique, and cultivated a tone described as the "brown sound." Van Halen's influence on aspiring rock guitarists from the late 1970s onward had only been equaled by Jimi Hendrix a decade earlier.

[6] Yvetta Kajanová, "The Rock, Pop and Jazz in Contemporary Musicological Studies," *International Review of the Aesthetics and Sociology of Music* 44, no. 2 (2013): 343-348, accessed November 12, 2020, http://www.jstor.org/stable/23594803.

A discussion of virtuosity ensues as the "shred" era of rock guitar arose during the 1980s. Innovative performance techniques such as alternate picking, tremolo picking, legato technique, sweep picking, economy picking, hybrid picking, string-skipping, fretboard tapping, multi-finger tapping, vibrato, vibrato bar technique, harmonics, and thumping have become standardized in the rock, fusion, and progressive-rock/metal guitar cannon. A historiography of these techniques concludes the chapter.

Chapter Three offers an examination of the electric-guitar rig and the development of technology utilized by rock guitarists. An exploration into modified "hot-rodded" guitars, extended-range guitars, multi-scale and True Temperament fretboards, ergonomic headless guitar designs, tube amplification, cabinets and speakers, reactive load and I.R. (impulse responses), digital modeling amplifiers, amplifier profiling, plugins, and effects processors & pedals. The chapter concludes with a discussion of the increase in artist-designed signature gear.

Chapter Four examines the process of identification and the labeling of music genres. I conclude the chapter with a concise historiography of classic progressive rock, fusion, neo-soul, and the development of progressive metal. These subgenres or fusion of musical styles demonstrate how difficult of a task it can be to identify and label music into genres.

In Chapter Five, the topics of creativity, musical expression, music composition (guitar instrumentals), and improvisation are explored. I discuss the rock-guitar instrumental as a creative and artistic statement, but also the lack of interest by these artists in measuring their career achievement by way of GRAMMY Awards, record sales,

publication awards, etc. I close the chapter by examining improvisational practice techniques and concepts that are proven methods created by artists, composers, and music educators to aide guitarists in developing the essential skills to improvise in a rock context.

Chapter Six culminates in a discussion of the virtuoso electric guitarist to understand how one cultivates a personalized style. I explore the musician's mindset understanding their note choice, frame of reference, and approach to writing and creating music. My subject is progressive-rock/fusion guitarist Guthrie Govan.

Literature Review

Founded in 1967, *Guitar Player* magazine began publishing in-depth interviews with guitarists supplemented by articles, lessons, and gear reviews. To put things into perspective, *Guitar Player* began six months before *Rolling Stone* magazine and was the only guitar magazine in print.[7] By the late 1970s, the guitar had become the dominant instrument in rock and popular music.[8] Beginning in October 1984, *Guitar Player* magazine included its first-ever "Soundsheet" – a square, black flexi-disc featuring "The Attitude Song," by Steve Vai, and on the opposite side, "Because It's There" by Michael Hedges.[9] For several years, every issue of *Guitar Player* magazine included a Soundsheet introducing the readership to new artists and gear.

[7] Greg Prato, *Shredders!:The Oral History of Speed Guitar (and More)* (London, England: Jawbone Press, 2017), Loc 3720. Kindle.
[8] Ibid., 3724.
[9] Damian Fanelli, Woodshed, *Guitar World* (March 2020): 14.

In 1980, *Guitar World* magazine was launched followed by *Guitar for the Practicing Musician* in 1983. These two publications focused primarily on rock, hard-rock, and metal-guitar styles in addition to offering several complete song transcriptions with tablature per month. Today, *Guitar Player* and *Guitar World* have survived and are accompanied by publications such as *Guitarist, Guitar Techniques, Premier Guitar,* and the purely digital *Guitar Interactive Magazine,* among others.

The above magazines offer professionals, semi-professionals, and hobbyists monthly artist updates and news important to the guitar community. Each publication supplements the hardcopy (or digital subscription) with online content via social media, official websites, and/or YouTube. The guitar lessons range from beginner to advanced and are written by the magazine staff. Guest artist lessons are typically filmed, transcribed, written and/or edited by the staff.

Similar to consumer-based periodicals the product reviews published in guitar magazines appear to be biased and criticisms are kept to a minimum. Still, magazine awards and endorsements are important to the manufacturers who brandish them in their marketing campaigns. Gear setup tutorials and rig walkthroughs are helpful to guitarists exploring options and/or finding solutions to sound problems, but marketing campaigns can enter into these discussions. Oftentimes, no definitive answer exists leaving the consumer in a constant search for tonal perfection and ease of setup.

In 1993, musicologist Dr. Robert Walser published *Running with the Devil: Power, Gender, and Madness in Heavy Metal Music,* leading the discipline to scholarly

discussion of hard-rock music.[10] Walser stated that academic study of popular music was in transition and the scholarship was dominated by sociological approaches that neglect the music and focus on the literal meaning of the lyrics.[11] His other criticism was that most writing about popular music suffered from a lack of history; with little sense of how music had functioned in other times and places, writers would often mistake transformations in the music for unprecedented signs of innovation or decay.[12]

In 1997, musicologist Edward Macan published *Rocking the Classics: English Progressive Rock and the Counterculture* which is perhaps the first comprehensive account of progressive rock.[13] Progressive-rock music experienced its commercial heyday during the mid-to-late 1970s. The author draws together cultural theory, musicology, and music criticism.

In 2003, Dr. Steve Waksman's article "Contesting virtuosity: rock guitar since 1976" was published in *The Cambridge Companion to the Guitar.*[14] Waksman discusses the antipathy towards virtuosity within the punk ethos following the success of Edward Van Halen. A historiography of the "shred" era brings to light Edward Van Halen's influence on great numbers of guitarists as perhaps the preeminent "guitar hero" of the era. Fast forward to the early 1990s, and the Seattle grunge scene brought about a revival

[10] Robert Walser, *Running with the Devil: Power, Gender, and Madness in Heavy Metal Music* (Hanover, NH: Wesleyan University Press, 1993).
[11] Ibid., 21.
[12] Ibid.
[13] Edward Macan, *Rocking the Classics: English Progressive Rock and the Counterculture* (New York: Oxford University Press, 1997).
[14] Victor Anand Coelho, ed. *The Cambridge Companion to the Guitar,* The Cambridge Companions to Music (Cambridge, UK: Cambridge University Press, 2003), 122.

of punk values combined with the displacement of the electric guitar in favor of sampling and other techniques of electronic performance in rap and techno.

Waksman's 2001 article "Into the Arena: Edward Van Halen and the Cultural Contradictions of the Guitar Hero," published in the book *Guitar Cultures,* examines Van Halen's innovative playing style and redefined guitar designs, a legacy begun by Les Paul in the 1950s.[15]

Scott Kahn, editor in chief of MusicPlayers.com published *Modern Guitar Rigs: The Tone Fanatic's Guide to Integrating Amps and Effects* in 2011.[16] This book/DVD package offers a thorough explanation of how to build and utilize a professional-level guitar rig. Kahn interviewed professional rig builders such as Bob Bradshaw, Mark Snyder, and David Friedman. Examples of artist rigs include Alex Lifeson, John Petrucci, and Steven Wilson.

New York-based journalist Greg Prato published *Shredders!: The Oral History of Speed Guitar (and more)* in 2017 interviewing nearly seventy shredders (and a few anti-shredders) to record a thorough account of speed guitar.[17] The author transcribed his conversations with leading figures of the genre, including Jason Becker, Frank Gambale, Paul Gilbert, Guthrie Govan, Greg Howe, Richie Kotzen, Tony MacAlpine, Steve Morse, Joe Satriani, and Steve Vai.

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[15] Andy Bennett and Kevin Dawe, eds. *Guitar Cultures* (Oxford, UK: Berg, 2001), 117.
[16] Scott Kahn, *Modern Guitar Rigs: The Tone Fanatic's Guide to Integrating Amps and Effects* (Milwaukee, WI: Hal Leonard Books, 2011).
[17] Prato, *Shredders!*

In 2017, David Weigel published *The Show That Never Ends: The Rise and Fall of Prog Rock,* offering a comprehensive history assembled from decades of publications, memoirs, radio and television interviews, biographies, and his own personal conversations with the artists who created the music.[18] Weigel argues that the genre referred to as progressive rock should be credited for influencing much of today's popular music.

Summary

By no means comprehensive, this brief literature review discusses the scholarship and journalism most helpful during the preliminary stages of my research. Please browse the bibliography at the end of the dissertation for a thorough list of materials relating to this topic.

[18] David Weigel, *The Show That Never Ends: The Rise And Fall Of Prog Rock* (New York: W.W. Norton & Company, 2017). Kindle.

Chapter Two

NO BOUNDARIES

Historiography of 1980s Rock and Shred Guitar

Beginning in 1978, Edward Van Halen ushered in a new era of rock guitar with the release of his band's eponymous debut album *Van Halen*. His technical approach to the guitar—rapid legato lines, pinched harmonics, tremolo picking, right-hand finger tapping, and vibrato bar divebombs—can be heard on the instrumental "Eruption," which launched a movement and inspired rock guitarists for decades. Surprisingly, Edward was never satisfied with the released recording of "Eruption." "I did not even play it right. There is a mistake at the top end of it. Whenever I hear it, I always think, Man, I could have played it better."[19] Van Halen was the first to infuse the electric guitar with genuinely new blood since Jimi Hendrix, and the stakes were forever altered.[20] As Edward told *Guitar World* writer Joe Bosso in 1990, "I changed the way people played the guitar, you know? I mean, you see everybody doing it, and they were not until I did it. So, it is kind of obvious. It is not like I am on an ego trip or anything."[21] "Edward Van Halen was ground zero for the modern era," exclaimed Brad Tolinski, former editor-in-chief of *Guitar World*.[22]

Edward's unique homemade electric guitar, a combination of Fender and Gibson appointments, was a first of its kind and has spawned homemade, customized,

[19] Chris Bird, Joe Bosso, Charlie Griffiths, Rob Laing, Christopher Scapelliti, and Stuart Williams, "The 50 Greatest Solos of All Time," *Guitar World,* Holiday 2021, 49.
[20] Joe Bosso, "The Monster of Rock," *Guitar Legends: Van Halen,* Guitar World Presents, Summer 2004, 54-55.
[21] Ibid., 55.
[22] Tom Beaujour and Richard Bienstock, "Nöthin' But A Good Time" *Guitar World* (April 2021): 69.

manufactured imitations and replicas to this day. At the time, Edward was just trying to build a guitar that served his purposes. "It does exactly what I want it to do. I used to build guitars because I wanted one that had a Gibson sound, but with a vibrato bar. I wanted a Fender Strat with a Gibson sound."[23]

Van Halen grew up listening to a lot of early Beatles, Dave Clark Five, Cream, Jimmy Page, Jeff Beck, and Jimi Hendrix.[24] He was influenced by the Cream-era guitar style of Eric Clapton, but he approached the blues in a more aggressive way. He absorbed the blues "feel" by playing along with Clapton's records and learning the solos note for note. "I never had a guitar lesson in my life, except from listening to Eric Clapton records," says Van Halen.[25]

Edward received his formal music training when he studied classical piano for several years from Stanley Kalvaitis, a seasoned professional pianist and a 1914 graduate of the Imperial Conservatory in St. Petersburg, Russia.[26] Kalvaitis was a colleague of Sergei Prokofiev. Edward continued to listen to classical music, especially Bach and Debussy, as a professional rock musician.[27] Historian Greg Renoff said that discovering the revelations of Edward's classical piano training cast his later guitar mastery in a new light.[28] While he never took guitar lessons, his musical foundations came from formal study with an elite musician.

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[23] Bosso, "The Monster of Rock," *Guitar Legends*, 58.
[24] John Stix, "The New King of Heavy Metal," *Guitar Legends: Van Halen,* Guitar World Presents, Summer 2004, 18.
[25] Ibid., 20.
[26] Greg Renoff, *Van Halen Rising: How a Southern California Backyard Party Band Saved Heavy Metal* (Toronto: ECW Press, 2015), 5-6.
[27] Walser, *Running with the Devil*, 68.
[28] Renoff, *Van Halen Rising*, 6.

Edward became the most innovative and interesting rock guitarist of his generation.[29] He developed a style of guitar playing that impacted generations of rock and metal players, a flashy, technical, hard-rock style that marked the beginnings of shred guitar. In the aftermath of Van Halen's success, however, classical music increasingly became the focus for a new style of electric guitar virtuosity that displaced the presiding blues-based vocabulary of heavy metal in favor of a much more Eurocentric notion of harmonic and melodic complexity.[30]

Guitar World contributing writer Ted Drozdowski designates jazz-fusion guitarist John McLaughlin as the first shredder, nearly a decade before the term "shred" became part of the guitar vernacular.[31] Shred defines a culture of players who focus on perfecting their technique and breaking the boundaries of what was thought to be the outer limits of speed and dexterity on the instrument. More generally, the speed-driven style of rock guitar earned an appellation derived from the ways in which guitarists were prone to "tear up" the fretboard: shred (as in, "Wow, that guy can really *shred"*).[32] Shred guitarists often cite jazz-fusion and progressive-rock guitarists such as Al Di Meola and Allan Holdsworth as influences. Shredders such as Yngwie Malmsteen, Michael Angelo Batio, Jason Becker, Marty Friedman, Paul Gilbert, Vinnie Moore, Tony MacAlpine, Greg Howe, Richie Kotzen, and Shawn Lane were a few of the first notable players of the movement. Not all "shredders" were as classically inspired as some of the above-named

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[29] Noel E. Monk, with Joe Layden, *Runnin' with the Devil* (New York: Harper Collins, 2017), 268.
[30] Coelho, *The Cambridge Companion to the Guitar,* 126.
[31] Ted Drozdowski, "Jazz Master," *Guitar World* (February 2016): 70.
[32] Coelho, *Cambridge Companion to the Guitar*, 127.

players. Steve Vai and Joe Satriani allowed for a much greater range of styles and influences ranging from icons such as Frank Zappa and Jimi Hendrix to the sounds of free jazz and experimental improvisation.[33]

Yngwie Malmsteen credits Van Halen with revolutionizing rock guitar: "When I heard the first Van Halen album, I could not believe how great the guitar playing was. I mean, he totally changed the whole guitar field."[34]

Dream Theater guitarist John Petrucci remembers hearing Edward Van Halen employing different playing techniques like fretboard tapping and thinking that it did not even sound like a guitar.[35] "I had no idea how that was being done, but I was drawn to it."[36]

Edward Van Halen created an exciting guitar style and developed a high gain tone that produced indefinite sustain. In the hands of a virtuoso the electric guitar was now capable of producing the power and speed of the organ, as well as the flexibility and nuance of the violin.[37] Edward's musical imagination drove the technological experiments that helped him develop the sounds upon which his performance techniques depended.[38]

[33] Ibid.
[34] Walser, *Running with the Devil*, 68.
[35] John Petrucci and Andy Aledort, "The John Petrucci Guitar Method," *Guitar World* (April 2018): 45.
[36] Ibid.
[37] Walser, *Running with the Devil*, 68-69.
[38] Ibid.

In the past, instrumental virtuosos have typically served as signifiers of human excellence and the vigor and vitality of the mind, body, and spirit.[39] In addition, these magnificent performers always filled a void or some cultural need, serving as exponents of Renaissance humanism, as masters of the affections, as the embodiment of enlightened progressivism, or as Romantic symbols of emancipation. Charles Mueller argues that in the postmodern age, much of what the virtuoso represented is seemingly irrelevant, or no longer possible. He suggests that judging from both academic theorizing and musings in the popular press, there seems to be less faith than ever in the power of music to represent anything remotely heroic or to symbolize the power of human beings to better their world. Spontaneity, one of the virtuoso's most powerful attributes, seems pre-programmed or routine and is therefore not as impressive as it was in the nineteenth century. Any emotional experience that one could possibly have has been diluted by the modern forms of entertainment or has been dissected and scrutinized by theorists. Humanism is now passé as people have already proven their significance to the point of excess, both collectively and individually.

Yet virtuosi continue to be celebrated in all genres of music and usually for the same reasons that such extraordinary persons were idolized during previous centuries. Purity of intonation, intensity and vividness of expression, the ability to make an instrument sing with the warmth and nuance of the human voice, a distinct beauty of tone, control of harmonics and color, a mastery of all known techniques (and the

[39] Charles Mueller, "Jeff Beck: The Quintessential Postmodern Virtuoso Meets Baudrillard's Racing Driver and His Double." *College Music Symposium* 53 (2013). Accessed November 12, 2020. https://www.jstor.org/stable/26564915. The following discussion is indebted to this source.

invention of new ones), the ability to absorb and communicate in diverse styles or genres, extreme individuality of interpretation, and a charismatic or seductive off-stage persona are among the mandatory or captivating characteristics of the virtuoso. Mueller closes his argument by saying that in an age that is hyper-real from the outset, it is uncertain what cultural need exceptional players fulfill or to what degree their continued fascination relies on media hype, technology, or nostalgia.

Critics have slighted virtuosity as a romantic reaction pitting personal expression against bourgeois rationalism by mobilizing virtuoso musical technique to challenge bourgeois understandings of autonomous art.[40] Most critics accuse virtuosos of providing vulgar spectacle in place of sober execution; excessive emotion instead of objective interpretation; and a misplaced attention to physicality in lieu of disembodied, disinterested contemplation. Shred guitarists are accused of the sins of virtuosity: self-indulgence and an absence of expression. The concept of rock-guitar virtuosity is based on the model of musical excellence derived from classical music.[41]

Edward Van Halen's emergence as a visible and influential rock guitarist occurred at the moment of musical and ideological division, in rock between metal and punk. Van Halen has been placed more on the metal side of this musical division and the value assigned to his virtuosity was shaped by the broader aesthetic and discursive struggle over the purpose of rock performance at the end of the 1970s and into the 1980s.

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[40] Kevin Fellezs, "Edge of Insanity: Tony MacAlpine and Black Virtuosity," *Journal of Popular Music Studies,* 30, nos. 1-2 (March-June 2018): 110-117, accessed September 28, 2019, https://online.ucpress.edu/jpms/article-abstract/30/1-2/109/106016/Edge-of-InsanityTony-MacAlpine-and-Black?redirectedFrom=fulltext. The following discussion is indebted to this source.
[41] Walser, *Running with the Devil*, 75.

The early 1980s was an exciting time for aspiring rock guitarists. In 1981, Van Halen released their darkest album in *Fair Warning,* which showcased Edward's newly expanded soloing vocabulary influenced by jazz-fusion and legato technique practitioner Alan Holdsworth. Steve Vai's pitch-bending masterpiece *Flexible* was released in 1984 prompting guitarists to recess their tremolo cavities to bend pitches upwards to new heights. The decade of excess had reached the rock guitar community, and the king of shred was about to emerge.

Virtuoso shred pioneer Yngwie Malmsteen released his first solo album, *Yngwie J. Malmsteen's Rising Force,* in 1984. Yngwie firmly established his style, now referred to as neoclassical rock with the release of this Grammy-nominated album.[42] In breaking down Yngwie's style and technique author Joe Charupakorn suggested:

> Never before had a rock guitarist come to prominence possessing such over-the-top playing ability. Eclipsing Edward Van Halen as the modern rock guitar virtuoso, Yngwie boasted a unique style that was based on both monster chops and a thorough knowledge of harmony, scales, modes, and the classical tradition.[43]

Yngwie was raised in Stockholm, Sweden, and received his first guitar at age five. One of the first albums to influence Yngwie as a guitarist was John Mayall & the Bluesbreakers' *Blues Breakers with Eric Clapton*. Playing the blues came very natural to Yngwie. In 1971, he heard Deep Purple's *Fireball* album and by the age of nine or ten, he was obsessed with the guitar, learning to play along note for note with Deep Purple's

[42] Yngwie J. Malmsteen, *Relentless: the memoir* (Hoboken, NJ: John Wiley & Sons, Inc. 2013). The following discussion is indebted to this source.
[43] Joe Charupakorn, *The Best of Yngwie Malmsteen: A Step-by-Step Breakdown of His Guitar Styles and Techniques*. Guitar *Signature Licks* (Milwaukee, WI: Hal Leonard Corporation, 2002), 2.

Made in Japan album. Another important album in Yngwie's musical development was Genesis' *Selling England by the Pound.* This is where he first heard inversions, diminished chords, suspended chords, and pedal tones.[44] Progressive rock led Yngwie to seek out the music of Bach, Vivaldi, and Mozart, from which he developed his neoclassical style.

Malmsteen first heard the music of Niccolò Paganini performed by a Russian violinist during a television program when he was thirteen years old. "Paganini's intensity blew my socks off. He was so clean, dramatic and fast; his vibrato, broken chords and arpeggios were amazing. That's how I wanted to play guitar."[45]

Yngwie Malmsteen was discovered by Mike Varney and featured in his February 1983 *Guitar Player* column "Spotlight."[46] The tape Malmsteen submitted to Varney has surfaced on YouTube and demonstrates that the nineteen-year-old's style was already fully formed and unlike anything before it in rock. Upon the release of his 1984 U.S. debut album *Yngwie J. Malmsteen's Rising Force*, Yngwie won the *Guitar Player Magazine* Best New Talent award and the Best Rock Guitarist award the following year. Reflecting on the beginning of his career, Yngwie told *Guitar Player* writer Mark McStea:

> I love Van Halen, but my style was completely different, and everybody was following that kind of direction, copying Edward's style. Unlike Europe, I think the American rock audience had very little, if any, exposure to classical music. They had no knowledge of where I got these ideas, or that I had been influenced by Bach, Vivaldi, and Paganini.

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[44] Richard Bienstock, "Damn Right, He's Got the Blues," *Guitar World*, August 2019, 66.
[45] Joe Lalaina, "Yngwie, the One and Only," *Guitar School* (September 1989): 125.
[46] Mark McStea, "Forever Man," *Guitar Player* (August 2019): 47-50. The following discussion is indebted to this source.

Yngwie Malmsteen is frequently referred to as a neoclassical shredder, but he rejects the notion. Malmsteen states that music is not a fashion show where you have to have something entirely new every year. To him, musicians are like painters, with their own style of painting. For example, Yngwie's recorded output includes an acoustic album, a symphonic album, and a classic-rock covers album. However, the majority of his compositions would be classified as hard-rock music with a symphonic-classical feel.

Yngwie Malmsteen exemplifies the wholesale importation of classical music into heavy metal, the adoption of not only classical musical style and vocabulary, models of virtuosic rhetoric, and modes of practice, pedagogy, and analysis but also the social values that underpin these activities.[47]

Guitarist Paul Gilbert helped to establish the West Coast shred-guitar scene in 1986 with songs like "Scarified," "Frenzy," "Y.R.O." ("Yngwie Rip-Off), and other mind-boggling million-note displays of fretboard gymnastics on Racer X's debut album.[48] In his youth, Paul's goal was to write music that nobody else could play. "I would hear 'I'm the One' by Van Halen, and think, 'Nobody else can play that.' The athleticism really appealed to me."

Gilbert still identifies himself as a shredder, although the genre classification makes him cringe. As he told *Guitar Player* editor Jude Gold:

> It is the easiest way to market myself. Corn Flakes is a cereal, and I am a shredder. But if I have progressed at all, it is that I have come to the point where I wish I could write stuff like "Cocaine"- stuff anybody can play. As a songwriter, I

[47] Walser, *Running with the Devil*, 98.
[48] Jude Gold, "Shedding the Shred," *Guitar Player* (October 2016): 46. The following discussion is indebted to this source.

see it as great if your song is strong enough that it can survive the performance of other people's interpretations.

Metal fans may identify the ghoulish shred master guitarist John 5 from his sideman work with Rob Zombie and Marilyn Manson, but guitar enthusiasts understand how eclectic, prodigious, and schooled a session guitarist he (John Lowery) is.[49] John 5 is equally proficient at playing country, bluegrass, western swing, jazz, and flamenco as he is at playing hard rock and metal. John 5's technical abilities include hyper-speed alternate picking, sweep picking, chicken-pickin', banjo rolls, and right-hand tapping techniques.

John 5 is influenced by shred, metal, country, and anything he deems great music, regardless of how difficult it is to play.[50] During his formative years, John 5 was influenced by the television variety show *Hee Haw*—namely, country guitarists Roy Clark and Buck Owens. He eventually was listening to bands like KISS and Van Halen. John 5 believes that your influences make you who you are, and then it is up to you what you do with those influences. When John 5 was later developing as a player he decided that "Well, we already have Steve Vai and Yngwie Malmsteen, since I love rock and I love country, why don't I just meld the two together?"[51] His choice of guitar to express his eclectic style is the Fender Telecaster. John 5 is an avid collector of historic models, custom shop originals, and heavily modified instruments designed to enhance his performance techniques for recording and touring.

[49] Joe Bosso, "Shred Alert," *Guitar Player* (August 2019): 38.
[50] Mark McStea, "Plan 5 from Outer Space," *Guitar World* (August 2019): 45.
[51] Ibid.

Thoughts on Technique

Technical skills allow musicians to perform with great accuracy.[52] They include motor co-ordination and fluency which allow rapid musical passages to be played evenly and without hesitation. Performance technique includes perceptual skills such as pitch acuity, which allows accurate tuning. Possessing a variety of technical skills and ability creates options allowing a musician to make decisions that best serves the music.

Good musicians are, however, more than fine technicians. Good musicians "add value" to the mere notes by a whole range of expressive additions. These include slight changes in the timing, speed, dynamics, pitch, and sound quality of successive notes.

In many musical circles, it is expressive capacity which is held to mark the "real" or "gifted" musician. Mere technical prowess does not make a master musician. A proficient musician may describe someone who possesses more technical skill than expressive skill, whereas a musician described as "talented but lazy" may play expressively but cannot negotiate technically demanding passages.

John 5 garners inspiration from music performed at a high level, be it a bluegrass player or a metal guitarist. "I have to learn what they're doing and execute it perfectly. I obsess over it, and I love it dearly."[53] John 5 is not interested in sloppy, reckless playing, some of which the finest rock guitarists embrace:

> You can still play with fire and be accurate. I made it my mission to get rid of the slop. I want my playing to be clean. When I play a line, I want it to sound like it is all on one string. I want it that clean. I will play something a million times until I

[52] Sloboda, "What Makes a Musician," The following discussion is indebted to this source.
[53] Bosso, "Shred Alert," 38-39.

know it is perfect. But I do not want it to sound sterile. Think of a classical violinist."[54]

John 5 follows a regimented daily practice schedule to maintain his technique. "I play about three hours before each show, so that I am nice and warmed up. It sounds like a lot, but I am always playing. I am constantly trying to reach a pinnacle of perfection."[55]

Guitarist Guthrie Govan said technique is a means to an end, and the broader your range of playing techniques, the easier it will be for you to figure out the best-sounding and easiest way to realize a passage.[56] "I always seek the easiest and most natural way of doing things. I do not tense up when I practice. Whatever the technique, it must feel natural."[57] "Do not spend all your time locked up in a dark room with a metronome. Try and play with other people. Have an objective. Every time you practice something, try and understand why you are practicing and how you will use it."[58]

Technical breakthroughs on the guitar still excite Joe Satriani. "I am still a little kid in the candy store when it comes to doing crazy things with guitars, amps, and pedals." "I never try to get any particular technique into a song—it never works that way."[59]

Steve Vai required a lot of technique and was always attracted to the idea of being able to play relatively effortlessly.[60] Vai would often practice in front of a mirror and

[54] Ibid.
[55] Michael Molenda, "John 5 on Shredding, Diversity, and Keeping Audiences Engaged," *Guitar Player* (March 2018): 18.
[56] Guthrie Govan, *Creative Guitar 2: Advanced Techniques*. (London: Bobcat Books Limited, 2003), 9.
[57] Christopher Scapelliti, "Proggy Mountain Breakdown," *Guitar Player* (September 2018): 24.
[58] Randy Harward, "Inquirer: Guthrie Govan of the Aristocrats," *Guitar World* (November 2015): 26.
[59] Joe Bosso, "Funk Soul Brother," *Guitar World* (March 2018): 62.
[60] Steve Vai and Andy Aledort, "The Steve Vai Guitar Method" *Guitar World* (February 2018): 31-32.

record himself so that he could critique his performance. He always wanted his playing to look natural and elegant. "I would watch myself play in the mirror and I would imagine how I wanted my fingers to look, and I wanted everything to look elegant, effortless, mellifluous, beautiful, flowing and totally in control."[61]

Vai has recently discovered that the best way for him to improve is to imagine himself doing something beyond his capabilities. "I just imagine something I cannot do and then I work on it. I have found it keeps things fresh and interesting."[62] "I have started having visions about playing in new ways. It takes months and months to develop through undisturbed and focused time. And then you have this new vantage point that makes it so rewarding."

Steve Vai's thoughts on technique: "I am 59; keeping up those chops is not as interesting to me. It is all about the bizarre and quirky ways to phrase." "In any field, music or otherwise, you have to go through a phase where you are developing your technique and you have to focus on preparing your vehicle, so to speak."[63] Vai compares playing an instrument to being an athlete. "You have to spend many hours focusing on the movements that it takes to be an elite."

But Vai emphasizes that in order for anything to carry any energy of value, you have to go deeper than the technique. "The technique becomes your tool to express something deeper. If you do not go there, then your product is going to sound cold,

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[61] Brad Tolinski, "Passion Play," *Guitar World* (September 2016): 55.
[62] Amit Sharma, "Steve Vai," *Music Radar*, accessed June 27, 2019, https://www.musicradar.com/news/steve-vai-im-59-keeping-up-those-chops-isnt-as-interesting-to-me-its-all-about-the-bizarre-and-quirky-ways-to-phrase. The following discussion is indebted to this source.
[63] Tolinski, "Passion Play," 56. The following discussion is indebted to this source.

intellectual and void of any real energy." This traps some players, and they become fascinated with technique and get lost in it.

Concerning the topic of virtuosity, Vai said in his book *Guitar Workout*:

> I personally do not know of any other way to become a virtuoso but to work hard at it with great passion. The commitment it takes to become an elite virtuoso guitarist is not unlike that required to become a champion in any other field. You must transcend the games your mind will play on you and the excuses it will give you to lay off and take the easy road. Realize it is all in the mind, and never accept anything less than the best you can do when dealing with things that are within your ability to control.

In his DIY book, *The Advancing Guitarist*, Mick Goodrick offers his thoughts on technique.[64] He said that guitarists think of other players who have great technique as those who can play fast and precisely, and of the way(s) you play the instrument physically. But technique involves much more. It involves control over tempo, touch, and movement. It is the point where intention, thought, and feeling meets the instrument and are transformed into music.[65]

In a 1981 interview with *Guitar World* writer John Stix, Edward Van Halen said of his technique, "I can play just about as fast as I'd like to play. Any faster at the volume I play and I'd have distortion. So, on a technical level there's no reason to get faster."[66]

The Historiography of Rock-Guitar Technique

What follows is an historiography of guitar performance techniques commonly utilized by rock, fusion, and progressive-metal guitarists. Several of these techniques

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[64] Mick Goodrick, *The Advancing Guitarist: Applying Guitar Concepts & Techniques* (Milwaukee, WI: Hal Leonard Corporation, 1987), 105.
[65] Ibid.
[66] John Stix, "The New King of Heavy Metal," *Guitar Legends: Van Halen*, 21.

were considered innovative during the rise in popularity of the guitarist developing them but have since become a standardized skillset adopted by contemporary players.

The simplest and most universally useful picking-hand technique has been alternate picking, which basically means alternation between down and upstrokes.[67] That being said, alternate picking is indeed the hardest shred skill to master.[68] Rapid alternate picking produces the staccato-like effect that can result from picking every note, but the technique can benefit overall accuracy and timekeeping.[69] Alternate picking also offers a guitarist freedom of thought regarding pick-hand technique during improvisation.

Alternate picking came into acceptance by the hard rock/shred community via 1970s jazz-rock fusion.[70] Key figures known for their mastery of this technique include Al Di Meola, John McLaughlin, and Jimmy Bruno. Early adaptors in the hard rock and shred genres who mastered alternate picking include Ritchie Blackmore, Steve Morse, Paul Gilbert, and John Petrucci.

The most common pick grip utilized by shred guitarists is the "textbook" traditional grip employed by jazz guitarists. To develop fast alternate picking takes an academic approach and maintenance. It must also include a focus on tone. An issue with electric guitar is the tracking ability of the noisy amps and electronics responding correctly to the player. In other words, the choice of amplifier and/or effects can either

[67] Govan, *Creative Guitar 2*, 10.
[68] Rich Maloof and Pete Prown, *SHRED! The Ultimate Guide to Warp-Speed Guitar* (Milwaukee, WI: Hal Leonard Publishing, 2006), 1.
[69] Govan, *Creative Guitar 2*, 10.
[70] Maloof and Prown, *SHRED!*, 1.

facilitate or impede the ability for fast playing to track properly. There is a special alchemy in the way various pieces of gear match together.

Tremolo picking is picking the same note multiple times. This technique allows for relatively fast picking with minimal effort. Practicing tremolo picking will build pick-hand speed, consistency, and endurance. *Double picking* is specifically picking each note twice, but in sixteenth notes, rhythmically.[71] The end result is reminiscent of fast violin passages. When tremolo picking, Yngwie Malmsteen floats his picking hand away from the bridge and applies wrist flexion, resulting in a protruding wrist joint like the position used in the "Gypsy Jazz" guitar picking style.[72]

A famous example of tremolo picking can be heard during the third passage of Edward Van Halen's iconic guitar solo "Eruption," from his band's 1978 debut album *Van Halen*. This melodic idea was inspired by a phrase heard in "Étude No. 2" from violinist Rodolphe Kreutzer's *42 Études ou caprices.*[73] He added the phrase to "Eruption" as a bit of a joke.[74] Edward had studied this Étude as a young violin student.[75] He played the violin for about three years at the end of elementary school and the beginning of junior high.

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[71] Joe Stump, *Joe Stump's Metal Guitar Shop: Building Shred & Metal Technique* (Boston, MA: Berklee Press, 2014), 13.
[72] Chris Brooks, *Neoclassical Speed Strategies for Guitar* (Middletown, DE: Fundamental Changes, 2017), 24.
[73] Joe Charupakorn, *Van Halen*: *A Step-by-Step Breakdown of the Guitar Styles and Techniques of Eddie Van Halen.* Guitar *Signature Licks* (Milwaukee, WI: Hal Leonard Corporation, 2015), 57.
[74] Brad Tolinski and Chris Gill, *Eruption: Conversations with Eddie Van Halen* (New York: Hachette Books, 2021), 9.
[75] Jimmy Brown, "Tapping Young Lad," *Guitar World Presents Guitar Legends* (Summer 2004): 72-73.

Legato stems from the Italian term *legaré*, meaning "tied together." Legato, in musical terms indicates a musical passage to be played connectedly. Legato is more of a sound than a technique, but rock guitarists automatically associate legato technique as a series of hammer-ons and pull-offs. Legato technique is often compartmentalized and practiced independently of the other forms of articulation.

Legato playing reached new heights for rock guitarists during the 1980s, due to the influence and mastery of the technique by Allan Holdsworth and Joe Satriani, who made exceptional use of fretboard maneuvers like hammer-ons and pull-offs, as well as bends and slides.[76] Once perfected, these combined legato techniques give a melodic line an ethereal flow and smoothness.[77] Holdsworth, however, eschewed pull-offs altogether as he disliked the weaker sound they produce.[78] Allan, considered by many the pioneer of legato, adopted the technique in order to sound more like a saxophone (his preferred instrument). Holdsworth was ripping up the fretboard from the late 1960s/early 1970s; playing mind bogglingly fast legato licks and lines that still stump the contemporary players of today.[79] Allan's prominent use of legato playing was the primary influence for Edward Van Halen, whose use of the same technique brought legato to the rock guitar community and spawned the shred guitar movement.[80]

To employ the legato technique, one must first consider how to dial in a complimentary tone. Compression and sustain are important effects that foster a legato-

[76] Maloof and Prown, *SHRED!*, 7.
[77] Ibid.
[78] Govan, *Creative Guitar 2*, 41.
[79] Lick Library, "Who Invented Shred Guitar Techniques" licklibrary.com, accessed on February 18, 2021, https://www.licklibrary.com/news/who-invented-shred-guitar-techniques
[80] Ibid.

friendly tone on electric guitar.[81] Compression aides in producing an even signal saturation and determines the average output of a signal. This enables pick strokes, hammer-ons, pull-offs and slides to be normalized.

Typically, legato players prefer bridge humbucker pickups, boost pedals, and overdriven or high gain amplifiers. A compression pedal should follow the guitar in the signal chain as this will flatten the dynamics without changing the tone. Experimenting with clean boost pedals (which increase the output of the guitar) or drive boost pedals (which add gain and affect tonal color) offers alternative methods of cultivating a liquid-smooth legato tone.

A few guitarists renowned for their legato technique have been known to modify their overdrive pedals to accommodate their associated musical styles. Collaborations with pedals builders have resulted in signature editions to replicate their tones. Fusion guitarist Tom Quayle worked closely with Brian Wampler to produce the two-channel Dual Fusion overdrive pedal. Jazz and blues guitarist Scott Henderson collaborated with Tube Screamer creator Susumu Tamura to modify the Maxon SD-9 Sonic Distortion pedal to specifically meet his requirements for a boost pedal to aid his legato technique during solos.

Guitarists associated as "legato" players tend to prefer their guitars built with wide, flat fretboards (20" radius) and jumbo or medium-jumbo frets. Allan Holdsworth

[81] Chris Brooks, *Legato Guitar Technique Mastery,* (Middletown, DE: Fundamental Changes, 2019), 6-10. The following discussion is indebted to this source.

gravitated towards ergonomic, chambered or hollowbody headless guitars. He would place his pedals on a stand and control the settings by hand.

Since the picking-hand does not articulate each note during a legato passage, it does assist the fretting-hand in trading off to mute unused strings. Most players approach each string with a picked-note attacking the string with a plectrum. Upon the release of the picked-note, all other pitches on that string will be slurred to the next note via a hammer-on or pull-off. Fusion players, like Tom Quayle incorporate fingers of the picking hand into note articulation (see hybrid picking) to increase speed and aide in performing wide interval jumps (string skipping) with relative ease.

Sweep picking is a technique that was developed to emulate the fast scalar and arpeggiated passages performed on the saxophone and keyboard. The technique was brought to the attention of rock guitarists by the music and instructional materials of jazz-fusion guitarist Frank Gambale. His 1988 instructional video, *Monster Licks and Speed Picking* remains an important resource on the topic. As Gambale expounded to interviewer Greg Prato, "So I had to push the boundaries, really, to create and develop this incredible technique, that is now part of the guitar lexicon."[82]

Often regarded as a shredder's technique, sweep picking is highly effective and useful for playing rapid streams of notes with ease.[83] Jazz guitarists from the 1950s, such as Les Paul, Barney Kessel, and Tal Farlow, would use the sweep picking approach in their improvisations. In fact, country guitarist Chet Atkins was known to favor sweep-

[82] Prato, *Shredders!,* Loc 2382, Kindle.
[83] Charlie Griffiths, "Big Strokes," *Guitar World* (October 2012): 89. The following discussion is indebted to this source.

picked arpeggios over his signature fingerstyle hybrid-picking technique, proving the technique is not genre specific. Perhaps the leading exponent of sweep picking arpeggios in a rock context is neoclassical guitarist Yngwie Malmsteen, who utilized the technique to execute the fast arpeggios and ascending scalar passages found in classical music, and specifically to emulate the violin.

Sweep picking allows a guitarist to play multiple notes in the same stroke, one note per string. The economy of sweep picking enables one to play a lot of notes with minimal movement of the picking hand, making it easier to play at high velocities.[84] Frank Gambale refers to sweep picking as speed picking and uses this technique exclusively with his right hand.[85] He explains the reason for this thus; "Alternate picking is fine for scale-type runs but just does not cut it for arpeggios or lines where there is only one-note-per-string."[86] By 1987, Gambale had devoted fifteen years to developing his sweep-picking technique in place of alternate picking (or in addition to it) by purposely practicing his scales, licks and arpeggios utilizing three-note-per-string fingerings whenever possible, to set up his right-hand for speed picking.[87] Gambale is widely considered to be the most versatile and innovative sweep picker as well as the first artist to fully integrate the technique into his style.[88] He has applied sweep picking technique to arpeggios, as well as to pentatonic and heptatonic (seven-note) scales and modes.[89]

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[84] Frank Gambale, "Sweep Picking," *Guitar Player*, September 1987, 78.
[85] Frank Gambale, *Speed Picking: Build Maximum Picking Efficiency* (Seattle, WA: REH Publications, 1985), 2.
[86] Ibid.
[87] Gambale, "Sweep Picking," 78.
[88] Griffiths, "Big Strokes," *Guitar World*, 89.
[89] Ibid.

However, Guthrie Govan disagrees and claims that the technique is not useful for every musical situation requiring a pick.[90] Sweeping can help you play fast passages effortlessly, but it can also make your fast playing sound ungainly and sloppy if not carefully executed. Govan exclaims, "I would urge you to get as comfortable as possible with alternate picking before you even think about this other stuff." Alternate picking may not be the easiest way to pick in absolutely every situation, but it is probably the best all-round approach because it favors accents, accuracy, and timing.

Economy Picking combines two picking systems into one technique.[91] The strengths of alternate picking with the unbeatable efficiency of sweep picking. Economy picking continues the momentum of the pick on string changes, instead of applying strict alternate picking regardless of direction. In other words, economy picking differs from alternate picking only in the way one performs string changes. Hence, economy picking is the most *economical* way to pick notes on different strings.

The roots of economy picking originate from 19th century fingerstyle (rest stroke) technique. In the 20th century, directional economy picking arose as a part of the Gypsy jazz guitar technique.

Some guitarists utilize economy picking only in specific musical situations, while others build an entire style around it. Jazz-fusion guitarist Frank Gambale brought economy picking to the attention of rock guitarists with a fully-realized system that he

[90] Govan, *Creative Guitar 2*, 31-38. The following discussion is indebted to this source.
[91] Chris Brooks, *Economy Picking Guitar Technique,* (Middletown, DE: Fundamental Changes, 2021), 4-7. The following discussion is indebted to this source.

employed to all his scale and arpeggio patterns. Gambale is generally considered the leading practitioner of economy picking.

Hybrid picking combines both pick and fingerstyle approaches to the guitar. Utilizing an exclusive pick style limits your ability to play contrapuntal figures, wide intervals, walking bass lines with chords, and classical-guitar pieces. Hybrid picking, as Guthrie Govan describes it, is the "Swiss army knife" approach to picking technique, combining the advantages of fingerstyle and flat picking to facilitate wide interval leaps, open chord voicings, and polyphony that would otherwise be unplayable.[92] The idea of using pick and fingers together is popular with country players, who often play licks derived from the rolls of banjo playing.[93] Mick Goodrick wrote in *The Advancing Guitarist*, "My opinion is that the full harmonic potential of the guitar can only be realized if you play fingerstyle. Short of that, 'pick and fingers' would be the next logical choice."[94]

The benefit of developing a hybrid picking technique is that it reduces the pressure in your picking hand used to perform otherwise difficult (or impossible) musical ideas with only a pick. The essence of alternate picking technique lies in the mastering of string-crossing mechanics. Hybrid picking results in effortless speed for technical passages, offers tonal variation if desired, and is less physically strenuous than alternate picking technique.

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[92] Gustavo Assis-Brasil, *Hybrid Picking: Lines & Licks for Guitar*, published independently by author, www.gustavoassisbrasil.com. Gustavo Assis-Brasil Music, 2011, 7.
[93] Govan, *Creative Guitar 2*, 78.
[94] Goodrick, *The Advancing Guitarist*, 94.

String-skipping technique is utilized by guitarists to form unusual intervals or maintain evenness of tone within string groups. An alternative to sweep picking, string-skipping technique allows for improved control over accents, muting, and slurs. String-skipping is a mainstay technique of Paul Gilbert, Eric Johnson, and Andy James.

Fretboard tapping was added to the rock guitar lexicon of techniques following the debut release of *Van Halen* in 1978, when it was first heard during the final passages of Edward Van Halen's legendary instrumental solo piece "Eruption." Edward Van Halen will always be credited as the pioneer when it comes to two-handed tapping, but classical guitarist Vittorio Camardese had documented fretboard tapping in 1965.[95] Rock guitarists such as Steve Hackett (Genesis), Frank Zappa, and Brian May were utilizing the technique before Van Halen as well.[96] Steve Hackett first used tapping on the song "The Musical Box," which appeared on the Genesis album *Nursery Cryme.*[97] Edward Van Halen first recognized the two-handed technique when performed by guitarist Harvey Mandel (Canned Heat, John Mayall & the Bluesbreakers).[98] Guitarist Dennis Catron, who regularly caught Van Halen live during their formative years, claims he never saw Edward use two-handed tapping (less a single-note tap à la Billy Gibbons) until around 1977.[99] Edward says, "I don't know if I was the first one to do it. I mean, I'm sure that somebody else thought of it, too!"[100] When combined with fret-hand legato, this

[95] Vittorio Camardese, "The Godfather of Tapping" YouTube, accessed on February 17, 2021, https://www.youtube.com/watch?v=Q-lSq-3zdPM&feature=emb_logo.
[96] Mike Mueller, Chad Johnson and Barrett Tagliarino, *DVD Guitar Shred*, At a Glance Series (Milwaukee, WI: Hal Leonard Corporation, 2008), 19.
[97] Prato, *Shredders!,* Loc 2271, Kindle.
[98] Renoff, *Van Halen Rising*, 161.
[99] Ibid., 162
[100] Bosso, "The Monster of Rock," *Guitar Legends: Van Halen,*55.

technique creates incredibly fast and fluid passages with an extended pitch range impossible to reach by fret-hand alone. Fretboard tapping allows for multi-octave pitch jumps within a single phrase.[101]

Van Halen said fretboard tapping was often performed and transcribed incorrectly.[102] The technique is an extension of the fretboard hand. Edward typically utilized the first or second finger of his right hand to produce the first note, and then pull off the string to sound the second note. The pull off motion should be toward the palm of the hand, and the tapping finger should slightly catch the string. Whole descending scales can be played via fretboard tapping. Edward recommended starting with blues patterns to develop the technique. Once the basic skill of tapping is mastered, apply the technique to licks.

Tapping is a much-maligned aspect of guitar playing and guilty of its association with heavy metal, or worse yet with the "hair" metal of the late 1980s.[103] This is unfortunate because all sorts of new playing possibilities emerge if you apply tapping to your playing, from impossible-sounding blues licks and wide-interval fusion lines to fresh new chord voicings and the freedom to hammer a melody and a bass line simultaneously.

Multi-finger tapping can add a whole new dimension to legato playing. For example, Michael Hedges applied tapping technique on a steel-string acoustic to create

[101] Maloof and Prown, *SHRED!*, 46.
[102] Eddie Van Halen, "My Tips for Beginners," *Guitar Player* (July 1984): 60. The following discussion is indebted to this source.
[103] Govan, *Creative Guitar 2*, 53-64. The following discussion is indebted to this source.

complex rhythmic textures in a "New Age" context. Jazz guitarist Stanley Jordan approached the guitar much like a piano playing melodies with his right hand while adding bass lines, counter-melodies, and chordal embellishments with his left. Multi-finger tapping is a basic motor skill that once learned can be applied to creating new musical textures and sounds on the guitar. Standout rock practitioners of the technique include TJ Helmerich, Brett Garsed, Jeff Watson, Jennifer Batten, and Steve Vai.

Improvisation is much harder utilizing multi-finger tapping on the guitar, particularly over complex chord changes, because one must concentrate on visualizing two areas of the fretboard simultaneously. This involves twice as much work as traditional guitar techniques, so players who specialize in multi-finger tapping tend to have a wide repertoire of already-worked-out licks that they use as a basis for their soloing.

Finger vibrato is a fundamental part of any player's technique. Dream Theater guitarist John Petrucci said, "What separates players are the smaller details—your vibrato, your bending technique."[104] "Vibratos are like fingerprints, everyone's vibrato is different, and everyone approaches the technique a little differently. If you try to mimic the signature vibrato of a certain player, just that is enough to suggest that player to those familiar with their sound."[105]

[104] Art Thompson, "25 Essential Prog-Rock Guitarists," *Guitar Player* (April 2021): 54.
[105] John Petrucci and Andy Aledort, "Guitar Method," 46.

"The greater the variety of vibrato effects you can coax out of your instrument, the more versatile you will be as a player," says Guthrie Govan.[106] Apart from the "human" quality vibrato imparts to a note, it can also increase your sustain because the basic vibrato motion constantly rubs the string against the fret, causing a bowing effect from underneath the string. The opposite can be said of the side-to-side vibrato favored by classical guitarists, the difference being a byproduct of the use of a nylon string rather than steel, which has very different elastic properties. For example, the vibrato a classical guitarist applies to the piece "Cavatina" by Alexandre Tansman (1897-1986) would not work for Steve Lukather during his electric guitar solo on the hit song "Rosanna," and vice versa.

The "soul" of the note is the vibrato, says Steve Vai.[107] The conventional "rock and roll" vibrato is performed utilizing an up-down movement while a classical violinist moves the string side-to-side. For finger vibrato, Vai prefers to use a circular vibrato which is a mixture of the two. The vibrato bar adds a whole different dimension to the instrument, and Vai has investigated it extensively. With any vibrato, Vai is looking for ease of control, flowing without thinking, good intonation, and nice tone.

Joe Satriani stated, "Vibrato is really part of the melodic information, so it should not just be poured on like hot sauce!"[108] The type of vibrato to use is determined by what is best for the flavor of the song, and not just to shake a note for the sake of it. One is

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[106] Guthrie Govan, *Creative Guitar 1: Cutting-Edge Techniques* (London, UK: Bobcat Books Limited, 2003), 23. The following discussion is indebted to this source.
[107] Vai and Aledort, "Steve Vai Guitar Method," 35-36. The following discussion is indebted to this source.
[108] Joe Satriani and Andy Aledort, "The Joe Satriani Guitar Method," *Guitar World* (March 2018): 56. The following discussion is indebted to this source.

reminded of East Asian music and their use of vibrato, which is quite different from what we are accustomed to in Western music.

A Bigsby vibrato tailpiece or a Fender Synchronized Tremolo, for example, will allow a guitarist to bend the pitch of notes or entire chords to fit in more musically with the rest of a band. The Bigsby, designed by Paul A. Bigsby, was the first successful design of what is now referred to as a whammy or tremolo bar. Although vibrato is the technically correct term for the musical effect it produces, many electric guitarists and manufacturers identify the device as a tremolo bar. The confusion is attributed to Leo Fender, who also used the term "vibrato" to refer to a tremolo effect available on some of his amplifiers. Guitarist Johnny A. is noted for his use of the Bigsby vibrato tailpiece on his Gibson signature hollowbody guitar.

Australian progressive-rock guitarist Plini stated that, in his experience, the whammy-bar—known more formally as a tremolo-bar, or more precisely, a vibrato-bar has been considered an inferior form of expression amongst "modern" metal players.[109] "But in truth, like any articulation technique or device available to the electric guitarist, the whammy bar can offer a really fun and expressive way to expand one's sound."[110]

A signature style of rock-guitar vibrato-bar (or whammy) technique began in the late 1970s with Edward Van Halen. The 1978 debut album *Van Halen* offers a masterclass on the use of whammy-bar technique for the metal generation.[111]

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[109] Plini, "Prog-gnosis," *Guitar World* (November 2018): 86.
[110] Ibid. For vibrato bar demonstrations view: https://www.youtube.com/watch?v=2qS8sag1UWY accessed February 26, 2020.
[111] Maloof and Prown, *SHRED!*, 54.

Jeff Beck developed a highly advanced vibrato bar technique after years of playing a Fender Telecaster during the early days of the British Invasion and later a Gibson Les Paul. Utilizing a Fender Stratocaster fitted with a two-point synchronized tremolo bridge with stainless steel saddles and a LSR roller nut, Beck plays without a plectrum and gets amazing tones and range of dynamics from his fingers. Experimenting with feedback and distortion, Jeff has his tremolo bar set to pull up approximately a major third on the G string for increased range. Beck's vibrato bar technique produces vocal-like melodies and is now an integral part of his style.

Influenced by Jeff Beck, jazz and blues guitarist Scott Henderson has adopted and perfected Beck's tremolo bar setup with the assistance of guitar builder John Suhr for his signature Classic S model guitar. Henderson requested that the steel tremolo arm be thicker and shorter for his playing style, and by drilling the six mounting screw holes bigger with careful installation of the Fender bridge, the tuning stability is improved. Henderson had additional wood removed inside the tremolo cavity to allow of increased pitch range.

Steve Vai may be unparalleled in broadening the scope of whammy-bar possibilities.[112] "The whammy bar is my favorite crutch," says Vai.[113] His Ibanez Jem Edge vibrato bars are designed and setup to make notes go sharp as well as flat, until the strings have no tension. Vai admitted in his *Guitar World* program, "30-Hour Guitar Workout" that he—seems to have made a career of creating everything from a nice,

[112] Ibid.
[113] Steve Vai, *Steve Vai's Guitar Workout* (Milwaukee, WI: Hal Leonard Corporation, 2013), 35.

subtle vibrato on single notes and full chords to ferocious sonic violence and utter warbling cacophony.[114]

Joe Satriani is known for his tasteful lines with tremolo-bar grace notes and pitch bends, and his technique mixes influences from both Edward Van Halen and Alan Holdsworth.[115]

Harmonics are available in two varieties on the guitar: natural and artificial. A natural harmonic is the easiest to perform. Pluck any string while lightly touching that string with a fretting-hand finger directly over the twelfth, nineth, seventh, fifth, fourth or second frets (do not press down) and immediately remove the fretting-hand finger for the harmonic to "bloom." The harmonics produced are the root, third, fifth, root, third, and nineth respectively. Harmonics can also be sounded over frets that produce minimal natural harmonics. However, they are harder to perform without a properly setup electric guitar, high gain amplifier, distortion, overdrive, and/or compression effects. In addition, harmonics can be found from the twenty-fourth fret towards the bridge in the reverse order of fret five to the nut.

Harp harmonics can be performed anywhere on the fretboard and always sound one octave higher in pitch. This technique generates cascades of harp-like arpeggios from fretted chords producing a gorgeous sound. Pioneered by players such as country guitarist Chet Atkins and perfected by guitarists such as Lenny Breau and Ted Greene, harp harmonics can be played as single-note patterns or as arpeggios of fretted chords. Slightly

[114] Ibid.
[115] Maloof and Prown, *SHRED!*, 54.

harder to execute than natural harmonics, the picking hand index finger must simultaneously touch the string twelve frets higher than the fretted note while the thumb plucks the string from behind.

Edward Van Halen performed a variation of the above techniques to produce harmonics by utilizing right-hand harmonic tapping.[116] He would tap twelve frets above a note, directly on the fret (removing the right-hand finger quickly). Examples of this technique can be heard on "Spanish Fly," "Women In Love" [*Van Halen II*], "Eruption" [*Van Halen*] and "Top Jimmy" [*1984*].

Thumping is an extended range picking-hand guitar technique pioneered by seven- and eight-string guitarist Tosin Abasi, from the progressive metal trio Animals As Leaders. Abasi credits jazz bassist Victor Wooten as a major influence on the development of his thumping technique.[117] Tosin uses his thumb much like a pick to function as an adaptation of slap bass-guitar technique applied to extended-range guitars. He believes the technique is useful for both rhythmic and melodic applications.[118]

Abasi uses his thumb to sound both downstrokes and upstrokes on the lower strings leaving his index and middle fingers free for fingerpicking higher notes. Interesting musical patterns and textures can be explored with the addition of fret-hand tapping. Thumping is recognized as a new extended-range guitar technique currently being explored by Abasi and his contemporaries.

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[116] Eddie Van Halen, "Tips for Beginners," 60. The following discussion is indebted to this source.
[117] Tosin Abasi, *Prog-gnosis.* Guitar World (New Bay Media, 2013), DVD. For an online demonstration view: https://www.youtube.com/watch?v=kPiJMrlEXUA accessed February 26, 2020.
[118] Tosin Abasi, *Thump!* (USA: Guitar Messenger, 2016), DVD.

Summary

Edward Van Halen focused on his sound and tone. Van Halen's technique was a means to his musical expression. During his formative years, Edward attempted to replicate his heroes like Eric Clapton, Tony Iommi, and Jimmy Page. After countless hours of rehearsing and gigging with his brother on drums playing cover tunes, Edward began to develop a unique, individual style through an amalgamation of his influences. Later, during the seminal years of Van Halen, Edward unintentionally began to develop innovative guitar techniques (i.e., fretboard tapping) to solve musical problems in his compositions. Van Halen did not set out to create the lexicon of rock guitar technique that we have today, and he regretted that other guitarists would choose to imitate his style verbatim over discovering their own voice.

Pushing the boundaries of creativity and musical expression on the electric guitar, the 1980s became known by rock guitarists as the decade of shred, neo-classical rock, and "hair" metal. For better or worse, many rock musicians relocated from around the United States and abroad to Los Angeles in hopes of seeking fame and fortune. Several of the Sunset Strip hard-rock bands of the era featured a "hot shot gunslinger" who could execute the latest techniques, (only faster) and build upon what had already been accomplished just a year or two earlier on the electric guitar.

The shred-era guitarists' hyper-awareness to technique led to the development of the electric guitar as an instrument with associated playing techniques relating to the style of a particular guitarist's technical advancements. Initiated by Edward Van Halen in the late 1970s, his custom modifications to his homemade guitars helped to facilitate towards

the cultivation of his musical style. And as will be discussed in Chapter Three, Van Halen's hot-rodded guitars led to advancements in guitar technology and new industry practice.

Chapter Three

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Electric Guitar Tones

Electric guitar tone encapsulates the technologies, acoustical properties, and performance techniques that make up the diverse timbral palette cultivated in popular music, including the critical assessment of the role those specific sonic qualities play in the constitution of music communities, genres, and artistic personas.[119] At some level, tone is an illusion sold as sonic snake oil. On the other hand, refined tone can be understood as a way for musicians who are identified as "players" to resolve an inherent contradiction within the aesthetic ideology of popular music. Guitar tone and the control over sound has always been tensely negotiated in the genres of classical, country, blues, and rock; however, I would argue that guitar tone is of less importance in jazz.

By the late 1990s, the tone-centered advertising found in guitar magazines exemplified the dominance of tone-seeking rhetoric in the popular music marketplace. Electric guitarists are not unique among popular musicians in chasing tone, but tone-based advertising in guitar magazines, instrument manufacturers' websites, forums, and social media can lead one down a rabbit hole of tone obsession, where guitarists are lured by the prospects of accessing the exact tonal characteristics of a given player, vintage instrument, or genre.

[119] Robert Fink, Zachary Wallmark, and Melinda Latour, *The Relentless Pursuit of Tone,* (New York: Oxford University Press, 2018), 1-4. The following discussion is indebted to this source.

Tone is an ideological term that indexes just how perplexed guitar players are about where they should take their aesthetic stand as musicians. Aspiring guitarists are told repeatedly by writers, columnists, and professional guitarists that a guitar, amp, or effects processor is just an inanimate object, and "tone is in the hands." To the contrary, product reviews, advertising copy, and an artist's selling point of signature gear will emphasize the importance of specific musical equipment in cultivating a distinctive tone. So, the question is, "Which is it?" Does tone originate from the individual? Or is tone a transferable quality of manufactured objects?

As is very often the case in the music industry, individuation is presented as achievable through consumption of a limited selection of mass-produced goods carefully camouflaged as artisanal. For example, a limited edition of a reissued classic guitar, amp, or effect pedal. Musicianship, a complex web of social, economic, and aesthetic relations, is profitably reimagined as a global commodity that can be harvested from uncharted deposits of raw sonic materials, refined through industrial technology, and then marketed to metropolitan consumers. So, the musical instrument industry does not principally send aspiring musicians to the woodshed to practice but rather on an obligatory and costly "tone quest," a "profoundly important, personal journey" to discover their "unique, signature tone."

I have personally experienced this phenomenon over the past five years while attending the winter NAMM (National Association of Music Merchants) Show that is held each January in Anaheim, California. The NAMM Show brings together over 115,000 attendees from 130 countries to reveal the latest innovative creations in music,

sound and entertainment products, the ever-changing world of music retail, as well as the collective quest to improve music education worldwide.[120] Traversing the trade floor, I am inundated by the latest offerings from music vendors pitching the latest innovations in guitar technology. The overriding narrative is either how to authentically reproduce the legendary tones of the past, or how to create the innovative tones of the future.

The Electric Guitar Rig

An electric-guitar rig is the complete collection of tools used in delivering a player's sound.[121] The rig includes a guitar amplifier(s), speaker cabinet(s), effects pedals, rack gear (effects, tuners, pedal switchers, power conditioners, wireless system), foot controllers, pedalboards, and all the accessories that tie them all together (cables, power supplies, etc.). A guitar may be considered part of the rig if it adds very specific capabilities that would otherwise be missing from the rig (piezo acoustic output, MIDI pickups for guitar synths, a modeling guitar, etc.). The smallest change in nearly any component of an electric-guitar system can affect the tone to a more or less audible degree.[122]

Guitar Technology

By the 1920s, the future of the acoustic guitar was under threat due to its naturally low volume when competing with other instruments, as jazz, country, and folk-dance bands became increasingly popular.[123] At best, the acoustic guitar could only be used to

[120] "About," *NAMM,* accessed January 26, 2020, https://www.namm.org/about.
[121] Scott Kahn, *Modern Guitar Rigs: The Tone Fanatic's Guide to Integrating Amps and Effects* (Milwaukee, WI: Hal Leonard Books, 2011), 1.
[122] Fink, *The Relentless*, 5.
[123] Terry Burrows, *Guitar,* (London, UK: Carlton Books, 2003), Introduction. The following discussion is indebted to this source.

provide rhythmic backing until louder acoustic guitars were developed. The first electric guitars were viewed with suspicion by musicians, but this changed in 1935 when Gibson launched the ES-150 model. In the hands of bebop jazz pioneer Charlie Christian, the electric guitar was introduced as a serious musical proposition.

During the 1940s, the first solid-body electric guitars were developed, and Leo Fender was the first to put the instrument into production. In 1950, he created the Fender Broadcaster, (renamed the Telecaster in 1951), the first mass-produced solid-body electric guitar. In 1952, Gibson collaborated with popular guitarist Les Paul to introduce the Gibson Les Paul "Goldtop" solid-body electric guitar. Two years later, Fender released the legendary Stratocaster, the most famous electric guitar design. It could be argued that in the years following the invention of these models, there have been surprisingly few radical changes. The Fender Telecaster, the Gibson Les Paul, and the Fender Stratocaster remain the "Holy Trinity" of electric guitars.

The electric guitar has been the object of intense organological experimentation in the acoustic, electric, and digital domains.[124] The instrument is a product of the technological age. The sonic individuality of a guitarist comes from one's touch, technique, choice of guitar, type of amplifier, speaker cabinet, and selection of effects devices. The electric guitar is comprised of acoustic, electromechanical, and digital parts integrated into an instrumental environment. [125] Electric guitars are inanimate amalgam

[124] Otso Lähdeoja, Benoît Navarret, Santiago Quintans, and Anne Sedes, "The Electric Guitar: An Augmented Instrument and a Tool for Musical Composition," *Journal of Interdisciplinary Music Studies* 4/2 (2010): 38.
[125] Ibid., 41.

of metal, wood, plastic, and wiring, among other materials, typically created in a workshop or factory.[126] Guitars are remarkably human in their shape and scale. And when drive, touch, and vision align, an electric guitar can sound as unique to its player as a set of fingerprints. Joe Bonamassa said the organic sound of an electric guitar, described as this woody, human voice quality, lies very much in the mid-range, anywhere from 300 Hz to about 1000Hz, maybe a little bit higher.[127] Per guitar builder Paul Reed Smith, humans can hear frequencies between 30 cycles and 20k.[128]

When guitarists discuss technique the conversation usually includes discussions of speed, touch, and articulation, but knowing how to get the most out of the instrument also requires skill.[129] Understanding how to cultivate classic tones from a Fender Telecaster or Stratocaster, a Gibson Les Paul or ES-335 for example, is crucial for a studio musician or sideman.[130]

Development of the Super Strat

Edward Van Halen and his bandmates decided that his 1959 Fender Stratocaster sounded thin and noisy due to its single-coil pickups and light body wood. His Gibson Les Paul had a fatter sound and humbucking pickups, but Edward preferred the

[126] Jayson Kerr Dobney and Craig J. Inciardi, *Play It Loud: Instruments of Rock & Roll* (London, UK: Yale University Press, 2019), 68-69. The following discussion is indebted to this source.
[127] Fornadley, *Tone Wizards*, Loc 4125. Kindle.
[128] Paul Reed Smith, "Long Distance: Paul Calls Clint Lowery," *PRS Guitars,* accessed on October 9, 2021, https://www.youtube.com/watch?v=KWSEo6kHavA.
[129] Neville Marten, "Guthrie Govan," *Total Guitar*, accessed on June 30, 2019, https://www.musicradar.com/news/guthrie-govan-the-older-wiser-player-knows-in-a-deep-intuitive-way-that-its-the-quality-of-the-playing-that-counts.
[130] Ibid.

Stratocaster design. So, he tooled his own pickguard and installed the humbucker into a Stratocaster body.

In 1977, Edward Van Halen redefined the electric guitar with his homemade "Frankenstein" instrument. Southern California was the birthplace of hot rod culture, and although modifying an electric guitar with upgraded or spare parts was a new concept, many teenagers in Edward's neighborhood occupied their free time fixing up old cars.[131] By trial and error, Edward frequently swapped necks, pickups, and hardware and ruined many guitars to build his ideal instrument. What became known as his iconic red-white-black-striped guitar was originally acquired as an unfinished ash-bodied factory-second Boogie Bodies/Charvel copy of a Fender Stratocaster purchased from Wayne Charvel's repair shop for $50 dollars.[132] Edward had a preference for unfinished maple necks made by guitar luthier Linn Ellsworth at Boogie Body in Seattle, Washington.[133] The neck Edward ordered for the Frankenstein guitar was consistent with the custom specs listed in the Charvel 1977 catalog as a Style C "flatter-wider Gibson-style" fretboard with standard jumbo frets.[134] Edward purchased this neck from Charvel for approximately $80 dollars.[135]

At the time, Fender guitars were suffering from quality-control issues, and business was slow. As Van Halen increased in popularity independent custom-guitar

[131] Tolinski and Gill, *Eruption*, 21.
[132] Chris Gill, "Perfectly Frank: The True Origins and Evolution of Eddie Van Halen's Legendary Frankenstein Guitar," Guitar World (November 2021): 58-59.
[133] John Stix, "The New King of Heavy Metal," *Guitar Legends: Van Halen,* Guitar World Presents (Summer 2004): 23.
[134] Gill, "Perfectly Frank," Guitar World, 59.
[135] Ibid.

shops around the Los Angeles area began profiting from Van Halen-inspired instruments. Van Halen's cut-and-paste approach to guitar construction laid the groundwork for a new aesthetic of electric guitar-design that had a considerable impact upon the guitar manufacturing industry in subsequent years.[136]

California guitar luthier Grover Jackson is widely credited with inventing the compound-radiused fretboard and the first production-model twenty-four-fret Superstrat—the Jackson Soloist. However, he owes some of his success to Wayne Charvel, who during the mid-1970s established a spare-parts business that would enable players to hot-rod their production-line guitars.[137] The Jackson Soloist featured a neck-through design that differed from Fender's bolt-on necks and Gibson's primarily set-neck joints. The company took off in 1980 when Ozzy Osbourne guitarist Randy Rhoads collaborated with Jackson on a custom signature guitar.

The Charvel brand is sometimes viewed as a sidenote to the more significant story of Jackson guitars, but the first Charvel guitars appeared in 1979. Like Fender, Charvel guitars featured a bolt-on neck design and were more affordable than the "sister" Jackson brand. In fact, one could argue that Charvel guitars were critical to the whole Superstrat phenomenon.[138]

Gary Kramer established Kramer Guitars in late 1975 and introduced four models (two guitars, two basses) at the Summer 1976 NAMM Show in Chicago.[139] His

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[136] Bennett and Dawe, eds. *Guitar Cultures*, 126.
[137] Burrows, *Guitar*, 147.
[138] Ibid.
[139] Chris Gill, "Kramer vs Kramer," *Guitar World* (November 2015): 81-86. The following discussion is indebted to this source.

instruments featured a new aluminum neck design, a 25-inch scale, rear-adjustable pickups, luthier Phil Petillo's "Center Touch" fret wire, a zero fret, and bodies made of tropical tonewoods such as afromosia, bubinga, shedua, and swietenia. Kramer Guitars received more than a quarter million dollars' worth of orders that year as a startup company. Shortly afterwards, Gary Kramer arranged a buyout deal to leave the business. One of the company's biggest early supporters was Guitar Center, which became the owner of Kramer Guitars in 1979. Gene Simmons of KISS became the first signature artist in 1980. Guitar Center management suggested that Kramer should start producing wood-neck guitar models to appeal to more traditional-minded players and offer instruments with more affordable prices. The 1981Kramer catalog introduced several wood-neck bass and guitar models, with the Pacer designated as their "super Strat" model. The Pacer Special and Standard featured a single humbucking pickup, tremolo-equipped design resembling the guitars Edward Van Halen was playing at the time. In 1982, Guitar Center sold its shares of the company to Henry Vaccaro, who became the majority owner and chairman of the board.

Kramer Guitars announced a new endorsement deal with Edward Van Halen at the Summer 1982 NAMM Show in Atlanta, Georgia. The timing was perfect because Fender and Gibson were struggling from cost cuts imposed by their publicly traded ownerships (CBS and Norlin, respectively), and fans of their brands preferred the vintage instrument's build quality over the newer models. Kramer's direct competition included B.C. Rich, Charvel, Jackson, Dean, Hamer, Ibanez, and Schecter, but securing the Edward Van Halen endorsement placed Kramer at a significant advantage.

In 1982, Kramer guitars were equipped with Rockinger double-locking tremolo units, but Edward preferred the Floyd Rose Tremolo System that he had been using for a couple of years. When the Rockinger inventors rejected Van Halen's suggested improvement of adding fine tuners like those found on violin tailpieces, the relationship between Kramer and Rockinger soured. Floyd Rose was brought into the fold with Kramer and filed for a patent on his fine-tuning apparatus.

In 1983, the first Kramer guitars equipped with Floyd Rose tremolos were introduced. Kramer published a full-page color advertisement showcasing Edward Van Halen holding a Frankenstein replica guitar featuring the first Floyd Rose fine-tuner tremolo. In late 1983, Kramer produced its first Baretta-model guitar featuring a slanted single-bridge humbucker pickup, solitary volume knob, and a Floyd Rose tremolo based on Van Halen's Frankenstein guitar. Although Edward posed with a white Baretta for advertisements that appeared in 1984 as "a product of Edward Van Halen's own design," Van Halen denies any direct involvement with the model.

Edward Van Halen told *Guitar Aficionado* magazine in 2014:

> I did not even know they were selling those things. In the early 1980s, everyone was copying me. I would walk around the NAMM Show and see all these guitars with one pickup and one knob. Schecter even called their version a Van Halen model. Every company on the planet was making one.

By the late 1980s, Kramer had established itself as the most successful electric-guitar company in the United States. Dennis Berardi of Kramer said, "I cannot even guess how important it has been to Kramer Guitars. What Les Paul was for Gibson, Edward Van Halen is for Kramer." However, Berardi decided to form a management company and expand into outside business pursuits managing bands. Berardi's efforts drained

finances from Kramer and resulted in a 1991 bankruptcy. After a change of hands including Jackson Communications, Inc. (Michael and family) in 1992, Gibson purchased the Kramer name in 1996.

Custom Electric-Guitar Pickups

Edward Van Halen's impact on the musical-instrument industry extended beyond imitations of his super-Strat electric-guitar design. Startup custom pickup companies like Seymour Duncan and DiMarzio received a huge boost in notoriety and sales when Edward discussed in magazine interviews how he swapped out his guitar's pickups to improve his tone.

There have been thousands of pickup models since magnetic pickup technology first appeared in the 1920s and 30s.[140] Some guitarists are closely associated with one pickup type. For example, the sounds of Jimi Hendrix and Stevie Ray Vaughan were created almost exclusively with single-coil pickups, whereas Eddie Van Halen, Slash, Carlos Santana, and Billy Gibbons are usually associated with humbuckers.[141]

Steve Vai has collaborated with Sustainiac to design a sustainer pickup that creates infinite sustain and controllable feedback effects. In the past, Vai had used Fernandes sustainers, but they lacked consistency and are in short supply.[142] One reason for Vai to team up with Sustainiac is to address these issues.

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[140] Seymour Duncan, "Pickups 101: Chapter 2. Pickup Types," *seymourduncan.com*, accessed on December 6, 2020, https://seymourduncan.zendesk.com/hc/en-us/articles/360047564373-Pickups-101-Chapter-2-Pickup-Types.
[141] Ibid.
[142] Christopher Scapelliti, "How I Survived 2020," *Guitar Player* (January 2021): 38.

In 1984, Steve Vai was chosen to replace Yngwie Malmsteen in the band Alcatrazz and needed additional guitars for an upcoming tour. He contacted Grover Jackson and was offered a Charvel Strat-style guitar with a cherry sunburst finish and a locking Floyd Rose bridge.[143]

Over the course of the next two years, Vai hot-rodded his guitar with an H-S-H pickup configuration (humbucker/single coil/humbucker), a day-glow green finish, and an assortment of stickers. This instrument has become known as the iconic "Green Meanie." The most radical modification to the guitar was the removal of wood from behind the Floyd Rose bridge, which made it possible for Vai to pull up on the vibrato bar and raise the pitch more than two whole steps. This cavity route transformed the bridge's range in a revolutionary way. It became one of Vai's many alterations later incorporated into his signature Ibanez JEM guitars and ultimately adopted as an industry standard.

While installing replacement pickups on the Green Meanie, DiMarzio Chief Technician Steve Blucher noticed that the original neck-position humbucker had one shorted coil. Vai liked the new "tubey" sound and wanted to retain it. Blucher knew that no one had ever split a coil from the neck humbucker and combined it with a single coil in the center position. So, he devised a wiring scheme that connected the one coil from the neck humbucker to the middle single-coil pickup. Blucher changed the polarity on the

[143] Larry DiMarzio and Eric Kirkland, "The Birth of Steve Vai's Green Meanie," *DiMarzio.com*, accessed on November 14, 2020, https://d2emr0qhzqfj88.cloudfront.net/s3fs-public/2020-11/TheBirthOfTheGreenMeanie.pdf. The following discussion is indebted to this source.

center single-coil pickup so it would be hum-cancelling in both the second and fourth positions of a five-position switch when combined with either the bridge or neck pickups.

In early 1986, Steve Vai was selected as the virtuoso successor to Edward Van Halen in the David Lee Roth Band. In the middle of the 1986 David Lee Roth tour, the body of the Green Meanie had split, and the Floyd Rose bridge had fallen out just prior to a sold-out show at Madison Square Garden. The guitar was shipped overnight to Roger Sadowsky, acclaimed for his outstanding repair and restoration work on guitars and basses.

Once the David Lee Roth tour had ended, the Green Meanie was retired and is now on display at the Rock & Roll Hall of Fame and Museum in Cleveland, Ohio. The Green Meanie became a visual and sonic extension of Steve Vai's eccentric style influencing countless guitarists and instruments.

In collaboration with Ibanez, Steve Vai designed the Ibanez JEM in 1985. A high-performance Superstrat, it features a unique custom DiMarzio Evolution H-S-H pickup configuration utilizing Steve Blucher's five-position wiring and an Ibanez Edge floating tremolo system. The twenty-four-fret fingerboard offers a striking Tree of Life inlay and frets twenty-one through twenty-four are scalloped for increased string control. Unique to the JEM, cosmetic quirkiness exhibiting Steve Vai's personality includes a Monkey Grip carrying handle, a Lion's Claw tremolo cavity, and a variety of outlandish finishes. A versatile instrument, the Ibanez JEM conveying all of Steve Vai's idiosyncrasies is one of the longest-running and most successful signature series guitars in history.[144]

[144] Ibanez, "artists," accessed on October 19, 2020, https://www.ibanez.com/usa/artists/detail/213.html.

At the winter NAMM Show in 2020, Steve Vai debuted the Ibanez PIA six-string electric guitar. The moniker stands for "Paradise in Art" and is also the first name of Vai's wife. The specifications of the new instrument resemble a JEM, but subtly tweaked and reimagined. The Monkey Grip handle has been softened to a PIA Blossom Pedal Grip, and the motif extends to the fretboard inlay work as the PIA Blossom inlay. Vai collaborated with DiMarzio pickups on a new design, the UtoPIA pickups, complete with stamped covers that reflect the PIA Blossom fretboard inlay and pedal grip. During an exclusive interview with *Guitar World,* Vai said, "The PIA is a very sleek 'metal machine' built for speed, intonation, and performance."[145]

Over the course of the 1980s, a host of upstart guitar companies such as Aria, Kramer and Ibanez turned Van Halen's original "superstrat" design into the staple of their production lines, and such guitars became widely used among hard-rock and heavy-metal players.[146]

Yngwie Malmsteen, a Fender Stratocaster aficionado, featured a Fender Stratocaster prominently on the cover of his 1984 Grammy-nominated solo debut album *Yngwie J. Malmsteen's Rising Force*. Yngwie acquired his secondhand 1971 Olympic White Fender Stratocaster in 1978.[147] This now iconic instrument would become known as "The Duck." The nickname derived from a Donald Duck sticker that Yngwie attached to the guitar's headstock. Suddenly, Fender could not build Stratocaster guitars fast

[145] Richard Bienstock, "Flower Power," *Guitar World* (March 2020): 55.
[146] Bennett and Dawe, eds. *Guitar Cultures*, 126.
[147] Anders Tengner, *As Above, So Below: The unauthorized Yngwie biography.* Foreword by Joe Lynn Turner (Bokfabriken World Wide, 2012), 551, Kindle.

enough to meet the sales demand. In 1986, Fender honored Yngwie Malmsteen with its first Stratocaster signature-model guitar.[148] Unique to Yngwie's Stratocaster was his preference for scalloped frets. Inspired by the Indian veena, jazz-fusion guitarist John Mclaughlin was the first known Western guitarist we know to have employed scalloped fretboards nearly a decade before Yngwie Malmsteen.[149]

During his formative years, Joe Satriani realized that the traditional guitars of the 1950s like the Gibson Les Paul, ES-335, and the Fender Telecaster and Stratocaster restricted the development of his style.[150] The body carves were uncomfortable and the traditional vibrato-bars would not stay in tune. Like Van Halen, Satriani began assembling his own guitars from Boogie Bodies and ESP necks, and the Floyd Rose vibrato system solved his tuning issues.[151]

"The important thing about your guitar and gear is that you want these tools to be like a series of open doors," say Satriani.[152] "You do not want any barriers between what you are dreaming and what you can create. You want to feel encouraged by the instrument, like it can keep pushing you in new directions. So, having a guitar that really inspires you cannot be overstated."[153]

Joe Satriani began collaborating with Ibanez in 1987 because the guitar manufacturer wanted to work with forward-thinking guitar players who had innovation in

[148] Richard Bienstock, "Damn Right, He's Got the Blues," *Guitar World* (August 2019: 66.
[149] Ted Drozdowski, "Jazz Master," *Guitar World* (February 2016): 70.
[150] Michael Molenda, "Painting with Sound," *Guitar Player* (February 2018): 56.
[151] Ibid.
[152] Joe Bosso, "Engines of Creation," *Guitar Player* (November 2018): 48.
[153] Ibid.

mind.[154] In other words, Ibanez set out to design instruments that served the contemporary guitarist by updating the classic Fender and Gibson designs from the 1950s. Satriani urged Ibanez to source specific woods, change the neck shape, and tweak the Ibanez Edge vibrato system. Joe created signature DiMarzio pickups and modified the wiring design.

The Floyd Rose Locking Vibrato System

The locking-nut vibrato bar system invented by Floyd Rose in 1977 was revolutionary because it was the first whammy-bar system able to stay in tune under the demanding contemporary playing styles of players like Edward Van Halen. Unlike the vintage Strat or Bigsby vibrato bars, the locking Floyd Rose system secures the string both at the bridge and nut.[155] In the beginning, Edward Van Halen only used the Floyd Rose vibrato during live performance and not in the studio because it was too bright sounding to his ear.[156] With tonal improvements to the original design, Edward began performing with the Floyd Rose and it remained his vibrato bar of choice for the remainder of his career.

Shred-guitarists prefer the Floyd Rose system (or similar models) not only for its tuning stability but also its range (from standard pitch to strings fully depressed) and tone quality. The Floyd Rose can be set up either to lower and raise pitch, or lower pitch only. If the wood in the guitar's body behind the bridge is routed out, the bridge can be pulled up, raising the pitch up several tones.

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[154] Greg Prato, *Shredders!* Loc 8301-8323, Kindle.
[155] Guitarist Merle Travis prompted Paul Bigsby to invent the Bigsby vibrato arm tailpiece circa 1946.
[156] Stix, "The New King of Heavy Metal," *Guitar Legends: Van Halen*, 23.

Edward Van Halen D-Tuna

The Edward Van Halen D-Tuna is a patented device that enables a guitarist to drop the E-string to D and back immediately without unclamping the nut.[157] Edward Van Halen began utilizing the D-Tuna on his personal Floyd Rose-equipped guitars during the early 1990's. The D-Tuna was designed to adapt to a flush-mounted (stabilized, blocked) Floyd Rose double-locking vibrato system. The D-Tuna allowed Edward to quickly retune the E-string to D in concert to perform songs such as "Unchained" and "When It's Love" utilizing the same guitar.

Extended-Range Guitars

In 1989, Steve Vai approached Ibanez with the idea of creating a solid-body seven-string electric guitar with a low-B string, a double-locking floating vibrato system, and a thin neck profile base on his JEM model guitars. The Ibanez Universe prototype guitar debuted at the Winter NAMM Show in 1990.[158] This was the guitar that rekindled an interest in seven-string instruments.

The seven-string guitar is simply an enhancement of the six-string guitar.[159] Jazz guitarist George Van Eps had begun playing detuned seven-string guitars with a low-B string in the 1930s. Jazz and studio guitarist Bucky Pizzarelli switched to the seven-string guitar with a low-A string in 1969.[160] His reasoning for this was to voice his chords with

[157] Edward Van Halen, "D-Tuna," accessed on November 3, 2020, http://www.dtuna.com/index.php.
[158] Paul Specht, Michael Wright and Jim Donahue, *Ibanez: The Untold Story* (USA: Hoshino (U.S.A.) Inc., 2005), 162-163.
[159] Chris Buzzelli, *Complete 7-String Guitar Method: A Comprehensive Method Including Chords, Scales & Arpeggios* (Pacific, MO: Mel Bay Publications, 2004), 4.
[160] Jim Carlton, *Conversations with Jazz and Studio Guitarists* (Pacific, MO: Mel Bay Publications, 2009), 101.

a greater "spread" and for the frets to mirror the fifth string.[161] The seven-string guitar excels as a solo instrument, in duos and larger groups without a bass.[162]

The solid body seven-string electric guitar will never replace its six-string predecessors such as the Fender Telecaster, Stratocaster, Gibson Les Paul and ES-335, but it does offer new tonal possibilities, most importantly being massive low-end.[163] This new tonal palette is what attracts contemporary rock guitarists to the instrument. The seven-string guitar is also adaptable to alternate and drop tunings.

In progressive metal, the addition of a low B string adds a much-desired boost to the bottom end of the guitar signal, beefing up even the heaviest riffs and power chords.[164] Jazz guitarists tend to prefer tuning the seventh string to a low A that expands the instrument's capacity for walking bass lines, voice leading, pedal tones, and contrary motion within the harmony.[165]

Headless Guitars

In 1982, guitar innovator Ned Steinberger produced a headless guitar featuring a very small carbon-fiber body and neck.[166] To support the headless design, the tuning machines were relocated to the bridge of the guitar. Also debuting on Steinberger guitars were EMG active pickups. These guitars produced an even tonal response due to their

[161] Ibid.
[162] Buzzelli, *7-String Guitar*, 4.
[163] Tobias Hurwitz and Glenn Riley, *7-String Guitar: An Introduction to Heavy Rock Styles* (Van Nuys, CA: Alfred Publishing Co., Inc., 2002), 4. The following discussion is indebted to this source.
[164] Andy Martin, *7-String Guitars: An All-Purpose Reference for Navigating Your Fretboard* (Milwaukee, WI: Hal Leonard Corporation, 2000), 7.
[165] Ibid.
[166] Alan Ratcliffe, *Electric Guitar Handbook* (London, UK: New Holland, 2005), 13.

synthetic materials. However, guitarists in general appear to prefer the idiosyncrasies and tonal characteristics of wood.

Torrefaction

As guitar technology evolves luthiers, engineers, builders, and artists work collaboratively to create new instrument designs and products. Science and technology have allowed for the study of vibration analysis in wood to try to figure out what makes the best guitars sound great.[167] One of the cutting-edge processes being utilized throughout the guitar manufacturing industry is called torrefaction. Commonly marketed as "roasted," "baked," or "caramelized," torrefaction is a process of drying the wood at a much higher heat than that normally used in kiln drying. Torrefaction discolors the wood and makes it darker from the baking process as all the sap and resins are crystalized or forced out of the wood. Torrefaction is a process that was designed to make wood more inert, so it is not affected by moisture, weather, or climate changes. "Roasted" guitar necks are stable and less likely to twist or warp compared to an untreated piece of wood. Torrefaction confides in guitar manufactures to use figured wood, which has a beautiful appearance but is notoriously unstable because of its uneven grain structure.

Ergonomic Guitar System

Over the past two decades, progressive-rock guitar has been influenced by contemporary metal players utilizing drop tunings, seven-string, and eight-string instruments. These extended-range guitars present new challenges for luthiers to create

[167] Fornadley, *Tone Wizards*, Loc 2331-2347. Kindle. The following discussion is indebted to this source.

ergonomic instrument designs offering improved build quality, tuning stability, innovative electronics packages, and stylistic versatility.

The idea of an Ergonomic Guitar System utilizing a thoroughly modern industrial design was conceived by Ola Strandberg in 2007.[168] His concept was to design a "headless first" instrument rather than a "guitar without a headstock."[169] By removing weight from the headstock, a guitar can be made very light yet balanced.[170] This allows one to play with greater comfort for a longer period. In addition, Strandberg created a body shape that provides multiple seated playing positions that is helpful during long practice sessions and/or gigs.

Strandberg designed a neck profile that seems to offer many benefits. The neck shape utilizes flat surfaces to provide a more restful grip for the thumb and encourage a straighter wrist. Ola patented his EndurNeck™ profile to promote a correct playing position that should result in allowing a guitarist to play longer, faster, and avoid injury.[171] Over the years, numerous players with repetitive stress injuries and other issues have confirmed that the EndurNeck™ profile and ergonomic design of Strandberg guitars has allowed them to continue playing the guitar.

The multi-scale fretboards featured on Strandberg guitars allow the wrist to remain relaxed throughout the range of play. The longer scale length for the heavier strings provides better tone, and the shorter scale length for the thinner strings offers

[168] Strandberg, "About Strandberg," accessed June 4, 2020, https://strandbergguitars.com/who-we-are/.
[169] Strandberg, "Explore," accessed June 7, 2020, https://strandbergguitars.com.
[170] Ibid.
[171] Strandberg, "Unparalleled Balance," accessed June 7, 2020, https://strandbergguitars.com.

better playability. Together, the string tension on the extended-range guitars as well as the six-string instruments feels balanced across the range of the fretboard. The 20" fretboard radius matches what is found on classical guitars and is preferred by most technically oriented players like Allan Holdsworth.

Other ergonomic guitar designers include Tosin Abasi of Abasi Concepts. The Ibanez Ichika Nito ICHI10 signature model and Quest series guitars, and Kiesel Guitars, a longtime builder of headless guitars offering thirteen models through their direct-to-consumer ordering process.

True Temperament Frets

The True Temperament fretting system was designed by Swedish inventor Anders Thidell.[172] He spent over fifteen years developing dynamic intonation and curved frets to get the intonated position in order to achieve the desired tone he was searching for. In 2005, Anders collaborated with guitar luthier Paul Guy, an expert in the field of guitar tuning. Together, they created the True Temperament system that is utilized today.

True Temperament frets are designed and calibrated to achieve near-perfect intonation on every string in every position of the fretboard.[173] The benefit of playing an instrument fitted with True Temperament frets is that when notes are almost perfectly in tune with each other, the strings vibrate more freely and loudly. This results in increased volume and sustain of the instrument. Although the curved frets may seem disorienting at

[172] Strandberg, "True Temperament," accessed May 9, 2022, https://strandbergguitars.com/true-temperament/. The following discussion is indebted to this source.
[173] Strandberg, "Boden True Temperament," accessed November 2, 2020, https://strandbergguitars.com/boden-true-temperament/. The following discussion is indebted to this source.

first, players adopting this system tend to adjust rather quickly. Metal guitarist Per Nilsson (Scar Symmetry, Kaipa, Meshuggah) is a proponent of the True Temperament fretting system.

Buzz Feiten Tuning System

Guitarist Buzz Feiten jammed with Eric Clapton and Jimi Hendrix in New York at age nineteen. The next day, he was invited to audition for the Paul Butterfield Blues Band which led to performing at Woodstock. As a sideman, Feiten has performed and/or recorded with Stevie Wonder, Aretha Franklin, Wilson Pickett, James Taylor, Gregg Allman, Bob Dylan, and Olivia Newton-John.

Throughout his long career as a professional guitarist while improving and repairing his own instruments, Feiten noticed that all his guitars exhibited the same tendencies to play out of tune.[174] He hypothesized there must be a tuning correction that would be consistent to countering these tuning discrepancies. This led him to create the Buzz Feiten tuning system in 1992.[175]

The Buzz Feiten Tuning System can be installed or retrofitted on any guitar.[176] A growing number of manufacturers are offering the Feiten System on new electric and acoustic guitars and basses. The Feiten System is non-invasive and does not change the appearance of the guitar. The Buzz Feiten Shelf Nut moves the strings closer to the first fret eliminating sharp notes at the first three frets. The Shelf Nut is made of bone, which

[174] Art Thompson, "Relentless Pursuit," *Guitar Player*. (June 2014): 32.
[175] Ibid.
[176] Buzz Feiten, "How it Works," accessed on November 2, 2020, http://www.buzzfeiten.com/howitworks/tuningwtbfts.htm. The following discussion is indebted to this source.

the player may find improves tone. The guitar's bridge must be adjusted according to Feiten's patented pitch offsets to create balanced intonation over the entire fingerboard. A Buzz Feiten System-fitted guitar can be tuned by ear or with any tuner. It also works with alternate tunings, capos, zero frets, locking or roller nuts and vibrato systems. Some electronic tuners offer a Buzz Feiten setting to further improve tuning accuracy.

Guitar Amplification

Tube amps are generally preferred by guitarists because they are considered tonally superior to solid-state (transistor) and digital amplifiers. The consensus is that tube amps offer a better response, warmth, and feel. The tradeoff is that tube amps are more expensive, more fragile, weigh more, and require routine maintenance (tube replacement and bias adjustment). Amplifiers are typically offered in three formats: combos, heads/stacks, and racks.

Combos are grab-and-go guitar amplifiers. Everything that's needed to amplify an electric guitar is found in one package. This includes the preamp, power amp, speaker(s), and typically an effects loop, reverb, and/or tremolo as standard features. The disadvantage to combo amplifiers is that they increase the size and weight of the rig, and likely reduce the lifespan of tubes due to their proximity to the speaker(s).

Amplifier heads package the electronics in a separate enclosure from the speaker(s) and are stacked on top of the speaker cabinet(s). In 1966, Pete Townshend, guitarist for the Who, urged Jim Marshall to build the first 100-watt guitar amp and stack.[177] Speaker cabinets are generally closed-back producing a tighter, punchier sound

[177] Alan di Perna, *The Guitarist's Almanac* (Milwaukee, WI: Hal Leonard, 1998), 17.

than an open-back cabinet. This design is ideally suited for heavily overdriven guitar tones.

A rack unit is any piece of music equipment or accessory that is built within a nineteen-inch-wide chassis and can be mounted into a rack case.[178] Individual effects pedals (stomp boxes) can be mounted on a nineteen-inch-wide shelf or drawer for use alongside rack units. Some tube guitar amplifiers (such as the MESA Boogie JP-2C) are built to rack mount specifications or can be easily modified to become rack mountable.

A by-product of the 1980s, rack amplification systems are like expensive stereo systems optimized for guitar signals.[179] The preamp and power amp modules are generally separate and typically run-in stereo driving either a pair of conventional guitar cabinets or hi-fi, full-range, closed-back speaker enclosures with separate woofers, tweeters, and sometimes midrange speakers. Rack systems are best utilized by tech-oriented guitarists who are not intimidated by numerous controls, flashing LEDs, or equipment with sub-menus, software, and updates.

The immediate advantages of rack gear are several. Rack systems are highly versatile. They can produce both good combo- and stack style tones. Ease of setup and use during a performance, protection of delicate tube amplifiers and processors in a self-contained military spec case, and fewer cables to degrade sound quality or fail. However, rack systems can become very heavy.

[178] Kahn, *Modern Guitar Rigs*, 14.
[179] di Perna, *The Guitarist's Almanac*, 17. The following discussion is indebted to this source.

"Tube amplification" is a bit of a misnomer when it comes to guitar amps.[180] Modern guitar amplifiers are more of an analog signal processor than a pure amplifier. First and foremost, guitar amplifiers generate musical distortion, and only secondarily amplify the guitar's sound.

Joe Satriani prefers an amp that is not a one-trick pony.[181] "You want an amp that's flexible and dependable, one that is not big and complicated."[182] Satriani's signature amplifiers (less the Peavey JSX Mini Colossal) have been three and four-channel, high-gain amplifiers offering much tonal flexibility.

Allan Holdsworth was always in search of a better guitar amplifier.[183] Throughout his career he experimented with the classic amplifiers produced by Vox, Marshall, and MESA Boogie, as well as those offered by boutique amplifier manufacturers. If an amplifier lasted longer than a year as part of his rig then it was an incredible instrument. Holdsworth preferred a stereo setup because he found that a monophonic signal path (single amplifier) sounded dry and lifeless in comparison to an acoustic instrument.

Amplifier impedance selection is very important to the overall sound. Many classic rock guitarists played through a Marshall amplifier head driving two 16-ohm cabinets at 8 ohms. The lower impedance enhances the higher clean headroom. The bottom 4x12 speaker cabinet is straight, and the top cabinet is slanted. On many of the

[180] Fornadley, *Tone Wizards*, Loc 6460. Kindle.
[181] Joe Bosso, "Engines of Creation," *Guitar Player* (November 2018): 48.
[182] Ibid., 49.
[183] Allan Holdsworth, *Reaching for the Uncommon Chord* (Wayne, NJ: 21st Century Music Productions, Inc., 1985), 26. The following discussion is indebted to this source.

classic rock albums, the engineer and/or artist was miking the bottom cabinet resulting in a bigger, fatter tone.[184]

Guitar Speakers

Guitar speakers are significant to the overall sound. Two favorite choices of contemporary rock guitarists are the Celestion Vintage 30 and the Celestion G12M Greenback.[185] Other popular speaker choices include the Celestion Heritage, Creamback 65 and 75, Blue, Silver, C90, and offerings by Jensen and Eminence. Some rock players favor a 4x12 cabinet loaded with two Vintage 30s in the bottom and two G12M Greenback speakers in the top, giving them the best of both worlds. The reasoning behind blending the speaker types together in one cabinet has to do with the tonal characteristics of each speaker. The Vintage 30 features detailed and complex overtones, a warm low-end, a rich vocal mid-range, and a detailed top-end great for hard rock players using "hot-rodded" amplifiers. The G12M Greenback is voiced with an additional broad mid-range attack and restrained top-end offering a forward, punchy tone to chords and a searing lead tone without fizz. The G12M Greenback was a favorite of Edward Van Halen. He would use four of them per cabinet. Celestion produced an EVH Signature Greenback for his Fender-built EVH branded 4x12 Cabinets, but also offer the speaker as an upgrade/replacement speaker sold separately.

[184] Fornadley, *Tone Wizards*, Loc 781-792. Kindle.
[185] Celestion, "Guitar Loudspeakers," accessed on September 16, 2021, https://celestion.com/products/?fwp_product_catalogue=guitar-loudspeakers&fwp_diameter=12

Guitar Speaker Cabinets

The speaker cabinet construction and design play a significant role in the overall tone. The most popular guitar cabinet is the 4x12. Depending on the application, favorable choices include the 2x12 open-back cabinet, 2x12 closed-back cabinet, and various 1x12 open or closed-back cabinets. Many players prefer a closed-back cabinet constructed of birch for a "Marshall" or "British" style of tone. Several 1x12 and 2x12 closed-back cabinets have a port that allows the air to move freely in and out of the cabinet as the driver cone/s move. This extends the bass response of the cabinet. The grille cloth also makes a huge difference in the tone as it acts as another filter by sweetening out some of the high end.

Reactive Load

The reactive load is a passive analog model of an actual speaker cabinet. It is comprised of resistive, inductive, and capacitive elements and has each of its various elements arranged in empirically derived proportions to generate the exact response of a speaker cabinet at the output of a guitar amplifier.[186] As a result, the reactive load can produce the same non-linear impedance vs. frequency characteristics as a typical speaker cabinet.

A reactive load box offers a solution to capture the warmth and dynamics of a tube guitar amplifier without the hassle of miking a speaker cabinet during a live or studio performance. The reactive load takes the place of the speaker cabinet. Most units

[186] "Reactive Load," *Suhr Reactive Load User Guide,* 2. accessed on October 27, 2020, https://www.suhr.com/electronics/tone-tools/suhr-reactive-load/. The following discussion is indebted to this source.

provide an 8ohm load for the tube amplifier (typically maximum 100 watts), producing a balanced and unbalanced signal that interfaces with recording devices, effects, and power amplifiers.

While traditional resistive load boxes will safely load an amplifier, they also alter the tone, dynamics, and response of the amplifier. Real speakers do not have a fixed resistance across the entire frequency spectrum because real speakers are reactive. The impedance curve of a reactive load box is tuned to react like a speaker so the amplifier will not recognize a difference.

Impulse Responses

Possibly the best method to record a great amplifier sound is to utilize speaker impulse responses. An impulse response is a "sample" of a speaker that is nearly indistinguishable in sound from a mic'd guitar speaker cabinet. Eliminating microphone placement and room sound resolves several issues if a musician must record in a less-than-ideal room (home studio) at low volumes. The speaker impulse responses one selects are extremely important in shaping one's tone. A cottage industry of companies has mushroomed, including OwnHammer, AustinBuddy, and ML Soundlab, which produce studio-grade impulse responses.

Reactive Load I.R.

A Reactive Load I.R. box adds impulse response technology to a reactive load allowing for quick and easy access to an array of expertly mic'd speaker cabinets.[187]

[187] "Reactive Load I.R." *Suhr,* accessed on October 27, 2020, https://www.suhr.com/electronics/tone-tools/reactive-load-ir/. The following discussion is indebted to this source.

Engineers can use both outputs to simultaneously record the dry signal and the I.R. effected signal for maximum flexibility when mixing. A reactive load I.R. box eliminates the need to mic a speaker cabinet and gives the guitarist the ability to send the front of house (FOH) engineer an expertly mic'd guitar sound, thus eliminating mic bleed issues.

MESA Boogie Mark IIC+ Amplifier: The Sound of Jazz-Rock Fusion, Rock, and Metal

As a teenager growing up on Long Island, NY, Dream Theater guitarist John Petrucci was influenced by the music of Led Zeppelin, Rush, Ozzy Osbourne, and Van Halen.[188] During the 1980s, rock and metal were taken very seriously throughout the East Coast suburbs and many teenagers played in bands on Petrucci's block. Hearing the massive guitar tones on Metallica's "Master of Puppets" for the first time was a big moment for Petrucci. Learning that the MESA Boogie Mark IIC+ was the amplifier creating their sound, he stated, "I cannot begin to describe the impact that this discovery has had on me as a player ever since." He continues, "Unbeknownst to me, the very style that I developed as a player would be forever entwined and associated with that Boogie-sound."

In 1969, Randall Smith designed the first guitar-amplifier combo that mated a high-gain preamp with cascading volume controls to a 6L6 power section housed in a 1x12 cabinet the size of a Fender Princeton.[189] This first boosted Princeton was made for Carlos Santana, who was searching for a big, sustaining saxophone-like tone. Over the

[188] John Petrucci, *MESA Boogie JP-2C Owner's Manual* (Petaluma, CA, 2017), Introduction, accessed June 5, 2019, https://mesa-boogie.imgix.net/media/User%20Manuals/070494-JP2C-160317-download.pdf The following discussion is indebted to this source.
[189] Art Thompson, "Born to Boogie," *Guitar Player* (Holiday 2019): 70-74. The following discussion is indebted to this source.

past fifty years, Smith's technological breakthroughs have included channel switching, effects loops, power and triode/pentode switching, and Simul-Class operation.

The formative years of Mesa Boogie were in line with the guitar-virtuoso period of jazz-rock/fusion players such as Al Di Meola, Larry Carlton, Robben Ford, Eric Johnson, and Lee Ritenour. During the late 1980s, L.A. studio scene players such as Steve Lukather, Michael Landau, and Dan Huff utilized the Mark IIC+ heads and/or rack preamps slaving them into Mesa stereo power amps to create the identifiable and famous soaring rock tone heard on numerous Top-40 hits.

The MESA Boogie Mark series was built originally as hot-rodded Fender Princetons referred to as "Boogies."[190] The product line took on the moniker "Mark Series" as newer revisions were put into production.[191] Petrucci's personal discovery of the "Holy Grail" of Boogie is the Mark IIC+. He recollects:

> I can still picture it clear as day plugging into my first Mark IIC+, the experience was religious. I started doing some research about the different incarnations built in the 1980's. The various transformers, power variations, original Sylvania Tubes, etc., and consider me somewhat of a Mark IIC+ connoisseur.

Petrucci learned to identify a true C+ version of the amp by locating the hidden Mike B. inscription written in black marker on the rear panel. He ended up gravitating towards these specific (+) versions of the amp in developing his sound.

During an interview discussing the guitar tones heard on his 2020 solo album, *Terminal Velocity,* John Petrucci said. "I would say that it has been an ongoing quest for

[190] "Mark Series," Mesaboogie.com, accessed July 6, 2022, https://www.mesaboogie.com/en-US/Collection/mark-series.
[191] Petrucci, *MESA Boogie JP-2C*, Introduction. The following discussion is indebted to this source.

a long time, and I feel like the quest has kind of reached its pinnacle. It's partially because I'm able to develop an amp and get it exactly to my specifications, and then be able to use that to play live with and record; same with the guitars."[192] The MESA Boogie Mark Series amps are famous for producing a very raw, dry tone but can also be set up to produce a big, fat kind of blues sound. "You might associate that amp with me and my sort of progressive-metal style and Dream Theater, but it can do so much more. I just rolled off the gain on the amp and got a real fat sound."[193]

The Development of Progressive-Metal Guitars: The John Petrucci Collection

John Petrucci is just as specific about the guitars he plays as he is about his choice of amplification. Since 2000, Petrucci has been endorsing Ernie Ball Music Man guitars offering several six and seven-string signature models as well as baritone and eight-string guitars in limited quantities.[194] These instruments offer some of the most innovative guitar designs and technology in the industry. Models offer bolt-on and neck-through-body design, twenty-four stainless steel frets, floating tremolo system, and an ergonomically optimized control layout. Over eleven models in the line have been offered utilizing imported tonewoods, magnetic pickups with coil tapping, and up to a 20db boost for extra gain along with mono or stereo outputs.

Musically, these guitars are designed to provide sparkling cleans, big power chords, searing lead lines and jangly acoustic timbres via the optional piezo bridge

[192] Darran Charles, "John Petrucci On Why Recording Guitar Is Like Beard Trimming," *Guitar.com,* accessed on December 19, 2020, https://guitar.com/features/interviews/john-petrucci-on-recording-guitar/.
[193] Ibid.
[194] Music-Man, "John Petrucci Collection," accessed on September 16, 2021, https://www.music-man.com/instruments/families/guitars/john-petrucci.

system.[195] John requires his guitars to offer instant dynamic and tonal shifts, a stylistic characteristic of Dream Theater's brand of progressive-metal. The JP15, a contemporary super-Strat style of guitar captures all of the best attributes of the first fifteen years of innovation and design in one model constructed of "baked" tonewoods. Introduced in 2014, the Majesty is Petrucci's favorite model in the collection, but it is a visually unique signature model that maybe off-putting to players preferring to create their own identity. The Majesty features an original body shape that is distinctive to John's style.

Digital Modeling Preamps/Effects Processors

Tosin Abasi finds that technology has entered his musical reality in a utilitarian way:

> Instead of having these boutique amplifiers, I can buy a digital rackmount device that recreates them with ones and zeros. For me, that is where technology has had the most impact. There are musicians nowadays who do not play any traditional instruments, but they are still valid musicians. Technology is their instrument. It is how they express themselves.[196]

Today's technology allows for the industry-leading preamp/effects processors to offer hundreds of detailed amp models, thousands of speaker cabinet simulations, and a massive collection of complex effect algorithms in one product. Each generation of amp modeler attempts to exceed its predecessor and create a new product that sounds superior, offers more versatility and ease of use.

"Modern digital amps are a very credible alternative to the traditional amp with a cabinet, tubes, a transformer and some speakers," reiterates Joe Satriani.[197] If fact, all of

[195] Matt Blackett, "Ernie Ball Music Man Majesty 6 Tiger Eye," *Guitar Player* (June 2019): 92.
[196] Joe Bosso, "Meet the New Boss," *Guitar Player* (September 2018): 40.
[197] Joe Bosso, "Engines of Creation," *Guitar Player* (November 2018): 49.

the amplifier tones heard on his 2022 album *The Elephants of Mars* were recorded using the Tech 21 SansAmp plug-in. Joe also has a Fractal Audio Systems AXE-FX III that he uses for writing, recording, and integrated into his rig for live performance.

Dweezil Zappa's Nano rig consists of a Fractal Audio Systems AX8 which is a self-contained processor and switching unit, a custom GoochFX analog fuzz, an Eventide H9 Harmonizer and a volume pedal.[198] All of this fit in a case that easily travels in the overhead bin reducing travel costs on European tours. It can replicate sixty to seventy percent of the sounds of Dweezil's full setup.

Amp modelers attempt to recreate accurate models of real tube amplifiers. Clifford Chase, founder of Fractal Audio Systems likes to work from an amplifier schematic whenever possible, but that does not replace having the actual amp on the bench.[199] Oftentimes, there is a variance between the taper of the potentiometer and what is listed on the schematic. If the amplifier schematic is unavailable, Chase must perform the painful process of tracing the circuit to create an amp model. He does not model each component of an amplifier but rather a block (e.g., tone stack). Parameterizing the model makes entry much easier. The goal is to capture the sound and "feel" of an actual tube amp and cabinet impulse response. Improvements over a traditional guitar amplifier and effects setup include an audiophile-grade signal path, lower noise floor, pristine sound clarity, direct record capabilities, upgradeable firmware and increased I/O flexibility.[200]

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[198] Jimmy Leslie, "Dweezil Comes Clean," *Guitar Player* (April 2019): 36. The following discussion is indebted to this source.
[199] Fornadley, *Tone Wizards*, Loc 6373-6396. Kindle. The following discussion is indebted to this source.
[200] Clifford Chase, *AXE-FX III Preamp/Effects Processor Owner's Manual Version 2*, (Plaistow, NH: Fractal Audio Systems, LLC, 2019), 1.

Dweezil Zappa claims that Fractal Audio Systems products can realistically do everything, but they rely on a set of algorithms that determine the sound character, so he likes to mix it up by adding additional effects pedals to produce more colors, especially fuzz.[201] Dweezil said that analog pedals also have their own feel, and the subtleties of that feel can be integral to his playing ability and phrasing. Sometimes the perception of feel plays a more important role than the sound itself.

Line 6 developed the Helix family of guitar processors that have been immensely successful for the company.[202] Powered by their HX™ Modeling technology, the Helix family of devices accurately recreates amps, cabs, mics, and effects with detail and precision. One benefit of the Helix ecosystem: Helix Floor, Helix Rack, Helix LT, HX Stomp, HX Stomp XL, HX Effects, and Powercab is that they all utilize a familiar approach to tone creation via the HX Edit, Powercab Edit, and Helix Native plugin. The flagship Helix Floor and Rack were deliberately overdesigned to extend the product lifecycle to power future firmware updates.

Amplifier Profiling

With the advent of the Kemper Profiler in 2011, many studio and touring guitarists now had the means to digitally capture snapshots of their favorite guitar amplifiers and speaker cabinets for recording and touring purposes. The Kemper Profiler is a digital guitar amplifier and all-in-one effects processor. "A profile is like a snapshot

[201] Leslie, "Dweezil Comes Clean," 36. The following discussion is indebted to this source.
[202] "Helix," line6.com, accessed on February 10, 2022, https://line6.com/helix/.

of an amp," explains Michael Britt, guitarist for the multi-hit country band Lonestar.[203] "It is not technically 'recording' the amp but employs the same engineering skills used to mic an amp in the studio." So, the profiler's ears and personal taste are more important than the gear being profiled. Microphone placement, amp settings, speaker cabinets, and monitoring are all part of the equation.

There are two types of profiles: "Studio" and "DI." Studio profiles capture the entire signal chain from effects, amp, speaker cabinet, and the mic or mics placement/blend. A D.I. profile only captures the direct signal out of the amp via a direct box. A studio profile and a D.I. profile of the same amp at the same settings can be used to create a "merged" profile.

Michael Britt has become known to the online guitar community as a prime purveyor of Kemper Profiles offering single-and multiple-amp studio profile packs for sale at his website.[204] He uses these profiles onstage, and they offer Kemper Profiler owners who are not setup to create their own profiles or have access to the amps they would like to profile.[205]

Steve Vai disagrees that digital amplifier modeling will replace traditional guitar amplification. "Conventionally, you have an amplifier, you plug in and that is it. Maybe it has two channels or three channels, but it is one amplifier."[206] Synergy Amps have

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[203] Michael Ross, "Profiles in Sound," *Guitar Player* (March 2017): 36-40. The following discussion is indebted to this source.
[204] For more information visit: https://mbritt.com.
[205] Ross, "Profiles in Sound," 36-40.
[206] Amit Sharma, "Steve Vai," *Music Radar*, accessed June 27, 2019, https://www.musicradar.com/news/steve-vai-im-59-keeping-up-those-chops-isnt-as-interesting-to-me-its-all-about-the-bizarre-and-quirky-ways-to-phrase. The following discussion is indebted to this source.

developed a system that uses analog preamp modules spec'd out to sound nearly identical to many historic amplifiers and the most sought-after boutique amps like Friedman, Diezel or Soldano. "I have tested them forensically against the real thing. It is not profiling; it is analog-powered. For my shows, I will be changing through modules, and it is so nice. I am not confined to one amp with two channels."

Guthrie Govan noticed an interesting parallel of digital-modeling amplifiers to that of the extreme autotune heard on pop vocal tracks.[207] "There is a generation of young people who want autotune on their vocal tracks or it does not sound like a real pop record. And that is just over-exposure to that technology, and you come to accept the sound of that technology. Maybe that will happen with guitar modeling."

Govan will use digital solutions if it is the best way to get the job done. When performing with the Hans Zimmerman orchestra it is just intelligent problem-solving. "I am having slightly less fun onstage because I do not feel that beam of sound coming out of the speaker cabinet and I cannot change the way the note is feeding back by moving around, but what the audience is hearing is basically the same."

Plug-ins

Plug-ins offer guitarists a recording software tool that can run within a digital audio workstation (DAW) or as a standalone suite of simulated effects, amplifiers, cabinets, and speaker impulse responses for practice and/or performance. The typical graphic user interface (GUI) resembles a physical analog guitar rig comprised of compact

[207] Neville Marten, "Guthrie Govan," *Total* Guitar. The following discussion is indebted to this source.

effects pedals, amplifiers, cabinets, and stereo rackmount effects. User friendly, the simulated rigs feature knobs and switches that can be controlled via a mouse.

Plug-ins typically require a compatible macOS or Windows computer. An electric guitar must be plugged into an audio interface to connect to a computer. The guitar's processed sound can be heard through studio monitors, headphones, or a public address system (PA). A plug-in can be controlled handsfree via a compatible MIDI device. The best results can be achieved by utilizing the correct audio driver and adjusting the input gain, buffer size, and sample rate.

Plug-ins have been embraced by progressive rock/metal guitarists in particular. Several artists have collaborated with Finland's Neural DSP Technologies like Plini, Tosin Abasi, Cory Wong, Tim Henson, and John Petrucci to design signature rig plug-ins and standalone suites.

Neural DSP developed the most powerful floor modeler with 2GHz of dedicated DSP from its Quad-Core SHARC® architecture. The Quad Cortex allows guitarists to capture, share, and download guitar rigs.[208] The Quad Cortex can capture (replicate) the sonic characteristics of any physical amplifier, overdrive pedal, and cabinet. It can also load Neural DSP plug-ins and third-party IRs for standalone performance.

Rack-Mount Effects Processors

Rack-mount effects units are larger than modular floor pedals and designed to bolt into the industry standard nineteen-inch racks. They are usually made of high quality and offer more options and controls than compact effects pedals. Originally used by recording

[208] "Quad Cortex," neuraldsp.com, accessed on February 10, 2022, https://neuraldsp.com/quad-cortex.

studios, guitarists adopted these powerful effects processors to build their own rack systems for touring so they could access the additional power and sound quality they were accustomed to using in the studio. Rack-mount effects processors produce line-level signals and therefore are placed in an amplifier's effects loop.

Multi-effects units contain any number of effects in one convenient package. These units may be offered as a rack-mounted processor, a floor unit with foot switches and rocker controls, a desktop unit, or as a plug-in. The advantage of multi-effects units is that effect configurations and settings can be stored as banks, presets, and scenes that can be recalled instantly. Multi-effects units are flexible and cost-effective. Disadvantages of multi-effects units are the potential for a learning curve or preference for a particular effect(s) from a different manufacturer.

Pat Metheny was probably the first guitarist to use a digital delay unit—the Lexicon Prime Time to cultivate his signature sound.[209] This effect allowed him to create a new sound comprised of the original guitar signal plus that signal delayed by approximately six milliseconds. Pat placed a long delay on one side of the stereo spectrum and a longer delay on the other side. The delays are carefully mixed in the appropriate proportions to give Metheny an electric-guitar sound with acoustical qualities. Today, Metheny prefers the Kemper Profiler for his amplification and effects needs.

[209] Niles, Richard, *The Pat Metheny Interviews: The Inner Workings of His Creativity Revealed* (Milwaukee, WI: Hal Leonard Books, 2009), 124-125. The following discussion is indebted to this source.

Compact Pedals

Compact pedals are designed primarily for guitarists. They are designed to go in-between the guitar and the amplifier, which is a relatively low signal level. Some modulation, delay, and reverb pedals are suitable for use in an amplifier's effects loop or with other line-level signals.

Modular effects pedals offer a level of flexibility and ease of use that multi-effects pedals and modelers struggle to match. Effects pedals can be an exciting way to stimulate the creative juices, tell a musical story, or help write a song. Guitar effects can enhance a musician's playing with new dimensions of color and texture. Pedals can become an integral part of the sound broadening an artist's tonal palette with style and authenticity.[210]

Some guitar effects are subtle, others transform a simple riff into an iconic hook. An extreme and inventive use of effects can transform the guitar into something else entirely. Delays and loopers extend the creative potential of effects pedals so that they become compositional tools that help the solo guitarist create otherwise impossible sonic tapestries. A cunning use of effects pedals enables the guitarist to transcend the limitations of range, polyphony, and timbre inherent to the guitar.

Understanding how sound waves behave underpins synthesis, acoustics, recording techniques, and controlling effects. While not essential to becoming a great guitarist, having an awareness of how sound waves function will help in finding solutions to

[210] Rob Thorpe, *Guitar Pedals: Mastering Guitar Effects* (Middletown, DE: Fundamental Changes, 2017), 4, 102-108. The following discussion is indebted to this source.

technical problems more easily and understanding the way effects will color the sound before hearing. This is especially useful for trying to create sounds you have heard in your head, or to replicate non-guitar sounds.

MXR pedals were an essential element of Edward Van Halen's sound since the band's debut album was released in 1978. The slow swirling phaser textures of the MXR Phase 90 can be heard on the classic Van Halen songs "Eruption," "Atomic Punk," "Ain't Talkin' 'Bout Love," and "Everybody Wants Some!!"[211] Edward's distinctive and innovative use of the MXR Flanger made a lasting impression on guitarists through songs like "Unchained," "And the Cradle Will Rock…" and "Hear About It Later." In addition to those two tone-enhancing effects, Edward also relied upon the MXR utility pedals of the Six-Band Graphic Equalizer and Smart Gate to thicken his onstage tone and keep his signal noise-free, respectively.

Edward Van Halen's formative years of playing the guitar came from the old-school method of plugging the guitar straight into the amp. He believes his buddy's wah-wah pedal was probably the first pedal he ever tried. Edward discovered MXR pedals in the mid-1970s through fellow Pasadena gunslinger and friend Terry Kilgore.

Edward thought the MXR Phase 90 created a subtle, light change to the sound that would make his solos pop and standout in the mix. At that time, the public address systems in the local clubs were inferior along with many of the soundmen. The MXR Phase 90 enhanced his tone.

[211] Chris Gill, "Everybody Wants Some," *Guitar World* (November 2014): 74-75. The following discussion is indebted to this source.

I find it interesting to examine how effects create new sounds. Effects need to be understood in their totality, not only as tones created by one musician but also in the context of the musical arrangement (e.g., Van Halen). Also relevant are electro-acoustic and electronic effects that are facilitated by the current level of technological progress and how effects may be implemented in a recording studio, in re-engineering, or in live performance.[212]

Plectrums

Our ancestors used bird feathers, stones, bones and other shards of organic matter to pluck the strings on lutes, citterns, ouds, pipas, kotos, vinas, and other ancient stringed instruments.[213] Today, plectrums are made from a wide range of synthetic materials offered in a broad range of shapes, sizes, and thicknesses. These distinctions are important because the right plectrum can improve one's tone and execution.

"The pick is the first point of contact between the player and the instrument," notes Jimmy Dunlop, head of Dunlop Manufacturing and son of company founder Jim Dunlop. "It is like a paintbrush: you do not create a masterpiece with just one brush; you need a whole arsenal of brushes. They all have different characteristics."

Much like guitars, amplifiers, and effects, the plectrum is divided into two camps: vintage and modern. Retro vintage plectrum designs strive to emulate the "holy grail" picks of yesteryear attempting to emulate the sound and feel of tortoiseshell, celluloid, or

[212] Kajanová, "Musicological Studies," *International Review of the Aesthetics and Sociology of Music* 44, no. 2 (2013): 350-351, accessed November 12, 2020, http://www.jstor.org/stable/23594803.
[213] Alan di Perna, "Take Your Pick," *Guitar World* (January 2014): 79-80. The following discussion is indebted to this source.

nylon. Tortoiseshell material was taken from the shell of a tortoise, most typically the hawkbill turtle. Tortoiseshell has been banned since 1973, as many species of turtles are endangered. Tortoiseshell produces an organic tone that is preferred by players of bluegrass and acoustic styles.

Celluloid was the first thermoplastic that could be heated and molded but has not been employed in the manufacturing of plectrums since the 1940s. Vintage celluloid plectrums were the choice of jazz guitarists Charlie Christian and Django Reinhardt.

During the 1960s, plectrums were commonly made of nylon, another thermoplastic. The rock musicians of this era utilized nylon picks. Nylon is soft and produces a warm tone. The picks can be manufactured thicker, yet highly flexible.

Contemporary players prefer plectrums made of Ultem, one of the many modern thermoplastics. Dunlop manufactures its textured Ultem under the name Ultex, believing it is the closest synthetic material to sounding like tortoiseshell.

An explosion of new designs, concepts and materials continue to be explored. Ultimately, the best pick is a highly subjective and a personal choice. Exploring new plectrums is a relatively inexpensive pursuit to improving one's tone and execution.

Signature Gear

Ever since guitarists started gaining notoriety from their artistry, novice players have wanted to emulate them. In response, instrument manufacturers have created signature model guitars, amplifiers, effects pedals, and accessories bearing the names of celebrated musicians.

In the 1830s, luthiers Johann Stauffer and René Lacote were collaborating with the leading guitarists of the day, including Luigi Lagnani, Fernando Sor, and Napoléon Coste to create custom models.[214] This includes possibly the first seven-string guitars designed by Coste and Lacote, some of which bear Coste's name handwritten on the label inside the body.

The premise was much the same as it is today: as well-known and accomplished guitarists achieved a signature tone and technique they lent their names and/or expertise to the design of instruments that could help ordinary players attain similar musical feats.

The vogue for signature guitars escalated in the late 1920s and early 1930s as our concept of celebrity took shape around new innovations in entertainment technology such as photograph records and movies with synchronized sound. The prime example of this phenomenon is the Gibson Nick Lucas model flattop acoustic, which was introduced in the late 1920s. Lucas was a key figure in the guitar's ascendancy over the banjo, which had been popular with dance bands of the era, and he recoded what is hailed as the first guitar instrumental record, "Pickin' the Guitar," backed with "Teasin' the Frets," in 1922. Lucas was seen by moviegoers playing his Gibson signature model guitar while singing "Tip-Toe Thru the Tulips with Me" in the 1929 hit film *Gold Diggers of Broadway,* which today serves as an early example of guitar-industry-related product placement.

Another trend in the 1930s and 1940s was to honor guitar teachers and big-band jazz guitarists with signature models. Artists such as Roy Smeck, Harry Volpe and

[214] Alan di Perna, "Name Game," *Guitar World* (January 2014): 76. The following discussion is indebted to this source.

George Van Eps are remembered today more for lending their names to signature guitars (Kay, Epiphone and Gretsch, respectively) than for their music.

Signature models became even more prominent during the 1950s as the electric-guitar grew in popularity. The best known of these is the Gibson Les Paul which was introduced in 1952. Les Paul was an accomplished guitarist, technological innovator and early television personality collaborating with his wife Mary Ford, Paul Whiteman, Bing Crosby and the Andrews Sisters.

The Les Paul guitar was primarily designed by Gibson president Ted McCarty. He joined Gibson in 1948 and was its president between 1950 and 1966. He was directly responsible for running the company during the period that produced not only the Les Paul but also the ES-335, Flying V, Explorer, Firebird, SG, and the Byrdland models.[215] Les Paul's only contributions were the initial Goldtop finish and the original trapeze tailpiece, which was quickly replaced per market demand by the Tune-o-matic stop tailpiece.[216] Today, artists who lend their name to a signature model often have some input on the instrument's design. The Gibson Les Paul is a case in which the artist's endorsement is used to increase the product's prestige and sales.[217] In 1994, guitar builder Paul Reed Smith paid tribute to Ted McCarty by introducing the PRS McCarty Model.[218] Smith had hired McCarty as a mentor and consultant during the establishment of PRS Guitars.

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[215] Dave Burrluck, *The PRS Guitar Book: A Complete History of Paul Reed Smith Guitars,* 3d Ed. (New York: Backbeat Books, 2007), 77.
[216] di Perna, "Name Game," *Guitar World*, 76.
[217] Ibid.
[218] Burrluck, *The PRS Guitar Book*, 77.

The most popular signature guitars of the 1960s were high-end archtop jazz guitars such as the Gibson Barney Kessel, Tal Farlow, and Trini Lopez models.[219] This was because the musical instrument industry was biased towards rock music. For example, Rickenbacker, Vox, and Hofner advertised their association with the Beatles but did not feel obligated to enshrine them with something as serious and lasting as a signature model.

During the 1960s, as rock and roll guitar players would not have thought of buying a signature guitar because the influential rock guitarists of the day (e.g., George Harrison) were playing stock models. There was no sense of "vintage" and no aftermarket replacement pickups, hardware, etc., to customize a guitar.

In popular music, artists and music technology are more or less equal partners that spur one another's success.[220] Due to the advent of signature guitars, amplifiers, pedals, pickups, and accessories the counterpoint between personal innovation and cultural standardization has materialized.[221] The endorsement of notable guitarists has been a significant marketing tool among manufacturers for establishing credibility and cultivating interest in their products.[222] The strategy of associating a musical instrument or accessory with an artist supports the willingness of the manufacturer to guide a musician's choice with respect to the expected norms.[223] In the advertisements that

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[219] di Perna, "Name Game," *Guitar World*, 77. The following discussion is indebted to this source.
[220] Mueller, "Jeff Beck," 53.
[221] Bennett and Dawe, eds. *Guitar Cultures*, 124-125.
[222] Ibid.
[223] Dumoulin, Régis, and Claire Gauzente, "The Solid Body Guitar in the Digital Era: How Persistent Myths Influence Musicians' Evaluation Criteria," *International Journal of Arts Management* 15, no. 2 (2013): 4-17 Accessed November 15, 2020. http://www.jstor.org/stable/24587109.

circulate through the pages and websites of *Guitar Player* and *Guitar World*, for example, aspiring guitarists are counseled to heed the advice and follow the choices of a range of guitar-world luminaries.[224] For the artist, an endorsement deal brings not only added income but also certification that one has earned the reputation and notoriety to serve as an example to others. Perhaps the ultimate prestige in this regard is the "signature" guitar, whereby a famed guitarist lends his or her name to an instrument in exchange for having input on the design and an economic investment in the final product. An endorsement deal may lead to a full-page magazine advertisement and/or tour support to promote a new album.

In recent years, signature guitars have proliferated dramatically as manufacturers have sought any possible avenue to distinguish their product from those of their competitors. Amateur guitarists are not only influenced musically by their favorite artists but also by their choices in gear, personal recording studios, and live setups. The guitar manufacturing business is driven by artist endorsements, exemplified by their marketing campaigns in guitar magazines, company social-media pages, YouTube videos, and websites. This is important because 95 percent of the musical-instrument market is driven by amateurs.[225]

A creative musical artist works differently from the creative people who design and build musical instruments. A guitar builder/luthier, amplifier, and/or effects pedal designer must have the ability to translate an artist's vision into a product. It takes a really

[224] Bennett and Dawe, eds. *Guitar Cultures*, 124-125. The following discussion is indebted to this source.
[225] Fornadley, *Tone Wizards*, Loc 4716. Kindle.

talented engineer to interpret artistic desires because artists do not always think in a linear fashion.[226] However, it can take two years to develop a product, and by then an artist may have been off on three different artistic tangents.[227] And this is where problems can arise between an artist and a manufacturer.

Edward Van Halen may have released only three songs in 2004 and one studio album in 2012, but he remained creative and productive during the early years of the new millennium by designing signature gear.[228] After collaborating with Ernie Ball Music Man and Peavey on the design of his signature guitars and amplifiers, and Jim Dunlop on his signature effects pedals and accessories, Edward devoted his creative energy to his own EVH brand products. EVH Gear went well beyond the usual artist-endorsement agreements and signature models by giving Edward full creative control of an entire line of musical products, an industry first.

With EVH Gear, produced by Fender Musical Instruments Corporation, Edward approached product development with the same dedication, passion, and attention to detail that he devoted to his music. Edward's demanding attention to detail and elevated standards of quality control are now the stuff of legend. He truly cared about his own reputation in designing and producing musical instruments for fellow musicians.

During the Covid-19 pandemic the musical instrument industry experienced significant growth. Guitars sell easily online. New players started purchasing instruments

[226] Ibid.
[227] Alan di Perna, "Axe Men," *Guitar World* (May 2014): 60.
[228] Chris Gill, "A Farewell to the King," *Guitar World* (January 2021): 36. The following discussion is indebted to this source.

as a creative outlet during lockdown, and experienced players bought new guitars. Steve Vai told *Guitar Player* in January 2021, "I got my royalty check from Ibanez and I almost died!"[229]

[229] Scapelliti, *Guitar Player,* 38.

Chapter Four

FUSION: BLURRING THE LINES OF PRECONCEIVED GENRES

Genre

The term *genre* emerged in the mid-nineteenth century when the process of modernity was accelerating, as new forms of popular culture were beginning to flourish.[230] Genre has become a category that refers to a particular kind of music within a distinctive cultural web of production, circulation, and signification. Genre exists not only in reference to the music but also in the minds of groups of people who share certain conventions. These conventions are created in relation to musical texts and artists, as well as the contexts in which they are performed and experienced. Genre is fundamental in structuring musical life. It has implications for how, where, and with whom people make and experience music.

The term genre is utilized as an attempt to categorize musical styles within certain broad textural and extra-textural parameters.[231] Assigning generic terms to songs, instrumentals, and tunes will not be definitive or beyond dispute. For example, Borthwick and Moy point out that one of the most employed generic terms in contemporary usage is rhythm-and-blues. However, in considering the disparity of musical performers and styles all included under one heading, the term ceases to have a clear definition.

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[230] Fabian Holt, *Genre in Popular Music* (Chicago: The University of Chicago Press, 2007), 2. The following discussion is indebted to this source.

[231] Stuart Borthwick and Ron Moy, *Popular Music Genres: An introduction* (New York: Routledge, 2004), 3. The following discussion is indebted to this source.

In examining genre, Borthwick and Moy argue that such analysis must be historically grounded and tightly categorized. Whereas "overarching" metagenres such as rock or pop transcend historical epochs, others, such as progressive rock, do not. Such genres (or subgenres) are intrinsically tied to an era, mode of production, a *Zeitgeist,* and a set of social circumstances that effectively ensures their demise, or at least mutation into other forms. Each genre hosts a variety of subgenres that communicate more specialized information about the music contained therein.[232] Subgenres are trendy, whereas genres remain relevant for longer periods of time. Genres have a degree of elasticity, but there invariably comes a point when they split under the pressure of some force or another—be it musical, technological, commercial, or social.

Genre Categories

Genre is always collective, musically and socially. An artist can have his or her own style, but not genre. Conventions and expectations are established through acts of repetition performed by a group of people, and the process of genre formation is in turn often accompanied by the formation of new social collectivities. A concert festival or music cruise such as the Download Festival, New Orleans Jazz Festival, or the Cruise To The Edge would be examples of how music scenes are organized around particular musics.

A genre category can only be established if the music has a name. Naming a music is a way of recognizing its existence and distinguishing it from other musics. The

[232] Esther M. Morgan-Ellis, *Resonances: Engaging Music in Its Cultural Context* (Dahlonega, Georgia: University of North Georgia Press), 35-36. The following discussion is indebted to this source.

name becomes a point of reference and enables certain forms of communication, control, and specialization into markets, canons, and discourses. This process also involves exclusionary mechanisms, and it is often met with resistance. Struggles about names and definitions are often an integral part of the histories of individual musics and their cultural dynamics. It situates them with respect to audiences, interpretive norms, and institutional channels.[233]

In popular music, major labels enforce a high degree of standardization, but there are also many specialized independent labels, live music venues, and amateur music making taking place.[234] In much popular music, a great deal of creativity and genre negotiation occur on the level of the individual performing artist. Many artists perform their own compositions in the sense that songs and arrangements are frequently made specifically for them or by themselves. Performers can make the material their own by performing it in their own style and negotiate or even challenge generic boundaries during performance. Individuality is also valued in many genre discourses. Fans praise their favorite artists for having a unique style, and artists applaud their colleagues for this and encourage young aspiring artists to find their own voice.

Fabian Holt argues in his book *Genre in Popular Music* that the corporate music industry organizes music into generic and market categories, in effect standardizing and popularizing genres. A classic strategy of popularization has been to adjust genres to the

[233] Walser, *Running with the Devil*, 6.
[234] Holt, *Popular Music,* 4-27. The following discussion is indebted to this source.

mainstream and create crossovers, so that artists reach a broader market. This is one reason why celebrity promotion often lifts artists out of genre contexts.

Genre cultures are divided in relation to corporate production. Some artists are content with it, while others repudiate it or have a peripheral position because their music does not sell enough to be of corporate interest. The industry does not merely serve the needs of society, although this is often suggested by the claim that the industry is responding to demand.

In 1983, jazz guitarist Pat Martino (1944-2021) published in the forward to his book *Linear Expressions* his concerns about the many social problems surrounding art.[235] He found that successful artists were publicly confined to the fields in which they were most marketable. Therefore, nearly all their music was heard on a media-oriented basis. At the time, the record industry kept a firm grip on artists and their access to the public. Martino believed success had nothing to do with artistic expression in the industry, but rather an artist had to gain success privately by sharing their art with the public. In doing so, Martino stated that a true artist would be sought by the industry sooner than spending several years seeking to reach success through the industry. A positive result from this exchange is that true art shall emerge for both the public and the industry. As Martino suggested, it is very possible that what truly moves an artist will also move the public.

[235] Pat Martino and Tony Baruso, *Linear Expressions* (Milwaukee, WI: Hal Leonard, 1983), 4. The following discussion is indebted to this source.

Many jazz, fusion, and progressive-rock artists dislike the music industries' utilization of genre categories, perhaps because many of these players defy musical categorization due to their command of multiple musical genres. For example, jazz guitarist Pat Metheny finds the categorization of music into genres unnecessary.[236] In terms of the context, genre does not matter to him or to most of his audience.[237] Artists and groups bridle at genre categories because they see them as restrictive stereotypes, implying formulaic composition.[238] For example, Yngwie Malmsteen denied any connection with metal out of contempt for a genre that he viewed as technically and aesthetically inferior to his own music.[239] Malmsteen hoped to gain greater prestige as an artist than what was normally granted to metal musicians, and also to increase his opportunities for exposure.[240]

During an interview with Joe Bosso of *Guitar Player,* John 5 (John Lowery) discussed the importance of genre thus: "I am just such a fan of music, and I do not really see any boundaries at all. It is good for my brain to play a lot of styles. I think it is good for my overall well-being. To make a record of just one kind of music would be boring, so I mix it all up and try to play it as well as I can."[241] John believes as players we need to take the instrument in unique directions—new sounds, new beats, and new textures.[242] He

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[236] Richard Niles, *The Pat Metheny Interviews: The Inner Workings of His Creativity Revealed* (Milwaukee, WI: Hal Leonard Books, 2009), 110.
[237] Ibid.
[238] Walser, *Running with the Devil,* 6.
[239] Ibid.
[240] Fabio Testa, "Yngwie Malmsteen: In Search of a New Kingdom," *The Best of Metal Mania* #z, 1987, 35; quoted in Walser, *Running with the Devil,* 6.
[241] Joe Bosso, "Shred Alert," *Guitar Player* (August 2019): 38.
[242] Molenda, "John 5 on Shredding." 18.

likes to take his audiences on a musical journey: "It is so diverse—I am always throwing them curveballs, and there are so many peaks and valleys to each performance."[243]

Nowhere are genre boundaries more fluid than in popular music.[244] Pieces within a popular genre rarely correspond slavishly to generic criteria.[245] Fredric Jameson argued that pure textural exemplifications of a single genre do not exist, not merely because pure manifestations of anything are rare, but because texts always come into being at the intersection of several genres and emerge from the tensions in the latter's multiple force fields.[246] He continued to say that we need the specification of the individual "genres" today more than ever, not in order to drop specimens into the box bearing those labels, but rather to map our coordinates on the basis of those fixed stars and to triangulate this specific textural moment. Genre categories are fluid and individual texts are never static fulfillments of conventional norms but rather understood with reference to other texts.

Genres are never unique; instead, they are developed, sustained, and reformed by people, who bring a variety of histories and interests to their encounters with generic texts. Genres function as horizons of expectation for listeners and as models of composition for musicians.

Historical Dimension of Research

The historical dimension of my research considers the musical and social environments in which progressive rock, fusion, and progressive metal were created. For

[243] Ibid.
[244] Walser, *Running with the Devil,* 27.
[245] Ibid.
[246] Fredric Jameson, "Towards a New Awareness of Genre," *Science Fiction Studies* 28 (1982), 322; quoted in Walser, *Running with the Devil,* 27. The following discussion is indebted to this source.

the remainder of this chapter, I focus on the changes in musical thinking and the artistic values in relation to these three genres of music. I would be remiss not to recognize neo-soul guitar as a unique fusion of African American musical styles as contemporary progressive rock/fusion players exhibit no musical boundaries.

Progressive Rock

The genre of popular music referred to as progressive rock originated in the late 1960s. It is here we find the origins of a genre that proved influential to rock guitarists ever since. Progressive-rock music emerged during the late- 1960s' counterculture in the Haight Ashbury district of San Francisco and London and spread across much of the Western world as a product of a hippie/post-hippie culture.[247]

Much like the dress, visual and verbal expression associated with the counterculture, the psychedelic music forged by it was loud.[248] The heavy beat and use of amplification were influenced by rhythm-and-blues. Artists such as John Mayall's Bluesbreakers exposed young British musicians to the electric guitar styles of African American artists such as Muddy Waters, Howlin' Wolf, and B.B. King. The lengthy improvisational elements of psychedelic music are rooted in jazz, and musicians who started their careers in the British jazz scene such as multi-instrumentalist Graham Bond and drummer Ginger Baker were able to successfully crossover to psychedelic music during the mid-1960s.

[247] Macan, *Rocking the Classics,* xi, 15-17. The following discussion is indebted to this source.
[248] Ibid.,17-19. The following discussion is indebted to this source.

Eclecticism in psychedelic music was new. Elements of blues, country-and-western, near Eastern, Indian, and Baroque forms were blended during the late 1960s. Longer songs, upwards of ten minutes, prominent instrumental sections, lengthy solos, the exploitation of feedback, as well as echo and tape effects were utilized in psychedelic music. References to North Indian classical music included the use of sitars and tablas. Exotic modes of Indian ragas and the utilization of ornamental, melismatic lines in instrumental solos became commonplace for some psychedelic bands. With the aid of hallucinogenic drugs, psychedelic music was "head music" to be listened to rather than danced to. Advancements in music technology (e.g., tape effects) allowed for new musical experimentation. During the late 1960s and early 1970s, record companies gave artists more creative control over their music than at any other time in the history of popular music.

The underground media outlets of press and radio that emerged around psychedelic music were crucial to the development of progressive rock. They established psychedelic music as a distinct style that helped in the dissemination of the music. Journalists offered a critical appreciation, a connoisseurship, and regarded psychedelic music as art, much like classical music and jazz. The rise of a network of clubs, radio stations, and publications promoting psychedelic music along with the support of the record labels, created a backdrop of capitalist economics necessary for the development of progressive rock music.

The term "progressive" was coined by journalists to define an eclectic form of Western popular music that incorporates elements of Western art music, psychedelic

rock, blues-rock, and non-Western musical traditions.[249] Progressive rock imitates other forms of "higher," more "serious" music borrowing from the classical-music canon, particularly that of the eighteenth- and nineteenth-century orchestral repertoire.[250] Progressive rock music often includes structural and metrical complexity, rich orchestrations, the utilization of music technology, and instrumental virtuosity.[251]

Progressive rock was one of the dominant genres for the so-called "serious" market of Europe and the United States between around 1968 and 1976.[252] Predominately a British phenomenon, what distinguished progressive rock from other forms of popular music was the tendency to reference classical music in terms of form and texture.[253] Occasionally, a specific song might be influenced by the melody or harmony of a particular piece of Western art music. These classical borrowings, in addition to other non-rock styles and formal ideas, blend imperceptibly into all-purpose stylistic eclecticism—where the freedom to switch styles within the same piece of music is a conventional compositional technique.

Progressive-rock music may involve complex multi-movement forms, contrapuntal textures, and include other influences such as jazz, avant-garde electronic sounds, or 1960s minimalism. By contrast to rock bands performing with an orchestra as background filler, progressive rock bands incorporate the orchestral instruments as active

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[249] Ibid., 26-27.
[250] Theo Cateforis, ed., *The Rock History Reader* (New York: Routledge, 2007), 163.
[251] Durrell Scott Bowman, "Permanent Change: Rush, Musicians' Rock, and the Progressive Post-Counterculture." Ph.D. diss., University of California, Los Angeles, 2003.
[252] Borthwick and Moy, *Popular Music Genres: An Introduction* (New York: Routledge, 2004), 61.
[253] David Brackett, *The Pop, Rock, and Soul Reader: Histories and Debates* (New York: Oxford University Press, 2014), 165, 282-284. The following discussion is indebted to this source.

participants in the musical texture. Progressive-rock musicians tend to favor through-composed passages displaying technical prowess over performing advanced improvisations. To many progressive-rock fans, authenticity is earned by the display of mastery over the materials.

Edward Macan presumes that progressive rock developed in southern England due to the cultural, historical, and social background of the region.[254] Here we find a subculture of highly educated people who were exposed to classical music, art, and the literature of high culture. Many bands formed at college and university campuses, for example: Pink Floyd, Genesis, and King Crimson, although few of these musicians graduated. In addition, the region had been historically Anglican, and the church presumably had an impact on the development of the progressive-rock sound.

Many progressive rock musicians attended the Anglican Church in their youth and served as church musicians. Qualities of the progressive rock sound such as modal harmony, "pipe organ" sonorities, quasi-choral vocal arrangements, pure head tones, and tempered singing possibly stem from the influence of Anglican Church music.

Progressive rock served as a direct response to the disposable three-minute pop song. Rock is supposed to be rebellious music, and progressive-rock is dissatisfied with the limitations of popular music before the revolutionary Beatles album *Sgt. Pepper's Lonely Hearts Club Band*. Yes/King Crimson drummer Bill Bruford said in a 1982

[254] Macan, *Rocking the Classics,* 144-151. The following discussion is indebted to this source.

interview, "It was felt after *Sgt. Pepper* anybody could do anything in music. It seemed the wilder the idea musically, the better."[255]

The mixing of psychedelic and folk qualities in progressive rock music after the Beatles *Sgt. Pepper's* album found one of the most characteristic qualities of the genre: the systematic juxtaposition of acoustic and electric passages, sections, or movements.[256] Other characteristics that define English progressive rock between 1967 and 1970 include a persistent use of classically derived tone colors produced on the Mellotron, Hammond organ, and assorted instruments; rich vocal arrangements; lengthy pieces consisting of clearly articulated sections or movements; long instrumental passages; and a tendency to experiment with electronic effects and new recording techniques.[257]

David Weigel considers progressive rock a lab for three kinds of musical modes.[258] The first is retrospection, which attempts to replace the American influence of blues and soul music with that of English and European influences. The second is futurism, by incorporating new sounds and non-rock influences to replace Western tonality. In the third mode, experimentation attempts to create music with little influence or the ability to be replicated.

The classic progressive rock era was harshly evaluated by critics and scholars who found the music self-indulgent, the lyrical themes inspired by science fiction, mythology, and fantasy literature a betrayal of rock's rebellious origins, and the elaborate

[255] Weigel, *The Show That Never Ends*, xiv.
[256] Macan, *Rocking the Classics*, 22.
[257] Ibid.
[258] Weigel, *The Show That Never Ends*, xvi-xvii. The following discussion is indebted to this source.

stage shows materialistic.[259] In many circles, it was felt that the genre embodied the worst excesses of pretension, expenditure and detachment from the values of "roots" and social reality deemed important within popular music ideology.[260] The music was viewed as fundamentally by and for elitists.[261]

By 1972, the formation of progressive rock as a distinct style was essentially complete.[262] The bands following this date merely modified the sound of one or more of the already established bands. In the mid-to-late 1960s, the term "progressive rock" was appropriated by the underground radio stations and applied to psychedelic music to differentiate it from the pop music of the pre-psychedelic era. Around 1970, "progressive rock" came to have the specific meaning of describing a style of music that sought to expand the boundaries of rock on both a stylistic and conceptual basis and on the conceptual basis, mainly through the appropriation of elements associated with classical music. The music could be considered a "third stream" genre. The editors of *The Rolling Stone Encyclopedia of Rock and Roll* endorse the term "progressive rock" to describe the genre most appropriately. The "first wave" of English progressive-rock bands was 1967-1971. The "second wave" took place during the years 1971-1976 (its so-called golden age).

It is significant that progressive rock as a musical style is one of the few forms that has not, in fact, progressed or greatly influenced other forms.[263] In a contemporary-

[259] Macan, *Rocking the Classics,* 1.
[260] Borthwick and Moy, *Popular Music Genres,* 61.
[261] Macan, *Rocking the Classics,* 1.
[262] Ibid., 25-27. The following discussion is indebted to this source.
[263] Borthwick and Moy, *Popular Music Genres,* 61. The following discussion is indebted to this source.

music world full of "underground" scenes and forms, progressive rock is one genre that can truly claim to be "underground" in terms of its lack of commercial promotion and subcultural appeal. As with other "marginal" genres, the internet has proven a boon for the survival of a form now largely ignored by the mainstream.

Fusion

In 1969, jazz promoter George Wein decided to book rock bands for the first time at the Newport Jazz Festival hoping to attract a younger audience and increase ticket sales.[264] Although the event was a commercial success, trying to meld the two audiences together for one festival was also a logistical nightmare. In 1972, the festival was relocated to New York City, and along with jazz acts such as Duke Ellington, Dave Brubeck, and Dizzy Gillespie, Wein booked a new act that merged jazz and rock music together: the Mahavishnu Orchestra.

Fusion has struggled to emerge as a genre due to its hybrid status as neither jazz nor rock. Fans of straight-ahead jazz find the music too loud, raw, and aggressive, and the musicians' use of electronic equipment signals their allegiance to rock rather than jazz aesthetics. However, it is hard to dismiss the Mahavishnu Orchestra whose members include jazz-guitarist John McLaughlin (worked with Miles Davis); keyboardist Jan Hammer (worked with Sarah Vaughn); and bassist Rick Laird (worked with the Buddy Rich Big Band).

[264] Kevin Fellezs, *Birds of Fire: Jazz, Rock, Funk, and the Creation of Fusion,* Refiguring American Music, edited by Ronald Radano and Josh Kun (Durham, NC: Duke University Press, 2011), 1-5. The following discussion is indebted to this source.

The "ain't jazz, ain't rock" musicians create an informal set of musical practices and aesthetics by staying between the genres. Fusion musicians traverse both inside and outside genre categories disturbing assumptions about musical traditions including the ways in which membership (legitimacy), mastery (authority), and musical value are ordered. Author Kevin Fellezs argues that fusion should be considered an "in-between" categorization that could conceivably be an "is jazz, is rock" as much as an "ain't jazz, ain't rock" set of musical practices and aesthetics.

Since the 1970s, fusion has expanded beyond its jazz, rock, and funk origins to cross paths with many other genres such as blues, rhythm & blues, funk, world, and ethnic music. Some of the key guitarists of the jazz-rock fusion style include John McLaughlin, Pat Metheny, Larry Coryell, Allan Holdsworth, Larry Carlton, and Scott Henderson. Blues guitarist Robben Ford is known for his ability to meld jazz, rock, and funk into his eclectic style, while rock fusion guitarists Greg Howe and Brett Garsed infuse funk and jazz into their compositions.

Over the last decade of his career, guitarist Shawn Lane (1963-2003), under the direction of Swedish bassist Jonas Hellborg created a body of improvisatory fusion music that included influences from Indian and Pakistani classical music. When I asked Hellborg about Lane's eclectic style he responded, "Shawn played for me in the mid-1990s. I turned him onto Indian music. If you listen to his recordings before our collaboration, his lines sounded like Eric Johnson."[265]

[265] Jonas Hellborg, interview by author, Dogal Strings Booth #4210 Hall-D, NAMM, Anaheim, CA. January 16, 2020.

Is Fusion a Genre?

Kevin Fellezs defined genre as the "point of articulation between music analysis—the formal or technical description of music—and the social meanings and functions of music," as a keyword in exploring the musical meaning of fusion.[266] Guitarist Jeff Beck said the difficulty in describing this "ain't jazz, ain't rock" music is that "it has overtones of both, but it really has no name of its own." Fellezs reiterates that labeling fusion music becomes problematic as soon as the attempt to define jazz, rock, or funk begins. Moreover, musicians are ceaselessly creating new fusions and extensions of popular genres.[267] Arguably, all music is fusion since no style has completely pure origins.[268]

Fusion guitarist Tom Quayle believes fusion music began with the electrification of improvised changes-based music.[269] What differentiates progressive rock from fusion is the improvisational aspect. Although fusion is an amalgamation of different styles, it developed from the tradition of jazz. A common thread between fusion, bee-bop, traditional jazz, and bluegrass is the form of the tune. Following the "head" (melody), each band member has an opportunity to solo over the changes before repeating the head to close out the tune.

Fusion guitarists can morph authentically between all of the genres and styles they are covering. Arising from the tradition of jazz improvisation, fusion artists amalgamate

[266] Fellezs, *Birds of Fire: Jazz*, 1-16. The following discussion is indebted to this source.
[267] Walser, *Running with the Devil,* 27.
[268] Gary Burns, ed., *A Companion to Popular Culture* (John Wiley & Sons, Inc, 2016), 138.
[269] Andy Wood, "Woodshed Episode 19 with special guest Tom Quayle" Andy Wood Music, June 24, 2020, accessed July 1, 2020, https://www.youtube.com/watch?v=9FLc1PNXZ_g. The following discussion is indebted to this source.

the vocabulary, language, harmony, phrasing, and time/feel of various styles from an educated perspective. The consummate fusion guitarist can do all this while finding their own voice and developing an individual style.

Neo-Soul

The neo-soul guitar style is a fusion of rhythm & blues, gospel, jazz, funk, and hip-hop. A wide-ranging discipline, neo-soul has emerged as a driving force in popular music. As a genre, neo-soul emerged in the late 1990s and was pioneered by artists such as D'Angelo, Jill Scott, Erykah Badu, and Lauryn Hill.[270] The phrase "neo-soul" was coined by Kedar Massenburg of Motown Records to distinguish the style from more conventional soul and rhythm & blues.

Neo-soul guitar sounds impressive and multi-faceted, blending together several classic guitar styles into a fusion of soul. The neo-soul guitar style is challenging and highly suited to electric guitar, but it can also be performed on acoustic guitar. Key guitarists of the style include Mark Lettieri and Mateus Asato.

Progressive Metal

A subculture of young musicians exploring progressive rock had come of age during the 1980s listening to hard rock and metal. Founded in 1985, pioneering progressive-metal band Dream Theater experimented compositionally by combining the musical influences of Rush, Pink Floyd, Iron Maiden, and Metallica into a new progressive-metal format. During an interview with *Guitar World Magazine*, Dream

[270] Simon Pratt, Kristof Neyens and Mark Lettieri, *The Neo-Soul Guitar Book* (DE: Fundamental Changes, 2018), 5-6. The following discussion is indebted to this source.

Theater guitarist John Petrucci said that as he gained proficiency on the instrument, he began to investigate guitarists outside of the rock and metal genres.[271] He studied the music and styles of Steve Morse, Al Di Meola, and Allan Holdsworth. "I ended up combining all of these influences in my own playing." Guitarists Alex Lifeson of Rush and Steve Howe of Yes became huge influences on Petrucci's guitar style, songwriting, and orchestration within Dream Theater.

"Now (2019) definitely feels like an exciting time for progressive metal," said John Petrucci.[272] "When we started, the whole scene didn't really exist. We just got together and started writing this way because we liked Iron Maiden and Metallica as well as Rush and Yes, that's why we ended up putting it all together."[273] "If you look at Dream Theater now, we have the same instrumentation as Yes, where the guitar and keyboards are the essential parts of the bigger, orchestral, progressive rock sound."[274]

Progressive rock to Petrucci is, "Where there are no boundaries. You can stylistically do whatever your creativity can bring to the table."[275] This could mean song length, lyrical content, tone, sounds, or concepts. Progressive rock is not confined to the traditional pop/rock song forms.[276]

Pushing boundaries as both a guitarist and composer, Tosin Abasi together with his trio, Animals As Leaders has established himself as a pioneer in the current

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[271] Petrucci and Aledort, "Petrucci Guitar Method," 45. The following discussion is indebted to this source.
[272] Amit Sharma, "John Petrucci" *Total Guitar*, April 23, 2019, accessed May 28, 2019, https://www.musicradar.com/news/john-petrucci-your-solos-should-be-as-interesting-as-any-other-part-of-the-song.
[273] Ibid.
[274] Petrucci and Aledort, "Guitar Method," 45.
[275] Art Thompson, "25 Essential Prog-Rock Guitarists," (April 2021): 57.
[276] Ibid.

generation of progressive music.[277] "Vai, Satriani, and those other 'guitar hero' guys motivated me to go past just playing Nirvana and Smashing Pumpkins and stuff like that. They made me see that playing guitar is a lifelong pursuit."[278]

According to Abasi, the term "progressive" as first a "pure" definition, and then what he would consider a genre-specific definition when it comes to metal:

> I would say the pure definition of progressive is to create new things. So, advancing the scope of the genre—or the expression within a genre—is to be progressive. The minute you try to define what you are doing is when you put limitations on yourself. I want to keep moving, and the only way to do that is to look at the open road ahead of me, with no horizon in sight.[279] I am looking outside of metal for my inspiration right now. That is not to say that I do not love my influences, because I do. But I want to keep moving.[280]

Abasi prefers eight-string guitars with tuning the seventh string tuned to A rather than B, as preferred by seven-string hard rock/metal electric-guitarists. Interestingly, tuning the seventh string to A is by far the most popular tuning among seven-string jazz guitarists (i.e., George Van Eps, Bucky Pizzarelli). Tosin tunes the eighth string to low C#. "So, it is not more strings, but it is more range."[281] Abasi plays eight-string and baritone electric guitars to devastating effect, creating a post-thrash, prog-metal virtuosic style of instrumental rock guitar called djent.[282] The genre name is an onomatopoetic nod to the sound of a palm-muted downstroke on ultralow, heavily distorted guitar strings.[283]

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[277] Tosin Abasi, *Thump!* (Guitar Messenger, 2016), DVD.
[278] Chris Vinnicombe, "Leading Light," *Guitar World* (January 2012): 44.
[279] Joe Bosso, "Meet the New Boss," *Guitar Player* (September 2018): 36.
[280] Thompson, "25 Essential Prog-Rock Guitarists," *Guitar Player,* 58.
[281] Vinnicombe, "Leading Light," *Guitar World*, 44.
[282] Alan di Perna, "Follow the Leader," *Guitar World* (September 2012): 59.
[283] Ibid.

The term "djent" was coined by Meshuggah guitarist Fredrik Thordendal, but often mis-credited to Periphery founder and guitarist Misha "Bulb" Mansoor.

Australian-born progressive-rock guitarist Plini said the very term "progressive" implies trying new things, new sounds, but the fans expect a mix of the old with the new.[284] "Some people do tend to get stuck on an idea of how progressive rock should sound. Some bands worry too much that they need to include certain elements in order to stay relevant or fit in, when that might actually be doing them a disservice."[285]

Summary

Several of the artists discussed throughout this dissertation can be described as progressive rock/metal or contemporary rock-fusion guitarists. These musicians are difficult to pinpoint to any particular genre due to their versatility and expertise of musical styles. Typically, contemporary rock-fusion guitarists have an understanding or background in jazz, can improvise over changes, and have developed a high level of versatility and applied technique. This chapter's discussion of genre and the categories of progressive-rock, fusion, neo-soul, and progressive metal offer the perfect segue into Chapter Five's discussion on creativity and musical expression.

[284] Joe Bosso, "Voices in the Sky," *Guitar World* (April 2021): 52.
[285] Ibid.

Chapter Five

ENGINES OF CREATION

Creativity

Researchers have demonstrated that musicians are particularly good at proficiently accessing and integrating competing information from both brain hemispheres.[286] Instrumental musicians, for example, often integrate contrapuntal melodies with both hands into a single musical piece while simultaneously reading the music (left-hemisphere-based language) and integrating the written score with their own interpretation (right hemisphere).[287]

Creativity can blossom during times of incredible stress. During the 2020 pandemic, Steve Vai, for example, laid the groundwork for three new albums, worked on his scores for a quartet of symphonic compositions, and continued development of his line of signature gear. As told to *Guitar Player* Editor-in-Chief Christopher Scapelliti, Vai explained:

> That is the ticket: How to find the present moment. It is the only place where fresh, new, uniquely creative ideas will come out of you. And it's the only place where you can find any semblance of true peace. I believe the lockdown might have introduced presence into some people's lives. This allows an opening for the present moment, for mindfulness and for new creative expression.[288]

Musicians are resilient and compelled to create. They are drawn to their instrument and to music. A tragedy may inspire a new piece of music that represents it;

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[286] Vanderbilt University, "Musicians Use Both Sides Of Their Brains More Frequently Than Average People." ScienceDaily. www.sciencedaily.com/releases/2008/10/081002172542.htm (accessed November 4, 2020).
[287] Ibid.
[288] Christopher Scapelliti, "How I Survived 2020," *Guitar Player* (January 2021): 35-36.

however, for many artists, their best work may blossom from when they are free to clearly focus on their craft. A common technique to rejuvenate creativity may involve taking a break, searching for inspiration, or pursuing other artistic goals. For example, guitarist Joe Satriani finds inspiration by listening to music while painting.

As guitarists, our natural impulse is to imitate our favorite players, but once an aspiring musician has absorbed enough influences and technique, it is time to make a creative statement. Some players accidentally end up inventing a new style or sound by attempting to imitate their influences.[289] Other players take in a diverse spectrum of musical influences and create their own unique amalgamation. By contrast, some guitarists deliberately reject their influences to find their own style, while others directly build upon the foundation laid before them.

In 2005, Eric Johnson released a masterclass and performance DVD entitled *The Art of Guitar*. During the instructional portion of the program, Eric shared his ten "must know" musical concepts. The final musical concept, *Your Own Unique Light,* Eric described as:

> Standing in your own unique light is trying to do what is unique and your place in the musical world. Put an emphasis on that instead of trying to be someone else. Or play something that someone else might play better than you, whereas playing what might be unique and special only to you. Identify and develop that in your own uniqueness and originality is a key. The music is inside us all and what we must do is learn how to dive deep and find those pearls. Remaining a student of the guitar, and to always evolve.[290]

[289] di Perna, *Guitarist's Almanac*, 50. The following discussion is indebted to this source.
[290] Eric Johnson, *The Art of Guitar* (Milwaukee, WI: Hal Leonard, 2005), DVD.

Music journalist Alan di Perna said that most musicians would agree that to make the creative leap and play something both stunning and original does not come from the conscious mind.[291] It cannot be willed to happen or forced by deliberately trying. It usually involves getting past the rational part of the psyche: relinquishing control and simply "letting it happen," which is difficult to do. When an artist is receptive, melodies seem to just pop into their heads out of nowhere, and improvisors get caught up in the flow of the music, unaware of what they are playing on their instruments.

The discussion of creativity tends to be an important topic and teaching point of Steve Vai. In 2016, Vai was interviewed by *Glow Living* host Chandra Lynn to discuss how to unlock your creative potential.[292] The complete four-part video series, totaling approximately thirty minutes, is worthy of investigation. Below are what I found to be the highlights of their conversation.

Vai said that creativity stems from whatever one focuses on (e.g., inner peace, frustration, or anger), and you create more of this energy within yourself that is then cast out into the world. He believes that creativity is infinite and that one must realize they are unique, and their creative impulses are unequivocally valid. One must unlock the infinite freedom within to create and find joy in the process. This involves cracking of the ego. Then, once you discover the creativity, freedom, and joy in your creation, you will likely encounter some obstacles. We create our own obstacles by the quality of our thoughts.

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[291] di Perna, *The Guitarist's Almanac*, 51. The following discussion is indebted to this source.
[292] Steve Vai, interview by Chandra Lynn, "Steve Vai on How to Unlock Your Creative Potential," *Glow Living* (YouTube), September 9, 2016, accessed on June 18, 2019, https://www.youtube.com/watch?v=RTKxXlxDsPo . The following discussion is indebted to this source.

The way we feel is created by our thoughts. We create a momentum of thought patterns through life. Stress is the momentum of negative thoughts. Impatience and frustration are thoughts in our heads that create a feeling in our bodies. These feelings create more fearful thoughts, which may hamper our artistic vision.

Published in 2013, the book *Guitar World Presents Steve Vai's Guitar Workout* offers reprints of the original 1990 *Guitar World* feature outlining Vai's ten-hour daily practice routine and the updated 2004 thirty-hour workout program. This intensive guitar regimen has been the Holy Grail for serious players and cited as an influence in their development as guitarists. The 2004 workout commences with Vai's philosophy on inspiration: As told to guitarist/transcriber Dave Whitehill:

> Being an inspired musician is a gift that can not necessarily be taught, and personal inspiration is an individual experiential thing; there are no words that can be written that can convey how to discover and listen to your unique inspiration. Everyone has the ability to discover and cultivate his or her own unique voice on an instrument. To do so requires that one listen to one's inner voice and then find the courage to express it.[293]

To continue the discussion of creativity and artistic expression, the theme of Vai Academy 6.0, to be held in Las Vegas in August 2022, is "Finding Your Note."[294] This four-day guitar program of workshops and activities hosted by Steve Vai and featuring Guthrie Govan, Nuno Bettencourt, and Tommy Emmanuel, among others, will attempt to address the difficult question of "how to find your own voice on the instrument." Vai believes that each player has their own voice, whether they know it or not. So how does

[293] Vai, *Guitar Workout*, 14.
[294] Steve Vai, "Vai Academy 6.0," Vai Academy, accessed October 18, 2021, https://vaiacademy.com. The following discussion is indebted to this source.

one recognize it? How does one exaggerate it? How does one expand upon it? How does one embrace and surrender to it? How does one evolve their unique voice so that they can express themselves on the instrument? These are the questions Vai and his panel will address in order to help players in recognizing and cultivating their voice on the instrument to the point where they can become completely comfortable with it. Steve's hope is that this program will help guitarists to rekindle the connectedness, happiness, and enjoyment needed to evolve on the instrument.

Vai believes there is a note inside each musician that sings. It is a very clear, comfortable, and joyful place. When you are playing your instrument and you are connected to your note, your playing flows beautifully and transparently. There is no fear or concern, just pure expression of freedom, enjoyment, and enthusiasm where that nostalgic sweet spot can truly be embraced.

Metallica's lead guitarist Kirk Hammett told *Guitar World*, "People are looking for individuality and true emotional connection. I think that is what really makes a guitar player stand out—a real connection to the heart, to the soul, to the mind, to the gut."[295] It is the commitment to individual expression that cultivates a player's identifiable style.

Progressive-rock/fusion guitarist Guthrie Govan said in his instructional book *Creative Guitar 2: Advanced Techniques,* "Any guitarist who feels an urge to be more creative should start to think of himself or herself as a musician who plays guitar rather than just a guitarist."[296] Many innovative players developed their distinctive styles using

[295] Richard Bienstock, "Where It's At," *Guitar World* (February 2021): 42.
[296] Govan, *Creative Guitar 2*, 9-98. The following discussion is indebted to this source.

elements like violin-style vibrato (Yngwie Malmsteen, Eric Johnson), vocal-style phrasing (B.B. King, David Gilmour), sax-style amp settings (Frank Gambale, Allan Holdsworth) or organ-style double-stops (Danny Gatton, Robben Ford). This approach is what made it possible to develop a unique sound. The same approach has also given us inspirational players as diverse as Tuck Andress, Tom Morello, Thurston Moore, Vernon Reid, Buckethead, and the Edge.

Musical Expression

Expressive performances do not simply make the music more interesting but reveal and highlight important aspects of the musical structure that help us to understand it.[297] Listening to music involves attempting to work out its underlying tonal and rhythmic structure. Expressive performances can help this process by accentuating important events in the structure.

Experienced performers claim that their ability to play expressively is connected to their ability to "feel" the music. Expressive performers are said to play "with feeling" or "from the heart." In other words, their performance heightens the emotional intensity or impact of the music. Research on the aspects of music that move listeners most intensely has shown that these emotions are elicited by musical structures. Performers can enhance the emotional effects of these structures by exaggerating their emotion-bearing features. To do this convincingly, a musician must have already experienced the appropriate emotional response to this music as a listener. There is evidence that the

[297] Sloboda, "What Makes a Musician," accessed on November 6, 2020, https://web.archive.org/web/20160113144342/http://raagabox.com/blog/what-makes-a-musician-john-sloboda/. The following discussion is indebted to this source.

ability to experience strong positive emotional inclination to musical structure is affected by differing childhood musical experiences.

Artistic expression is often discussed among the practitioners and consumers of neoclassical rock, shred, and metal guitar. In his chapter "Eruptions: Heavy Metal Appropriations of Classical Virtuosity," Robert Walser said that if metal guitarists are to become effective musicians, they must learn to maneuver within musical parameters beyond pitch and form, just like their counterparts within conservatories and music schools, and must learn much that is not written down. In the academy, such learning is referred to as "musicality," and it is often the focal point of a mystification that covers up classical music's reliance on oral traditions.[298] In both classical music and contemporary rock, virtually the same aspects of music are far less theorized, codified, and written. Music students learn by listening, emulating, and watching the rhythm and gesture of bodily motion.[299]

Edward Van Halen said the guitar is such an expressive instrument that you can play it angry, or you can play it calmly—how it responds depends on your touch.[300] There is a difference between those who have "the feel" for music and those that do not, and Edward is not sure if it is something that can be taught.[301] He said, "You can really hear the difference in classical music. I have heard examples of two pianists play the same piece by Debussy that were like night and day."[302]

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[298] Walser, *Yngwie Malmsteen: Metal Augmented and Diminished*, 98.
[299] Ibid.
[300] Ibid.
[301] Tolinski and Gill, *Eruption*, 11.
[302] Ibid.

The conversation of artistic expression extends beyond the boundaries of performance to include the musical disciplines of composition and improvisation. An example of a rock musician who utilized these three forms of expression in his work was composer-guitarist Frank Zappa. His son, Dweezil Zappa is an authority on his father's music, and along with his bandmates, collaborates with Zappa alumni to recreate the Frank Zappa catalog in concert. Interviews, podcasts, DVDs, CDs, streaming music, online and in-person guitar lessons with Dweezil Zappa are excellent resources in studying Frank's music. In fact, in 2013 I took a guitar lesson from Dweezil Zappa in Kent, Ohio, before his Zappa Plays Zappa concert. The lesson focused on fretboard visualization, creative pentatonic ideas, improvisation, and a discussion of Edward Van Halen and the specifics of his Frankenstein guitar.

During a 2019 *Guitar Player* interview, Dweezil Zappa said his father's *Shut Up 'n Play* project represents total freedom of expression and showcases the unique circumstances that help inspire improvised moments.[303] "My dad did not subscribe to the pre-composed solo approach." Frank preferred to play live in the studio, and he loved to be inspired in the moment to spontaneously compose onstage. He described his playing as making "air sculptures." Since sound waves move air molecules, Frank said that he was imagining shapes while playing." With today's technology, Dweezil can see what the frequencies look like, and he said, "The patterns are fascinating and beautiful." Dweezil

[303] Jimmy Leslie, "Dweezil Comes Clean," *Guitar Player* (April 2019): 32-34. The following discussion is indebted to this source.

continues, “It is startling to realize that everywhere we go the sounds around us are creating invisible frequency tapestries, and we are walking right through them.”

By investigating Frank Zappa’s “air sculptures” concept, Dweezil understood that his dad was in “the zone,” that perfect place where music flows through you and you are not impeding the process. Frank could tune into his surroundings and react to music in real time and not fall back on pre-composed ideas or licks. This requires intense listening and some training to free your mind of technical thoughts, licks, and distractions. Dweezil said that it is the coolest thing to witness a musician enter that space.

Composition

Most of the rock, progressive rock, fusion, shred, and metal guitarists who identify as solo artists will possess a body of work representing their genre, style, technique, composition, and improvisation skills. As discussed earlier, music is often prearranged into the medium of singles, an album, or CD that serves not only as an artistic statement but also as promotional material by the label or artist. The album art is often carefully designed and reimagined into promotional items such as apparel, posters, and collectables that are sold via online stores and live events. From a career standpoint, a solo album or body of recorded work can help a guitarist acquire media exposure, gigs, and product endorsements.

Guitarists from established bands also seek the creative outlet a solo project can provide. For example, when confronted with the reality that all of Dream Theater’s 2020 touring dates had to be cancelled, guitarist John Petrucci immediately shifted his creative energy towards writing and recording his second solo album, *Terminal Velocity.* When

Guitar.com asked John what he gets artistically from releasing a solo album that he doesn't get from Dream Theater, he responded. "Artistically, there is more room for me as a guitar player to do my thing because I am not sharing the space with vocals, or keyboards. I'm also able to have a little bit more fun and leeway with stylistic elements that would not be Dream Theater songs, but they are fun sides of guitar playing for me."[304]

The concept of infinity seems to resurface during conversations discussing creativity, composition, and improvisation. This is because these talents separate the innovators from the imitators. To paraphrase what Steve Vai stated above, one must believe their unique, creative impulses are unequivocally valid, and that one must have the courage to release the ego. In other words, a low quality of thought can lead to a scarcity of ideas, which can hinder a musician's ability to compose and/or improvise.

Jazz guitarist Pat Metheny considers the ability to identify the nucleus of an idea greater than the ability to create. As told to Richard Niles during an interview discussing composition, Metheny expressed:

> Often in the process of writing music, the first micro bit of information literally contains everything you need. Our skill level is really the ability to identify more than the ability to create. If you can use your skill as a tool that can extract something without breaking it, you're given a window into a set of possibilities that offers you infinite possibilities—if you can identify them. And that ability comes with practicing, study, general insight into existence and life, and all the other things necessary to become a good musician that have nothing to do with music. All of that seems to increase the precision by which you can extract things from this infinity of music that always surrounds us.[305]

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[304] Darran Charles, "John Petrucci On Why Recording Guitar Is Like Beard Trimming," *Guitar.com,* accessed on December 19, 2020, https://guitar.com/features/interviews/john-petrucci-on-recording-guitar/.
[305] Niles, *The Pat Metheny Interviews*, 109-110.

In practice, composers and improvisers will often establish parameters to explore a new concept or idea. Working from the micro level allows the artist to identify a small set of possibilities that may blossom into seemingly infinite alternatives. Examples of composition and improvisation techniques that guitarists might explore include working within a particular performance technique, a specific fretboard range or string group, type of guitar, or piece of outboard gear. By establishing limitations, the possibilities are almost infinite.

Consider the following example. When composing, Steve Vai likes to establish certain parameters to work within.[306] For his sixtieth birthday, Steve challenged himself to compose and record a simple trio track. To accomplish this task, Vai limited himself to a Stratocaster-style guitar, a very clean tone without delay, no vibrato bar, and no plectrum—just fingers. He also had an idea for a riff that can only be played on a guitar without a vibrato bar. During the process, Steve created a technique he coined as "joint shifting." This is where a guitarist bends a note while fretting another, but Steve wanted to employ this technique with a combination of double- and triple-stop single-note bends while fretting other notes and releasing bends. After considerable experimenting, Vai discovered it created a unique-sounding passage, and he hopes other guitarists experiment with the technique. Steve found this challenge rewarding and fun to visualize and execute. He said the joint shifting technique took a lot of time to develop, which debuted in the song and video "Candle Power," released in June 2020.[307] Vai later found out that

[306] Scapelliti, "How I Survived 2020," *Guitar Player*, 38.
[307] Steve Vai, "Candle Power," *stevevaihimself*, accessed on December 18, 2020, https://www.youtube.com/watch?v=4fO954zQ3Us.

the joint-shifting technique he coined was not unique in a sense, because Hellecasters guitarist Jerry Donahue was performing a similar technique approximately thirty years earlier.[308]

Guitar Instrumentals

Guitar instrumentals serve as an important artistic statement for rock, fusion, shred, and progressive rock/metal players. As mentioned in Chapter One, Steve Vai's recording "The Attitude Song" appeared on the first *Guitar Player* flexible Soundsheet disc in the October 1984 issue that along with his debut album, *Flex-Able,* marked a major shift in his status within the guitar community.[309]

Instrumental rock guitar regained popularity in the 1980s with the work of Joe Satriani. Joe's compositions often offer a modernized celebration of all the styles that make up his musical roots. By composing "classic" high-quality compositions in lieu of vehicles for improvisation, Satriani's music reaches a wider audience. *Billboard* magazine claimed, "Joe Satriani's 1987 Top 40 breakthrough album, *Surfing with the Alien* can be seen as the gold standard for guitar playing of the mid-to-late '80s, an album that captures everything that was good about the glory days of shred."[310] *Surfing with the Alien* was selected by *Guitar Player Magazine* readers as the 1987 Guitar Album of the Year.[311] Wolf Marshall wrote that Joe Satriani brings technical prowess and training, the romance of the instrumental form, and the application of harmony and music theory to

[308] Scapelliti, "How I Survived 2020," *Guitar Player*, 38.
[309] Mark McStea, "Enduring Passion," *Guitar Player* (March 2020): 54.
[310] Joe Satriani and Jake Brown, *Strange Beautiful Music: A Musical Memoir* (Dallas, TX: BenBella Books, Inc., 2017), 105.
[311] Wolf Marshall, *Joe Satriani: Surfing With The Alien*, ed. Andy Aledort, trans. Jesse Gress (Port Chester, NY: Cherry Lane Music Company, Inc.), 4.

the rock context. Joe approaches instrumental music as melodies sung with the guitar, backed by tight, logical arrangements. "Although Joe possesses a high degree of intellect and musical understanding, his inner melodious heart uses music theory to do his inspired bidding."[312]

Satriani's earliest memories of listening to instrumental music were listening to his parent's jazz and classical records.[313]

> I really felt instrumental music, both classical and jazz, and so anytime my earliest rock experiences would show me an instrumental, I would gravitate towards it. I loved everything about Hendrix, but "Third Stone from the Sun" just blew my mind! It was so beautiful to me. So powerful.[314]

Eric Johnson's 1990 multi-platinum release *Ah Via Musicom* made him the first artist ever to have three instrumentals from the same album reach the Billboard Top Ten, and his song "Cliffs of Dover" won a Grammy for Best Rock Instrumental.[315] Johnson's writing combines tightly arranged compositions with his virtuosic style. His skills with melody and tone create guitar solos that are attractive for both their melodic beauty and technical mastery. Whether he is playing incendiary rock instrumentals or jazzy pop-inspired vocal tracks, Johnson's masterful electric-guitar playing makes him one of the most musically innovative and unique artists.

"Cliffs of Dover" became Eric Johnson's signature song. He wrote the tune quite a few years before he recorded it. "One day, I started playing this descending-arpeggio

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[312] Steve Vai, *Vaideology: Basic Music Theory for Guitar Players* (Milwaukee, WI: Hal Leonard, 2019), 6.
[313] Ted Drozdowski, "Don't Even Think About It!," *Premier Guitar* (February 2018): 92.
[314] Ibid.
[315] Eric Johnson, *Total Electric Guitar.* Hot Licks (Music Sales Corporation, 2005). DVD. The following discussion is indebted to this source.

pattern. It just came to me— right place, right time. I did not have to overthink it."[316] Johnson wanted to release "Cliffs of Dover" on his first album, *Tones.* But members of the personnel presiding over the record thought the song sounded like a gameshow theme.

The remainder of "Cliffs of Dover" was easy for Johnson to compose. "I was having fun connecting the dots. In five minutes, I had the whole song down. If there was any craft involved, it came from this ethos of mine that I do not want to play a bunch of notes; I want to play music. And this music was pure enjoyment."

John Petrucci told *Guitar.com* when writing guitar instrumental music, he can approach things in a way where he can play different styles that you would not necessarily hear him play in Dream Theater.[317] The rock-guitar instrumental groups that defined the genre and inspired Petrucci were Steve Morse and the Dixie Dregs. Petrucci learned every lick off Morse's first solo album, *The Introduction.* "Listening to the Dregs early on really turned around my whole thinking to playing guitar and wanting to pick every note, being precise and all that stuff." Two jazz-fusion albums of note that inspired Petrucci include Al Di Meola's *Casino* and Alan Holdsworth's *Metal Fatique.*

Petrucci's main influence, Steve Morse, launched his career as an instrumentalist and as a founding member of the progressive-rock band The Dixie Dregs and leader of the Grammy-nominated Steve Morse Band. He is one of rock guitar's most versatile

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[316] Joe Bosso, "How I Wrote… Cliffs of Dover," *Guitar Player* (March 2021): 98. The following discussion is indebted to this source.
[317] Darran Charles, "John Petrucci," *Guitar.com,* accessed on December 19, 2020, https://guitar.com/features/interviews/john-petrucci-on-recording-guitar/. The following discussion is indebted to this source.

shredders, releasing several inspiring instrumental fusion and rock albums throughout his career.[318] In addition, Morse joined Deep Purple in 1994 as the permanent replacement for guitarist Richie Blackmore. Morse maintains a busy touring schedule and continues to participate in projects such as the progressive-rock super-group Flying Colors that formed in 2012.

Guitar instrumentals that inspired Steve Morse early in his development as a musician include the Allman Brothers' "Jessica" and the Ventures' "Walk Don't Run." Guitar instrumentals by his contemporaries that Steve finds inspiring include Eric Johnson's "Cliffs of Dover" and Joe Satriani's "Satch Boogie."

Morse revealed to *Guitar Player* what it takes to write a soaring guitar instrumental. He said that through artistic expression a guitarist can control the mood and energy of a song. In his experience, a guitar instrumental is typically a through-composed piece of music with improvised soloing. Since an instrumental song lacks vocals, Morse said the guitarist needs to be expressive by offering a wide range of attack, tone, vibrato, and string bending.

During the interview, Steve Morse said the creative process begins with a combination of experimentation, inspiration, and the transcribing of ideas. He believes it is a good idea to study horn and vocal melodies. To keep an instrumental composition interesting, Morse will vary his tones, attack, and shift from a mono- to a polyphonic approach, change the density of notes, and alter guitar effects for different sections of the

[318] Steve Morse, "Solo Flight," *Guitar Player* (August 2019): 28. The following discussion is indebted to this source.

tune. He tends to figure out the song structure later in the composition process. On the issue of song form, Steve approved that a typical song format is fine for an instrumental if it includes variations during each verse.

Morse prefers to compose in keys that take advantage of the open guitar strings in chord voicings. There are no keys or tempos of choice, although tempo may be limited if the piece is highly technical to perform on the guitar. Steve often transitions freely between the relative major and minor keys so that it does not make a difference if the song is designated as major or minor. However, the Mixolydian and Dorian modes seem to be utilized frequently in his compositions.

Morse explained that performing instrumental-rock music requires a separate set of skills. For example, the bass player often doubles lines or takes over the original guitar riff while the guitarist plays melodically or adds harmony. While harmonizing, Morse suggests to not just utilize diatonic harmony that follows the exact contour of the melody, but to include interval jumps to the 6^{th}, 5^{th}, 4^{th}, as well as the 3^{rd}.

Improvisation

Scientists funded by the National Institute on Deafness and Other Communication Disorders have found that when jazz musicians are engaged in the highly creative and spontaneous activity of improvisation, a large region of the brain involved in monitoring one's performance is shut down, while a small region involved in organizing self-initiated thoughts and behaviors is highly activated.[319] The researchers propose that this

[319] National Institute on Deafness and Other Communication Disorders, "In Jazz Improv, Large Portion of Brain's Prefrontal Region 'Takes Five' to Let Creativity Flow," accessed on November 6, 2020,

and several related patterns are likely to be key indicators of a brain that is engaged in highly creative thought.[320]

Improvising musicians are only limited by the scope of their musical vocabulary, which includes not only licks and musical ideas but also the ability to manipulate them in a wide variety of contexts.[321] One way to enhance your musical library is to emulate your favorite players, and most accomplished improvisors will confirm the best way to understand how your favorite musicians play is to transcribe their licks and analyze their styles. When you analyze a large cross-section of any musician's work, certain phrases and techniques will inevitably surface as recurring motifs in their improvisations. It is these elements of repetition and spontaneous reorganization—plus the framework in which they are presented—that form the basis of a musician's style. So how we approach improvisation stamps out our identities as a player. Once a player knows how to phrase, play in time, and get good tone, the rest of their musical life is about developing a bigger vocabulary of things to play.[322]

The Art of Transcribing Music

Transcribing music is the art of taking sound and converting it into written notation or another form of media. It requires the ability to listen, identify, and then notate the pitch and duration. Transcribing music simultaneously improves the transcriber's ear and perception of rhythm. It should go without saying that transcribers

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https://www.nidcd.nih.gov/news/2008/jazz-improv-large-portion-brains-prefrontal-region-takes-five-let-creativity-flow.

[320] Ibid.

[321] Jesse Gress, *Guitar Licks of the Brit-Rock Heroes: Clapton, Beck & Page* (San Francisco, CA: Backbeat Books, 2004), vii. The following discussion is indebted to this source.

[322] Fornadley, *Tone Wizards*, Loc 706. Kindle.

must be able to read music. Unfortunately, many rock guitarists only play by ear and rote memorization.

Transcription is not the art of working out a musical idea and learning how to play it. This would be an example of imitation, which is very important to the development of a player. Imitation is the ability to hear music and then replicate it on your instrument. Imitation requires a different skillset then that of transcription. In this case, the musician learns to play music via observation. For example, a rock guitarist can become completely fluid as an artist without ever learning to read a score or chart.

Transcribing music is a very difficult skill to develop. Professional guitar transcriber Levi Clay offered some useful tips on learning how to transcribe music on his YouTube channel.[323] He said reading music is broken down into two areas: rhythmic recognition and note recognition. From his perspective, it is best to practice rhythmic recognition first. Begin by practicing simple rhythmic motifs.[324] Once mastered, rhythmic recognition becomes automatic, and all efforts can then be focused on note recognition.

Connecting to Your Muse

The pinnacle of a musician's ability as an improvisor is becoming one with the instrument by connecting to your muse through the complete release of ego—feeling that the music passes *through* you instead of coming *from* you.[325] This is what separates an

[323] Levi Clay, "The Most Useful Transcribing Lesson To Get Started Today," *YouTube,* accessed November 28, 2021, https://youtu.be/S7aCknNb_XY.
[324] Might I suggest, Rivera, Jan. *Advance Rhythmic Concepts for Guitar: An in-depth study on Metric Modulation, Polyrhythms and Polymeters.* Forward by Alex Machacek (San Diego, CA: Violet Anamnesis Publications, 2014).
[325] Matt Smith, *Chop Shop for Guitar: Shortcuts, Tips and Tricks of the Trade* (Van Nuys, CA: Alfred Publishing Co., 2001), 46.

artist from a craftsman. The craftsman hones his or her skills through years of steady practice of trial and error. The artist uses deep introspection and experimentation to create a unique vision and must remain open and humble enough to feel the muse working through them.[326] Tapping into one's muse is a craft that every accomplished improvisor needs to develop and continuously be fine-tuning.[327]

Art and craft are not mutually exclusive. All artists have influences and have studied and emulated the work of their predecessors. The difference is in the act of creation. The accomplished artist reaches beyond the boundaries of their own limitations to create a strongly individualized vision. For example, Edward Van Halen cites Bluesbreakers/Cream era Eric Clapton as his major influence, emulating his licks during his formative years. Yet, as an accomplished guitarist, it is extremely difficult to hear Clapton's influence and style in Van Halen's playing.

Improvisation is the art of spontaneous composition. A great improvisor can make a constant stream of creative ideas flow effortlessly from their instrument. For an improvisor, this fine-tuned combination of skill and art is the peak of the musical experience. Improvisation is the root of all compositions.

Throughout the history of music, improvisation has been used to varying degrees within each musical genre.[328] Improvisation is used in classical music, ethnic music, jazz, rock, and pop music. Jazz has developed its own characteristic improvisations such as

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[326] Ibid.
[327] Andy Timmons, *Melodic Muse,* Truefire, 2018. DVD.
[328] Kajanová, "The Rock, Pop and Jazz in Contemporary Musicological Studies, 352. The following discussion is indebted to this source.

embellishments, a thematic paraphrase, a chorus phrase, harmonic substitution in chords during a melodic solo, monothematic, modal, free, or vamp improvisations, and the use of licks.

Phrases are the essential building blocks of improvisation. A phrase is a musical statement, and a great solo is made up of many phrases that are tied together within a theme. These phrases will be constructed upon the idea of tension and release which can be expressed through dynamics, rhythmic variation, and harmonic or melodic tension. If done correctly, a complete solo will have a beginning, a middle and an end—much like a story.

Improvisation: Considerations for Guitarists

In *The Art of Guitar,* the guitar instructional DVD mentioned previously in this chapter, Eric Johnson counted "improvisation" as one of his ten "must know" musical concepts. He said:

> Improvisation is the "lifeblood of music" and cultivating the ability to improvise is extremely important. To accomplish this, one should listen to their creative impulses using their own intuition. Learn to listen before broadcasting what you want to play. Listening is an important navigational tool to play more meaningful solos and compose better. Composers such as Jimi Hendrix, Duke Ellington, and Amadeus Mozart used improvisation as a tool to create their compositions.[329]

Robert Walser said the electric guitar is perhaps the most important virtuoso instrument of the rock ensemble. The sustain of a distorted electric guitar increases its potential as a virtuoso solo instrument. The most innovative electric guitarists create new

[329] Johnson, *The Art of Guitar*, DVD.

sounds by drawing on the power of the old and by fusing together their semiotic resources into compelling new combinations.[330]

There are several concepts or "rules" and techniques to consider when improvising. Most novice improvisors do not play their guitars; the guitars play them. Novice players move their fingers around in patterns they have learned will fit within the chord progression. The music comes from their muscle memory as opposed to their muse. To break this bad habit, consider what Eric Johnson had said above— "Learn to listen before broadcasting what you want to play." In a similar light, Gov't Mule guitarist Warren Haynes shared this tip with guitar builder Paul Reed Smith, "Do not play anything you could not sing."[331] The result of observing this suggestion is that your phrasing becomes more vocal-like, and you will be able to hear what to play—connecting to your muse.

Improvisation: Concepts and Techniques

Jazz pedagogues teach concepts and techniques to develop and improve one's improvisation skills. Many of these ideas have been inherited by blues, rock, and fusion players. Today, guitarists attend music schools, workshops, clinics, and/or study remotely looking to develop the essential skills to improvise in a contemporary context.

The concept of limitation exercises is widely used and taught by jazz musicians to get the novice improvisor to focus specifically on the individual elements of

[330] Walser, *Running with the Devil,* 103.
[331] Paul Reed Smith, "Long Distance: Paul Calls Warren Haynes," PRS Guitars, accessed on March 3, 2021, https://www.youtube.com/watch?v=ohROlfmSHjs.

improvisation.[332] Examples of limitation exercises would include improvising using strictly: eighth notes; one finger on one string; a single string of the guitar; locating specific notes on the guitar; intervallic functions; playing in five-fret zones, etc.[333]

Many guitarists tend to focus on scales and begin by learning the five-note pentatonic scales. Most novice improvisation guitar methods and lessons begin by teaching the five "box" forms of the minor pentatonic scale (1-b3-4-5-b7) that traverse the fretboard. These five fingering patterns can also serve as the relative major pentatonic scale (1-2-3-5-6) patterns by relocating the root note (or shifting the "box" fingering pattern up three frets).

Melodically, most blues licks are derived from the minor pentatonic, major pentatonic, and blues scales (1-b3-4-b5-5-b7). Once a guitarist becomes comfortable with playing these pentatonic fingerings, the next step is to learn licks that lay the foundation of one's soloing vocabulary. These could be licks or phrases copied from a favorite guitarist or examples learned from a lesson or method. This style of "box" position playing builds confidence for the beginning improviser, allowing them to learn the fretboard overtime.

Linear playing is moving up and down the fretboard on just one or two strings. This approach frees the player from thinking about scalar patterns and listening for melodic opportunities that will avail themselves while moving freely around the neck.[334]

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[332] Tom Quayle, David BeeBee, and Mike Pattee, *Sølo – Fretboard Visualization: Intervallic Function Trainer*, Trio Software Ltd., 2021, iOS.
[333] Ibid.
[334] Andy Timmons, "On the Line" *Guitar World* (April 2021): 83. The following discussion is indebted to this source.

Linear practice should begin by using just one finger on one string; for example, sounding each note of the minor pentatonic scale on A(1-b3-4-5-b7, A-C-D-E-G) while ascending the G string. The concept is to find and play each note of the scale.

Moving up and down a single string as opposed to playing positionally across multiple strings frees the player from all the habitual licks and phrasing schemes. This approach also forces one to really listen to the sound and expression of each note, which serves to fortify the natural, singing quality that we would like to achieve. Playing with a "free" feeling, without any strict tempo or rhythmic grid allows one to zero-in on the most important aspects of playing: touch, tone, and dynamics.

The major scale has seven corresponding modes. Each mode contains the same notes as the major scale but starts on a different degree of the scale. The seven modes are respectively: Ionian, Dorian, Phrygian, Lydian, Mixolydian, Aeolian, and Locrian. Modal sounds create unique tone colors, and for the most part, rock music is modal. Each mode has its own character that certain players tend to gravitate towards. For example, Jeff Beck is associated with the Mixolydian sound, and Edward Van Halen with the Dorian mode. Yngwie Malmsteen prefers the Aeolian mode and the harmonic-minor scale (1, 2, b3, 4, 5, 6, #7) while Steve Vai utilizes the Lydian mode in his music. Practice modes over bass drones, root chords, and modal chord progressions to hear the unique quality of each mode.

Arpeggio study can be utilized as a vehicle for visualizing chord tones. Daily practice and investigation of how different players use them can help one develop a signature sound. For example, apply sweep-picking, string-skipping and right-hand

tapping arpeggio techniques while improvising over chord changes and relating them to the chord voicings. Arpeggios add personality to a player's vocabulary.

Russian-American musicologist Nicolas Slonimsky published the *Thesaurus of Scales and Melodic Patterns* in 1947. It was an exhaustive study of intervallic, melodic patterns designed to provide an endless supply of new ideas for composers. However, the largely inaccessible book was largely ignored for years until the likes of John Coltrane, Freddie Hubbard, Allan Holdsworth, Frank Zappa, and many other significant artists started crediting the material as a source of great inspiration, which sparked highly creative stimulation.[335]

Jazz guitarist Joe Diorio was likewise inspired by Slonimsky's work and later published his own book, *Intervallic Designs*, which focuses on a wide variety of intervallic designs for improvisation. Rock guitarist Jennifer Batten (Michael Jackson, Jeff Beck) studied with Joe Diorio for many years, absorbing both Slonimsky's and Diorio's intervallic teachings, eventually assimilating those ideas into her own intervallic-driven approaches for soloing and improvisation in a rock context.

The concept of creating and practicing wider intervallic jumps of 4th intervals and higher is to break away from creating repetitive scalar lines and open up your playing. As a guitarist, this will also challenge your technique, as wider intervals demand string skips.

[335] Jennifer Batten, *50 Ultra Intervallic Guitar Licks You Must Know.* Truefire, 2014. DVD. The following discussion is indebted to this source.

Intervallic playing can offer a new perspective to your improvisations. It opens up the fretboard, producing a flood of new ideas that can make your solos sound exciting. An intervallic approach to your well-traveled scale passages can freshen up repetitive licks.

One of the greatest challenges every guitarist will encounter while developing their improvisation skills is learning how to play over a series of chord changes, tonalities, and keys. Target note practice helps to improve one's ability to target sounds far beyond the standard chord changes and arpeggios by adding depth to their playing.[336] The concept of target-note practice is to essentially "map" out which notes to focus on within a chord progression ahead of time. By doing this in practice, eventually one can do this "on the fly."

The process of composing and recording an improvised solo by Dream Theater's John Petrucci includes target note practice. John likes to play along to the new track, and if needed, record a couple of scratch passes. Afterwards, he will listen to the playback and tweak his guitar tone. John will then begin recording new improvised solos. Petrucci likes to make sure that he hits the right target notes over the chord changes when improvising.[337] John told *Guitar World's* Joe Bosso, "In my solos, even when notes are going by quickly, I try to have a melody outlined."[338]

The utilization of altered scales during improvisation allows a musician to develop a new, interesting vocabulary and approach when playing over common chord

[336] Jon Finn, *Improv Target Practice.* TrueFire, 2015. DVD. The following discussion is indebted to this source.
[337] Joe Bosso, "Second Act," *Guitar World* (November 2001): 87-88.
[338] Ibid., 88.

changes. For years, jazz musicians have adapted the chord changes to standard tunes by changing the quality of the chords.[339] Aside from chord substitution ideas, the most common idea has been to change chords into dominant chords. This allows for more interesting chord tones to solo with and create the opportunity to play altered tensions over them. The tension and release often expressed through dissonance and consonance (outside and inside playing) means to create a harmonic or melodic tension that needs to be resolved.

Guitarists are essentially lick-oriented players, which is not exactly a desirable trait among musicians.[340] An improvisor is supposed to consider melody, form, and context during a solo, but guitarists tend to learn melodic lines the same way: one lick at a time. To unlock any lick's true potential, one must learn how to manipulate it rhythmically, melodically, harmonically, and emotionally.

A lick is a three-to-six note melodic fragment or module. These three- to six-note modules are the building blocks that define the very essence of blues, rock, and jazz-guitar vocabularies. By learning a genre's essential licks, one gains the confidence and ability to connect musical ideas into hundreds of longer personalized statements.

Los Angeles top-call session guitarist Carl Verheyen suggests the idea of keeping an ongoing musical diary (or lick book), and the discipline of daily updates as a means of harmonic exploration.[341] As you practice write down the lines and musical ideas that

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[339] Mike Stern, *Altered Scale Soloing for Jazz Guitar* (Middletown, DE: Fundamental Changes, 2020), 4. The following discussion is indebted to this source.
[340] Jesse Gress, *Guitar Lick Factory: Building Great Blues, Rock & Jazz Lines* (San Francisco, CA: Backbeat Books, 2003), vii, 1. The following discussion is indebted to this source.
[341] Carl Verheyen, *Improvising Without Scales: The Intervallic Guitar System of Carl Verheyen* (Pacific, MO: Mel Bay Publications, Inc., 2005), 3-5. The following discussion is indebted to this source.

sound like your own. How did guitarists like Allan Holdsworth and Edward Van Halen create music that sounds different from everyone else? The answer points to their lines, the musical sentences with which they speak. Above all the other considerations like tone and musical genre; the integrity of the line is the key element. The integrity of the line is what separates the melodic players from the lick players. The integrity of the line is the difference between unintelligible garble and a fully developed story. The goal is this: Do not waste time practicing anything that cannot be utilized on stage.

Carl Verheyen has published several instructional materials about improvisation. He said choosing which note to follow the previous note is like selecting which color a painter uses next to another color. It has little to do with technique and a lot to do with expression. As Verheyen plays guitar in real time or listens to recorded playback he questions each line as to its originality. How do we shape our influences and re-sculpt them to become a musical influence? How do we push the envelope and achieve a high level of creative originality? It comes from the concept of deconstructing our linear forms (major, minor, and dominant scales, modes, diminished and altered scales) to find a personal voice within them.

Verheyen said that every line you learn serves as "money in the bank" you can draw from whenever you find yourself in an improvising situation with a given tonal center. He believes the very best of us are only truly improvising about thirty percent of the time. So, the more you work on your direction, the more likely you will develop your own sound.

Improvisation: Closing Thoughts

Improvising a solo is like holding a conversation. For example, a point is made and then supported by related statements. A guitarist may take a basic lick and then build upon it. This can be done over any set of chord changes and grooves. Guitarists who like to improvise should practice the above concepts so that ultimately they will not be burdened with a lot of technical thoughts while soloing. Being able to "play in the moment" takes an advanced level of proficiency.

Chapter Six

STRING THEORY

Developing a Signature Style

Guitarist and educator Rob Garland observes in his guide to motivation and practice that iconic signature guitar players tend to have focused on one or two elements to such a degree that it became their signature style.[342] His examples include B.B. King's vibrato, Edward Van Halen's two-handed tapping technique, Wes Montgomery's rhythmic octaves, Yngwie Malmsteen's neoclassical speed picking, The Edge's use of delay effects, and Albert Lee's chicken pickin' licks. These select guitarists possess stylistic qualities and identifiable traits that are associated with each player.

As discussed in the introduction to Chapter One, I indicated that Joe Satriani explained to *Tone Wizards* author Curtis Fornadley that the task of developing an individual style is not that difficult to accomplish. Satriani stated that recognizable styles are created by committee, where it is equally divided by artist neurosis, luck, commerce, and the audience's fault for encouraging repetition.[343] In other words, Satriani said that the artist can recognize what works, what does not work, and what people are responding to, either consciously or subconsciously.[344]

An individual style, as described by Satriani, can be further developed into a signature style, as discussed by Rob Garland, which I believe is the most intangible attribute a guitarist can possess—an instantly recognizable style. As indicated in Chapter

[342] Rob Garland, *Guitar Play! Motivation & Practice* (Rob Garland, 2021), 8, Kindle.
[343] Fornadley, *Tone Wizards*, Loc 4569-4571. Kindle.
[344] Ibid., 4572.

One, my sentiments were supported by Marty Friedman, in Chapter Five by Metallica's Kirk Hammett, and as follows in this chapter by Guthrie Govan. I had posited the importance of an artist's obsession as the dominant factor in cultivating a personalized style by evaluation of their technique (strengths and weaknesses), musical tastes, composition and/or improvisation skills, and selection of gear. After further reflection, I have come to recognize that peer acceptance, audience encouragement, and a bit of luck also contribute to the development of an original style.

Progressive-rock/fusion guitarist Guthrie Govan considers that a great guitarist is one whom you recognize after just one note.[345] Unfortunately, though, that is not always true. For example, Govan said that he could hear Pat Martino (1944-2021) play one note and not be confident that it was him. Martino played a lot of notes in his lines. So, it was the contour of his lines that made his style identifiable. Govan advises the importance of finding one's own voice, and to do so—"Write songs."[346]

Finding Your Own Voice

Developing your own voice on the guitar will render you a more accomplished musician with your own sound and style.[347] This attribute may form early or become a lifelong quest. Guitarists usually have a distinct tone that primarily develops in their mind and is perceived through their touch on the instrument. As the old saying goes, "It is in the hands." Rob Garland recommends, "do not just study one player, or one musical

[345] Jude Gold, "Guthrie Govan Takes the Reins in Prog Rock's Rowdy New Democracy," judegold.com, accessed on January 27, 2021, http://www.judegold.com/gp_govan.html. The following discussion is indebted to this source.
[346] Randy Harward, "Inquirer: Guthrie Govan of the Aristocrats," *Guitar World* (November 2015): 26.
[347] Garland, *Guitar Play!*, 7.

genre." Become an amalgamation of your favorite players to find your own voice. Stay true to yourself and you will feel more fulfillment and others will appreciate it as well.

Edward Van Halen said his favorite pianist was Vladimir Horowitz because he brought such a great sense of humor to his playing—he always put his own spin on Bach, Chopin, or whatever he was performing.[348] Andrés Segovia was the same. He created his own interpretations of the classics for guitar, and people who just copy his transcriptions note-for-note miss the point. You are supposed to find your own voice.

Edward said, "I think that is why when I found the guitar I refused to take lessons. I was going to do my own thing and find my personal emotional release, and I did not want to be told how to approach the instrument."[349] During his formative years, Edward would try extremely hard to sound like his records, but he always ended up sounding like himself. Jamming along to live Cream records helped Edward find his own voice on the guitar because he was limited gear-wise and had to rely on his fingers and imagination. "If you play and play and play, after a while you discover the essence of yourself."[350]

Analysis of an Artist

Robert Walser stated that writing about music tends to treat music as an artifact, as it attempts to pin down the concrete realities of sound into static, abstract words in logical, linear order.[351] He stated that analysts and critics are trained in ways that privilege literate over oral modes of communication. However, musicians and listeners

[348] Tolinski and Gill, *Eruption*, 8. The following discussion is indebted to this source.
[349] Ibid.
[350] Ibid., 30-31.
[351] Walser, *Running with the Devil*, 40.

tend to respond primarily and most strongly to musical meanings. Herein lies my challenge: how best to discuss an artist's music and attempt to present a critical analysis of their work? How do I aide my reader in experiencing an enlightened engagement with the music?

For the remainder of this chapter, I would like to explore the musical mindset of a contemporary electric guitarist, a player who best exemplifies the qualities and attributes studied during the previous five chapters. I want to understand their approach to writing and creating music, ideas on note choice and improvisation, frame of reference, style, tone, and technique, and to discover their musical influences, practice routines, and philosophy on music. For my subject, I have selected progressive-rock and fusion guitarist Guthrie Govan.

To accomplish this task, I have compiled resources such as academic publications, print interviews, guitar style and genre methods, authorized transcriptions, online and print lessons, deluxe editions of CD & DVD sets, attended Aristocrat live performances, and researched Guthrie Govan's choices of studio and touring gear (signature or otherwise). Unlike many of his contemporaries, Guthrie spends little time curating an online presence; however, several guitar magazines, instrument manufacturers, online music schools and fans have disseminated his work.

Guthrie Govan

British-born Guthrie Govan (b. 1971) is one of contemporary progressive rock's most influential and unconventional guitarists.[352] His genre-leaping virtuosity and offbeat sense of humor create a fusion of contemporary styles. Govan has musical tastes and a command of music history far more eclectic and adventurous than many of his peers. As a result, his playing is far more interesting than that of many others in the instrumental rock-guitar sphere.

The Aristocrats

Guthrie Govan is a member of the rock/fusion instrumental trio the Aristocrats, featuring American bassist Bryan Beller (Steve Vai, Dweezil Zappa) and German drummer Marco Minnemann (Paul Gilbert). Beller and Minnemann were brought together with Govan to perform a brief one-off set for the Bass Bash at the 2010 Winter NAMM Show in Anaheim, California. Following the set, the three musicians knew they needed to form a proper band and record an album. The Aristocrats' self-titled debut album was begun approximately three months later.

The Aristocrats are known to juxtapose progressive rock with blues, jazz, and just about any genre or style of music they see fit. The band has a raucous rock vibe along with a sense of humor. Govan says, "We are using rock sounds, but with something of a jazz mindset, and trying to have fun with it. If someone wants to call our music prog,

[352] Alan di Perna, "Guthrie Govan," *Guitar World* (November, 2013): 65-66. The following discussion is indebted to this source.

however, I will take it. At least they are listening to it."[353] "We realized that we do not have to adhere to any kind of genre," Govan said to *Guitar World* Associate Editor Alan di Perna.[354] "The sound of the band does not so much come from adhering to any style of music. It comes from the way we play together."[355] That probably indicates why Frank Zappa is a key influence of the band.

Guthrie likes to think of the Aristocrats as an old-school band. Upon completing a new album, the group tours extensively. "With the Aristocrats, the end goal is always—we want to make the best album we can make, but then we want to take it out on the road. Really every step of that process is fun."[356]

Biography: Guthrie Govan

Learning the rudiments of guitar from his father, Guthrie Govan claims his fascination with music and the guitar began at the age of three. "So, I guess I started playing guitar for the same reason I started to speak English."[357] Guthrie's first guitar was a nylon string, and his first quality electric guitar was an off-white Gibson SG Special. Govan's eclectic musical outlook was nurtured by his awareness of all the sounds surrounding his daily life. His early years were largely shaped by the contents of his parents' record collections. His earliest repertoire included songs by Elvis Presley and Chuck Berry, as well as TV jingles. Guthrie was five years old when he played his first gig with his father's friends. "I was about five years old and played a few Elvis songs to a

[353] Barry Cleveland, "GuitAristocrat: Guthrie Govan ascends to Prog-Rock Royalty with the Aristocrats and Steven Wilson." *Guitar Player* (September 2013): 38.
[354] di Perna, "Guthrie Govan," *Guitar World*, 66.
[355] Ibid.
[356] Kate Koenig, "The Linguist," *Premier Guitar* (September 2019): 50.
[357] Harward, "Inquirer: Guthrie Govan," *Guitar World,* 26.

hall full of old ladies."[358] He is confident that his performance was poor, but just the experience of being on stage made him aware of how addictive music can be.[359]

Four years later Guthrie appeared on the popular British television show Ace Reports, playing Hendrix's "Purple Haze" and Chuck Berry's "School Days," accompanied by his seven-year-old brother Seth on rhythm guitar.[360] Govan jokingly reflects, "For weeks afterwards at school, we were the hairy kids who had been on TV."[361]

As a young teenager, Guthrie started hanging out with the older kids at school. "I was always the guitar-playing misfit."[362] He said, "I could never find anyone my own age who was at a comparable level or had a comparable amount of passion for playing." His older friends exposed him to hard rock and metal, the Floyd Rose Tremolo System, high-gain amplifiers, and modern guitar techniques such as fretboard tapping and pinched harmonics. Prior to this, Guthrie was essentially a blues-rock player with leanings towards country and jazz. He was raised on the music of Jimi Hendrix, Eric Clapton, and B.B. King, but then his listening habits expanded to include Yngwie Malmsteen, Steve Vai, Frank Zappa, and Edward Van Halen. Additional inspiration was provided by Tony MacAlpine, Prince, Joe Pass, and Michael Lee Firkins.[363]

Apart from some brief studies in violin, Govan has no formal music training.[364] He cut his teeth in local R&B, jazz, rock, and funk groups.[365] Guthrie studied English,

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[358] Matt Blackett, "Spotlight Then & Now," *Guitar Player* (April 2013): 146.
[359] Harward, "Inquirer: Guthrie Govan" *Guitar World,* 26.
[360] Blackett, "Spotlight" *Guitar Player,*146.
[361] Gold, "Guthrie Govan Takes the Reins."
[362] di Perna, "Guthrie Govan," *Guitar World*, 66-68. The following discussion is indebted to this source.
[363] Blackett, "Spotlight," *Guitar Player,*146.
[364] di Perna, "Guthrie Govan," *Guitar World*, 66.
[365] Blackett, "Spotlight," *Guitar Player,*146. The following discussion is indebted to this source.

rather than music, during his one year at Oxford, collected unemployment, and then worked flipping burgers at McDonalds. Occasionally, Govan will adorn his guitar strap with his McDonalds employee name badge if he is having a bad day.

Govan's entry to Mike Varney's "Spotlight," a showcase for new talent, was published in the September 1992 issue of *Guitar Player*. "For someone with Mike Varney's authority and expertise to 'validate' what I was doing was enormously encouraging. I can honestly say that getting the official 'Varney Stamp of Approval' was one of the key factors in my decision to abandon my English Literature degree course and focus instead on trying to become a professional musician." Varney wrote in his column, "Take notice: Govan is a rare talent in the sea of super-shredders and would be an asset to a great modern-rock band." By age twenty, Guthrie was incorporating contemporary-rock techniques such as eight-finger tapping and sweep picking into his classic style. Govan was offered a record deal from Varney's Shrapnel Records, but he turned it down as he felt the label's primary audience would be overly interested in his musical athleticism.[366]

In 1993, Govan entered the "Guitarist of the Year" competition held by the British magazine *Guitarist.* Guthrie composed and performed the three-minute piece "Wonderful Slippery Thing," incorporating the contest's required eight-bar pseudo melody. Govan was chosen as the winner by a panel that included DJ Tommy Vance and fingerstyle jazz guitarist Martin Taylor. The top prize awarded Guthrie a new amplifier and an interview in *Guitarist* magazine.

[366] Koenig, "The Linguist," *Premier Guitar*, 48.

Determined to secure employment in music, Govan submitted to *Guitar Techniques* magazine his transcriptions of extremely complex music composed and recorded by guitarist Shawn Lane. Guthrie caught their immediate attention by the accuracy of his work and was commissioned regularly as a transcriptionist for the publication, which made him a much-sought-after clinician.[367]

In 2006, Govan released his first solo album, *Erotic Cakes*, which took its title from the name of a bakery in *The Simpsons* and featured a guest performance from Shrapnel Records shred guitarist Richie Kotzen, garnering praise and acclaim in the virtuoso-guitar community. Govan has played in several bands throughout his career, most notably a late-1990s incarnation of Asia. He performs around the U.K. with the funk/fusion band The Fellowship and has rocked out with Dizzee Rascal. During breaks in his schedule from the Aristocrats, Guthrie has composed, recorded, and toured prog music with Steven Wilson, and collaborated on soundtracks and toured with Hans Zimmer.

Guitar Style

Govan strikes an ideal balance between classic guitar sensibilities and a twenty-first-century extreme-guitar aesthetic. Torn between both vintage and modern guitar styles, Guthrie's playing effortlessly blends elements of fusion, prog, metal, and electronic dance music with the more traditional styles of blues, jazz, and country, often

[367] di Perna, "Guthrie Govan," *Guitar World*, 66. The following discussion is indebted to this source.

in the same song. "There are no other players like Guthrie in the rock-fusion spectrum," exclaims YouTube educator Rick Beato.[368]

Initially, the "hot country" elements of his style developed from the background music heard in television commercials and movies, as opposed to studying any particular artists. Later, Govan discovered the music of James Burton and Albert Lee, followed by Danny Gatton, and Jerry Donahue. "I was very excited by both of those players (Gatton and Donahue), as they seemed to have a refreshingly unique approach to the science of Telecaster playing."[369]

Although Govan does not consider himself a jazz musician, when improvising he moves fluidly through chord changes, Guthrie caps his phrases with space much the way jazz and blues musicians do (e.g., Wes Montgomery, B.B. King, Albert King).[370] His phrase endings always lead the listener to his next idea. Most rock players do not develop their improvisational ideas to Guthrie's level.

As for Govan's modern guitar style, Steve Vai was a huge influence during his formative years. Govan easily incorporates many of Vai's advanced techniques (in addition to many others) into his playing. I am confident that a knowledgeable musician, fan, or critic could recognize Guthrie's guitar playing by his phrasing, feel, tone, and quirky rhythmic sense, but I would hesitate to say he owns an immediately recognizable

[368] Rick Beato, "Inside the Sound of: Ep.1 Guthrie Govan," Rick Beato, accessed on March 7, 2021, https://www.youtube.com/watch?v=wK9kWNc_WX8.
[369] Joe Bosso, "Guthrie Govan: 'I don't see how it's possible to have too much technique or knowledge," guitarworld.com, accessed on January 31, 2021, https://www.guitarworld.com/artists/guthrie-govan-i-dont-see-how-its-possible-to-have-too-much-technique-or-knowledge
[370] Beato, "Inside the Sound of: Ep.1," Rick Beato, YouTube. The following discussion is indebted to this source.

style. Nor do I believe Govan is one whom you recognize after just one note, like B.B. King, Eric Clapton, Jeff Beck, or Carlos Santana. I do not consider this a negative critique, because as I mentioned above and in the introduction to Chapter One, I believe the most elusive attribute a musician (in this case, guitarist) can possess is an instantly identifiable style.

Guthrie's idiosyncratic style offers innovative ideas, such as his slip-and-slide licks and phrasing, complete with seamless position shifting all around the fretboard.[371] He likes to employ wide-spaced intervals, alternating note groups and clever slide moves to create unusual and unique sounds to his lines. Also, string-skipping licks are quite common in Govan's playing, allowing him to weave new sounds and intervallic lines over the fretboard. Although Guthrie's playing is technically amazing, it sounds natural, and one can hear him *playing* the guitar. In a manner like the recordings of Edward Van Halen and Jeff Beck, one can hear the acoustic squeaks and pops of the guitar captured during the recording process, and these sonic artifacts are part of what makes the music sound human.

Philosophy

Govan recommends that one focus on their musical strengths, while becoming versatile. "I do not see how it is possible to have too much technique or knowledge."[372] For Govan, the desire to learn something new on or about the instrument typically comes from hearing something he likes but does not entirely understand. He then sets about

[371] David Brewster, "Guthrie's Slippery Things," *Guitar Player* (November 2015): 98-99. The following discussion is indebted to this source.
[372] Bosso, "Guthrie Govan," guitarworld.com

finding a musical solution. By contrast, many guitarists feel the need to learn a new technique or concept in order not to feel inferior or inadequate.

Guthrie's philosophy has always been to say "yes" to projects that are interesting, or if he thinks he is going to learn something by taking on any given musical challenge.[373] Playing music makes Govan feel complete and he enjoys expressing himself through music.

Tone and Gear

Guthrie's tone is masterfully nuanced and generally much cleaner than what is heard on many progressive-rock-guitar instrumental albums. This serves to bring the blinding precision of his playing into sharper focus.

Govan's main guitars are his Charvel signature models. Two models were developed and differ only in the body woods. Originally designed with a caramelized basswood body and flame maple top the guitar was later offered with a caramelized ash body and added to the line. "For an all-around guitar, I think that a basswood body with a maple top is hard to beat," Govan says.[374] However, Guthrie prefers the caramelized ash-bodied version over the basswood-bodied/maple top variation for its more Strat-like tones. "Every kind of wood has a sonic thumbprint which is recognizable to me."[375]

Govan spent two years meticulously designing his guitar with Chip Ellis, Fender's Masterbuilder and principal engineer for the EVH line of guitars and "Red" Dave Nichols, Charvel's Masterbuilder, so that it would be versatile enough to cope with all

[373] Koenig, "The Linguist," *Premier Guitar,* 52. The following discussion is indebted to this source.
[374] di Perna, "Guthrie Govan," *Guitar World*, 68.
[375] Koenig, "The Linguist," *Premier Guitar,* 51.

kinds of different musical situations. Charvel Product Manager Mike McGregor said the Guthrie Govan signature guitar is perhaps the most finely tuned, tricked-out Charvel ever made.[376] "Guthrie plays in every style you can imagine, and very authentically," McGregor says. "So, versatility, tone, and playability were all key factors in coming up with this design. I think we have nailed all three."

Guthrie says there are two reasons to care about the woods used to build a guitar: stability and tone. Govan's signature model guitars feature baked, or caramelized, wood. Each guitar is put in an oxygen-free oven to get rid of some of the moisture and kill some of the organic impurities that might be present in the wood. This process makes the wood more stable, which is important to a touring musician who is rapidly and repeatedly changing climates. This process also makes the wood more uniform in tone and minimize dead spots on the fretboard.[377] The body is oil finished, which allows the wood to breathe more expansively, resulting in better tone.[378]

The Charvel Guthrie Govan signature guitars are built in the Fender Custom Shop in Corona, California. Fender has owned Charvel since 2002. Jackson/Charvel Musical Instruments are registered trademarks of the Fender Musical Instrument Corporation.

Charvel chose its San Dimas Carbonized Natural Series guitar design as a starting point and platform for the Govan Signature model. The neck and body are joined together by a specially contoured heel (sans neck plate) for easy access to the upper reaches of the

[376] di Perna, "Guthrie Govan," *Guitar World*, 68. The following discussion is indebted to this source.
[377] Chip Ellis, "Guthrie Govan Signature Charvel Builder's Diary, Part One," themusiczoo.com accessed on May 5, 2021, https://www.themusiczoo.com/blogs/news/guthrie-govan-signature-charvel-builder-s-diary-part-one.
[378] di Perna, "Guthrie Govan," *Guitar World*, 68.

fingerboard.[379] The bolted-on caramelized flame maple neck, with graphite reinforcement rods that are parallel to the two-way truss rod, is finished with hand-rubbed urethane on the back. This guitar includes the classic Charvel neck shape with rolled edges and the 12-16" compound radius that is the legacy of the brand.[380] The scale length is 25.5" (common to Fender). Most unusual for Charvel San Dimas model guitars, Guthrie requested a twenty-four-fret (extra jumbo, stainless steel) flame maple fingerboard, which also received the caramelized treatment. The stainless-steel jumbo fretwire is stable and reliable. When properly dressed, the frets will play flawlessly for years with virtually no wear. Unique to the Guthrie Govan model are maple dot inlays with ebony borders, as well as Luminlay® side-dots that emit light for the darkest of stages.

Guthrie's Charvel custom pickups were specially designed and wound by Fender Custom Shop pickup designer Michael Frank-Braun. "Michael is the mad scientist at the Fender Custom Shop who did the pickups for the Eric Johnson signature Stratocaster," Govan notes.[381] "Because I am torn between the modern world and the vintage world in so many ways, I wanted something that was a compromise between the two." The pickups are arranged in the versatile humbucker-single-humbucker (HSH) configuration with five-way switching for an expansive tonal openness and dynamic sensitivity.[382] The

[379] Artist Signature Series, "Guthrie Govan USA Signature HSH Caramelized Ash," charvel.com accessed on May 5, 2021, https://charvel.com/gear/shape/san-dimas/style-1/guthrie-govan-signature-hsh-caramelized-ash/2865434700.
[380] Ellis, "Guthrie Govan Signature Charvel," themusiczoo.com. The following discussion is indebted to this source.
[381] di Perna, "Guthrie Govan," *Guitar World*, 68.
[382] Ellis, "Guthrie Govan Signature Charvel," themusiczoo.com.

updated edition of the guitar includes a two-way mini toggle switch to engage single coil simulation in the bridge and neck humbucker positions.

Govan prefers the original Floyd Rose Non-Fine Tuner Tremolo System on his guitars because he finds that fine tuners interfere with his right-hand picking technique.[383] The strings are locked at the bridge and not at the nut, so that Guthrie can play behind-the-nut licks, utilize a string mute when playing right-hand multi-finger tapping passages, and gain instant access to the locking headstock tuning machines for ease of tuning.[384] The lubricated bone nut, another preference by Guthrie over Teflon, tends to last longer and stabilize tuning. Guthrie's strings of choice are D'Addario NYXL gauge .010-.046 sets with a .052 substituted for the lowest string on the drop-D guitar. Further research and development led Charvel to design and manufacture their own custom U.S.-made recessed Charvel locking tremolo bridge with an oversized brass block and a pre-installed Tremol-No® unit.[385]

In January 2022, Charvel introduced the Guthrie Govan Signature MJ San Dimas SD24 CM electric guitar that is manufactured exclusively in Japan.[386] For this model, Guthrie selected a basswood body with an ash top and a bolt-on maple neck. Sort of an amalgamation of wood choices from his first two USA Charvel guitars. Offered in a

[383] Floyd Rose, "Non-Fine Tuner Tremolo System," floydrose.com accessed on July 7, 2022, https://www.floydrose.com/products/frtnft?variant=29837632978.
[384] Guitarist Magazine, "Guthrie Govan on Switching to a retro-style Floyd Rose on his latest Charvel prototype," Guitarist accessed on May 5, 2021, https://www.youtube.com/watch?v=3dq-G5qzf8Y.
[385] Artist Series, "Guthrie Govan," charvel.com
[386] Charvel, "Guthrie Govan Showcases His MJ San Dimas SD24 CM," charvel.com accessed on February 14, 2022, https://www.youtube.com/watch?v=Zut8YW8M5q8&t=1s.

Three-Tone Sunburst finish, much of the instrument specifications are identical to the premium USA models.

Guthrie Govan's amplifier of choice is the forty-four-watt Victory V30 The Jack MKII (formerly known as the Countess). The name of the amplifier was changed in late 2020 to better represent its versatility. This compact and versatile two-channel, three-mode head was developed with Guthrie as his "flying amp."[387] The MKII version has a "Nomod" function that allows the user to switch between the new and old voicing that offers two levels of bass response. Govan claims the new voicing may sound 10 percent more American, with a slightly different focus in the midrange.

Guthrie says the Victory V30 The Jack MKII is not only his "go to" touring amplifier, but it also serves as a kind of "Swiss Army knife" in the studio. "It has coped effortlessly with every sonic challenge I have been able to throw at it." The amplifier has a very distinct clean channel with massive headroom and clarity, and the overdrive channel has a ton of heavy rocking gain. With the V30 MKII, amplifier designer Martin Kidd added an extra footswitchable crunch mode to the clean channel that offers a whole new palette of pushed clean, crunch, and light overdrive tones. Govan confirms, "There is nothing wrong with the MK1, of course, but those tweaks were most definitely worth making!"

Guthrie endorses Red Bear Trading Company hand-crafted guitar picks. Established in 2003, Red Bear's guitar picks have become world-renowned for their feel,

[387] Victory Guitar Amplifiers, "V30 The Jack MK2," victoryamps.com accessed on April 13, 2021, https://www.victoryamps.com/product/v30-the-jack-mkii/. The following discussion is indebted to this source.

tone, and performance.[388] Red Bear's Original line of flat picks provide a smooth string attack and release.

Guthrie Govan's signature model plectrum is the Red Bear Trading Big Jazzer, extra heavy gauge with grips and a speed bevel.[389] The pick features a serrated edge along the top of the pick, like a U.S. dime. Guthrie explains that "the serrated edge offers an additional, differently-textured playing surface that I find useful." The purpose was to create a coin-like edge like Brian May's famous sixpence. Guthrie utilizes the serrated edge to create high-pitched notes far beyond the range of the highest fret of the guitar, or tremolo pick long, sustained notes, staccato notes, and other effects.

Thoughts on Practicing

Govan said in his book *Creative Guitar 1: Cutting-Edge Techniques* that he has noticed many players tend to waste their practice time because they were unsure exactly what to practice, how to go about it or even what they expected to gain from it.[390] Obviously, no single practice routine works for everyone, since every player has different aptitudes, tastes, goals, and available practice time. So, it is very important to plan a system that is tailored to meet your own requirements.

For example, Guthrie does not like to practice with a metronome. He prefers to play along with recorded music. Records provide more information about dynamics,

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[388] Red Bear Trading Company, "Homepage," redbeartrading.com, accessed on May 6, 2021, https://www.redbeartrading.com.
[389] Red Bear Trading Company, "Guthrie Govan Signature Model," redbeartrading.com, accessed on May 6, 2021, https://www.redbeartrading.com/flatpicks.html#guthrie. The following discussion is indebted to this source.
[390] Guthrie Govan, *Creative Guitar 1: Cutting-Edge Techniques* (London, UK: Bobcat Books Limited, 2003), 36.

which beat carries the most weight, and playing slightly ahead or behind the beat. Govan says that once he has learned to play something new, he does not immediately reach for the metronome. He instead tries to internalize the musical idea. "I am the type of player that is never happy with anything. I am always criticizing myself."[391]

Technique

Guthrie seeks the easiest and most natural way to play guitar. He does not tense up when practicing or performing. "Whatever the technique is, it is got to feel natural, or I do not feel like I own it."[392] Govan's technique is highly polished and seems effortless. Never does anything appear intentional about his playing, as he can play anything he desires. This allows Govan to focus his improvisations on flow and phrasing.

To become a better alternate picker, Guthrie recommends tracing one's way back from the pick all the way up to the shoulder or the spine and trying to get everything in the body lined up in such a way that the guitar becomes an extension of it. Everything between the shoulder and the pick is part of the process.[393]

Thoughts on Improvisation

Guthrie has observed that much of his guitar-playing fanbase often possess a theoretical knowledge coupled with a high level of metronome-honed technical proficiency yet suffers from an overwhelming lack of confidence when tentatively approaching the perceived daunting concept of improvisation.[394]

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[391] Harward, "Inquirer: Guthrie Govan," *Guitar World,* 26.
[392] Gold, "Guthrie Govan Takes the Reins."
[393]Ibid.
[394] Govan, *Erotic Cakes: The Backing Tracks.* JamTrackCentral.com., 4-5. The following discussion is indebted to this source.

Govan feels duty-bound to say that while scales are undeniably good to practice, he suspects that many guitarists spend too much time focusing on them. This is understandable as scales are easy to teach, easy to learn, and with the requisite practice a player's progress can be measured by the speed of execution. However, whizzing up and down a memorized scale pattern on autopilot eventually leads to frustration when one realizes that the fretboard pattern is telling them what to play, rather than the other way around.

If the goal of improvisation is to make a melodic statement with any kind of musical value, one needs to become familiar with the distinctive mood and quality of each note relative to the harmonic context of the music. The reality is that, at any point during an improvisation, the musician is perfectly entitled to play any one of the twelve notes of the chromatic scale. To do so with confidence, however, requires the ability to predict the overall effect of any given note before committing to playing it.

Improving one's abilities to improvise includes transcribing music by ear, singing along while playing, and slowing down the melodic content to allow each note to breathe long enough to hear the effect it has over the harmony. These abilities can be developed by listening to one's playing and evaluating its tension and stability.

Maintaining interest throughout the course of an improvisation is largely a matter of balancing tension and release. The improvising musician must make aesthetic decisions on a note-by-note basis. Guthrie considers it best in the long term to aim for an instinctive understanding of sound rather than trying to remain fully conscious of all the theoretical knowledge when improvising.

Over any given chord, the root note will always be the most stable-sounding note choice. The other notes contained within that chord will tend to yield a satisfying melodic quality. For example, the fifth provides a nice all-purpose "thickness" but with slightly less stability. The third dictates whether the chord is major or minor.

A non-chord tone that occurs in a chosen scale or mode will add an interesting new color to the sound. Some notes will sound more pleasant than others depending on the "brightness" or "darkness" of the scale/mode in question. Chromatic notes that do not belong in the chord/scale also serve a musical purpose. For example, a chromatic tone can be placed discreetly between two neighboring scale tones to create a sense of movement. Utilized carefully, chromatic notes can build tension and interest during an improvisation.

The balance between these different "note-flavors" will help determine whether a musician's playing sounds stable or unpredictable, melodic, or dissonant, soothing, or challenging, bluesy, or jazzy, etc.

Guthrie is often asked how he incorporates chromatic notes into his solos and how he approaches playing "outside" the given key center of a song. He responded to these questions in an installment of his *Guitar World* lesson column by indicating that if a guitarist has ever applied the blues scale during a solo, then he or she has already employed chromatic notes in some of the most musical ways possible.[395] The flatted fifth of the blues scale should be treated as a passing tone.

[395] Guthrie Govan, "Professor Shred," (*Guitar World*) November 2011): 106. The following references come from this source.

Govan continues, if a player employs this concept successfully, in theory he or she would know everything they need to know to use any one of the twelve notes as a passing tone at any point—if they use it responsibly. The safest approach is to follow every jarring, passing note with a "good" note that sits close by melodically. Moving into a chord tone immediately justifies the jarring note played right before it. It is also important that the "good" notes land rhythmically on the more important parts of the beat or groove.

Guthrie says that when people talk about playing "outside," it is often just a broader approach to creating lines. Instead of a "wrong" note followed by a "right" note, it is often the wrong key followed by the right key. If a soloist can "get lost" without traveling too far away and then land on their feet, they have done a successful job at weaving chromaticism into a solo phrase. The key is to keep the ears wide open and not be afraid to explore uncharted musical territories.

Compositions

The following discussion of Guthrie Govan's composition style will focus primarily on the music from his first solo release, the 2006 album *Erotic Cakes*. The intent behind the music heard on *Erotic Cakes* was much closer to a jazz mentality of composition. In each tune, the composed passages are interspersed with sections of improvisation around a predetermined chord progression.[396] In general, Govan says the solos recorded on the album were improvised and document his playing on one occasion in a North Hollywood studio.

[396] Guthrie Govan, *Erotic Cakes: The Backing Tracks*. JamTrackCentral.com., 4.

Waves

The first track on the album "Waves" features a memorable melody that has proven to exhibit lasting power in the sub-genre of instrumental progressive-rock guitar and is one of Guthrie Govan's most identifiable tunes. The main melody is entirely composed and remains performed intact as recorded. Originally released in 1993 on a compilation album titled, *Guitar on the Edge*, "Waves" was later reworked, rerecorded, and rereleased on *Erotic Cakes* in 2006.

'"Waves' started out as my attempt to recreate the vibe of a melody played on a Minimoog synthesizer with the glide/portamento knob turned up," says Govan.[397] The song features a sixteenth-note motif that serves as a main theme throughout the song.[398] The twelve-bar phrase was quadruple-tracked utilizing two guitars and four different pickup settings.[399] "I wanted each note to swoop into the next as it would on the synth, so my silly fingering approach with all the slides seemed like a cool way to approximate that sound. The general picking policy here is to only pick a note if it is necessary to do so."[400]

Guitarist and educator Sam Bell discovered that the "Waves" melody highlights arpeggios from the underlying chord progression.[401] The arpeggios feature large intervallic leaps, and Guthrie's use of slides and legato keeps the melody sounding

[397] Ibid.
[398] Jason Shadrick and Andy Ellis, eds., *Soloing Secrets of the Guitar Gods* (Middletown, DE: Fundamental Changes, 2020), 71.
[399] Gold, "Guthrie Govan Takes the Reins."
[400] Ibid.
[401] Shadrick and Ellis, *Soloing Secrets of the Guitar Gods*, 71. The following discussion is indebted to this source.

smooth. Bell advises practicing guitarists to make sure when sliding up a string to keep one finger behind the sliding finger in preparation for articulating the next note. Most of the ascending phrases on one string are often followed by a descending phrase. Bell has found this style of playing common to several modern progressive-metal bands, such as Periphery.

A Wonderful Slippery Thing

Govan is recognized by his fans for his seemingly effortless ability to execute jaw-dropping fast licks within his eclectic compositions. The tune "A Wonderful Slippery Thing" (*Erotic Cakes,* track three) features fast arpeggiated phrases in which Guthrie employed fretboard tapping in conjunction with string-skipping to achieve a very smooth and even sound throughout.[402] "I know many guitarists prefer to use sweep picking when playing arpeggios, but to me, the sound of dragging a pick up and down across the strings is a little too abrasive and percussive." Guthrie's love for the sound of the saxophone inspired him to pursue his fretboard tapping and string-skipping approach.

The approach of mapping out an arpeggio on one string to create a "shape" or specific note series that can be replicated on another string is not unlike the way pianists play arpeggios, in that they repeat the same fingering "shape" as they move to higher octaves.

[402] Guthrie Govan, "Professor Shred," *Guitar World* (December 2011): 118. The following discussion is indebted to this source.

Guthrie demonstrates some of his funky rhythm work, slap guitar, and jazzy bebop-inspired licks in "A Wonderful Slippery Thing."[403] Sam Bell stated that Guthrie has mentioned during several master classes that guitarist Scott Mishoe (known for his impressive incredible slap-guitar skills) is the inspiration for developing his slap guitar technique.

A "slap" is when the thumb strikes the guitar string near the neck and a "pop" is executed by bringing the strumming hand's index or middle finger under the string and plucking upwards. Variants of the technique may include open-string slaps, pops, fretboard hammer-ons, and muted slaps, which are executed by muting with the fretting hand and slapping with the fretting hand.

Fives

The influence of progressive rock on Guthrie's composition style is evident on a couple of tunes from the *Erotic Cakes* album that featuring odd time signatures. His tune "Fives" (track five) was inspired by a melody he heard a bird singing in a park while on a walk to refresh his creativity. This melody happened to be in 5/4 time.

Sevens

Govan is a practitioner of the right-hand multi-finger tapping technique as demonstrated during the bridge/chorus section of his song "Sevens" (*Erotic Cakes,* track seven). Composed in 7/4, "Sevens" features a cascading tapping arpeggio section that sounds like a piano. The genesis of the idea was to find a new way to play a major-

[403] Shadrick and Ellis, *Soloing Secrets of the Guitar Gods*, 72-79. The following discussion is indebted to this source.

seventh arpeggio. Multi-finger tapping is one basic motor skill that once learned can be applied to creating new musical textures and sounds on the guitar.

When Guthrie began developing his multi-finger tapping technique, he started out by breaking it down into two notes per string, utilizing only his left-hand index finger and pinky.[404] Once comfortable with his left-hand legato technique, Guthrie added right-hand fretboard tapping where the highest note is sounded with a pick-hand fretboard tap. He practiced tapping each note to sound clearly while simultaneously not allowing any of the notes to ring into each other. Slow practice is mandatory to master this technique.

When right-hand multi-finger tapping, Guthrie prefers to use his pick-hand middle finger and pinky. He holds his plectrum in the crook of his right-hand index finger when tapping.[405] Interestingly, Govan has never developed a right-hand four-finger tapping technique à la Jennifer Batten or Jeff Watson.

Hangover

Guthrie composed the tune "Hangover," the final track on *Erotic Cakes,* to musically express the feeling of being hungover. By mixing a slow tempo with long legato slurs and bends, Guthrie brilliantly depicted the effects of a hangover with his solo phrasing.[406]

Bad Asteroid

"Bad Asteroid" is the third track on the self-titled album by the Aristocrats. Guthrie had composed the tune eighteen or nineteen years before deciding to commit to a

[404] Guthrie Govan, "Professor Shred," (*Guitar World* Holiday 2011): 120.
[405] Guthrie Govan, "Professor Shred," (*Guitar World* January 2012): 108.
[406] Shadrick and Andy Ellis, *Soloing Secrets of the Guitar Gods*, 76.

proper recording.[407] "Bad Asteroid" features a complex and unusual fretboard tapping section that creates some nice harmonic interest in the chord progression over which the riff is played. Guthrie likes to describe the chord progression as being composed of "budget Steely Dan" chords. He wrote in his *Guitar World* column, "The chords are essential in providing a context to the tapped melodic idea." As for the fretboard tapping section, Govan admits, "Although I wrote it, even I cannot play it unless I start from the beginning each time."

All the chords, except for the last, are performed fingerstyle. Guthrie either plucks all the strings at once or subtly picks out individual notes of the chords, such as moving from the bass note to the higher strings, or vice versa. Govan likes to apply a little vibrato bar effect whenever a chord sustains.

Guthrie describes the feel of "Bad Asteroid" as a slow-ish swing. As a result, what are written as sixteenth-note rhythmic subdivisions are played as eighth-note/sixteenth-note triplets.

Guthrie wrote in the liner notes of the *Aristocrats Culture Clash Live!*

> Every time we play a song live, it seems to evolve slightly. However hard we might try to capture "definitive" versions in the studio. The true nature of any given composition inevitably reveals itself during the subsequent touring process, mutating incrementally from one night to the next as we do our best to maintain the element of spontaneity and encourage the occurrence of little musical "accidents."[408]

[407] Govan, "Professor Shred," (*Guitar World*) January 2012): 108. The following discussion is indebted to this source.
[408] Guthrie Govan, *Aristocrats Culture Clash Live!,* Boing! Music LLC, 2014, CD/DVD.

Summary

Guthrie Govan is a prime example of a contemporary progressive-rock/fusion guitarist who best exemplifies the qualities and attributes discussed during the previous five chapters of this dissertation. His genre-leaping virtuosity and ability to fuse together a multitude of styles makes his playing standout amongst his peers. Govan is a rare talent who strikes a balance between classic guitar sensibilities and contemporary rock-fusion archetypes.

Conclusions

TRAIN OF THOUGHT

Final Thoughts

My goal in research and writing this dissertation was to analyze the development of the electric guitar as an instrument with associated playing techniques cultivated within the rock, progressive rock/metal, and fusion styles by several key players. To accomplish this task, I offered a historiography and analysis of how Edward Van Halen modified (now vintage) electric guitars to support his associated playing technique and ultimately serve his creativity, musical expression, and individuality of style. Van Halen's influence ignited the drive to innovate new instruments and advanced playing techniques from the late seventies to today.

Virtuoso rock guitarists are often defied musical categorization due to their command of multiple musical genres, techniques, and tones. Often, the contemporary electric guitarist is labeled a type of "fusion" player (e.g., jazz-fusion, rock-fusion) to categorize their style. Continually, I find the contemporary rock guitarist will have developed an individualized approach to their technique, compositions, improvisation style, musical vocabulary, musical sensibilities, and the specific gear essential in creating their tone.

Throughout this study, I argued that the most indefinable quality a musician (in this case, guitarist) can possess is an instantaneously recognizable style. As indicated in Chapter One, my sentiments were supported by Marty Friedman, in Chapter Five by Metallica's Kirk Hammett, and in Chapter Six by Guthrie Govan. Signature styles are

cultivated through an artist's approach to technique, musical vocabulary and tastes, improvisation, repertoire, and choices (or lack of options) in gear.

Pioneered by Richie Blackmore, the neo-classical and shred-guitar era emerged on the heels of Van Halen in the early 1980s, led by Randy Rhoads and Yngwie Malmsteen. Often, music critics accused the neo-classical rock and shred guitarists of pretentiousness, self-indulgence, and an absence of expression. Although I would not totally disagree, I find that virtuoso guitarists will have developed an individualized approach to their technique, musical sensibilities, and the specific gear essential in creating their tone that other guitarists find inspiring.

Technique is a means to an end, and the broader the range of playing techniques at a guitarist's disposal, the easier it becomes to figure out the best-sounding and easiest way to realize a passage. My research indicated that virtuoso guitarists progress through a phase of developing technique and focusing on the preparation of newly applied skills (i.e., improvisation). Almost all major breakthroughs in a guitarist's development, whether related to technique or an approach to improvisation develop from the seasoned experience of playing gigs. Whatever the technique or approach, it must feel and sound second-nature in performance.

Techniques considered innovative during the rise in popularity of the guitarist performing them become a standardized skillset adopted by the contemporary player. Technique becomes a tool to express one's musical ideas. For example, progressive metal guitarist Tosin Abasi developed his "Thumping" technique that he adopted from jazz

bassist Victor Wooten and applied to his extended-range seven and eight-string guitars blurring the lines between guitar and bass.

The sonic individuality of a guitarist's tone comes from one's touch, technique, choice of guitar, type of amplifier, speaker cabinet, and mixture of effects devices. An electric guitar rig is the complete collection of tools used in delivering a player's sound. When drive, touch, and vision align, an electric guitar rig can sound as unique to the player who cultivated it.

Contemporary rock and progressive metal guitarists have embraced guitar technology and utilize modern instruments such as extended-range guitars, ergonomic and/or headless guitars, digital modeling effects processors, amplifier and effects plug-ins, and digital recording equipment.

Most rock guitarists develop the natural impulse to imitate their favorite players, but once an aspiring musician has absorbed enough influences and technique, it is time to make a creative statement. Some players accidentally end up inventing a new style or sound by attempting to imitate their influences (i.e., Edward Van Halen, Tosin Abasi). Other players take in a diverse spectrum of musical influences and create their own unique amalgamation (i.e., Eric Johnson). By contrast, some guitarists deliberately reject their influences to find their own style (i.e., Pat Metheny), while others directly build upon the foundation laid before them (i.e., Joe Bonamassa).

Highly accomplished improvisors impart the best way to understand how one's favorite musicians play is to transcribe their licks and analyze their styles. When analyzing a large cross-section of any musician's work, certain phrases and techniques

will inevitably surface as recurring motifs in their improvisations. It is these elements of repetition and spontaneous reorganization—plus the framework in which they are presented—that form the basis of a musician's style. So how one approaches improvisation stamps out their identity as a player.

Contemporary rock guitarists tend to favor the progressive rock/metal and neo-soul styles. The future of instrumental rock guitar music looks bright as led by inspiring artists such as Guthrie Govan, Tosin Abasi and Javier Reyes (Animals As Leaders), Tim Henson and Scott LePage (Polyphia), Mateus Asato, Mark Lettieri (Snarky Puppy), Cory Wong, Plini, Lari Basilio, and Yvette Young (Covet).

Glossary

Active Pickups – These use very low-impedance coils made with very few turns of wire; this makes them low-powered but hum-resistant. A built-in battery powered preamplifier boosts the levels back to unity gain or higher. Many guitarists like the brighter, clearer sound and believe they work best when using multiple effects pedals. They also are not prone to noisy environments.

Bridge – Holds ends of the strings in place. Tremolo bridges can also add vibrato.

Coil Taps – Switches off one coil of a humbucking pickup, effectively turning it into a single-coil pickup. This makes a guitar more versatile.

Combo Amp – The amplifier and speaker(s) are combined in a single, portable unit.

Digital Audio Workstation (DAW) – Refers to any computer (or mobile device) used for audio recording. The components of a DAW include an audio interface, audio recording software, and a monitoring system.

Digital Modelling – Simulation of the tonal characteristics of amplifiers, speakers, and associated analog devices, created by computer-derived technology.

Distortion Pedals – Use hard clipping, producing a harsher sound with odd-order harmonics. The intention is to produce the sound of an overdriven valve amplifier, pushed well into clipping where the sound starts to distort.

Effects Loops – These give you the opportunity to connect effects between the preamp and the power amp of your guitar amplifier. Best for modulation, time-based, and pitch-based effects as it allows them to affect the overdriven signal from the preamp as opposed to the preamp distorting the effect sounds.

Fender LSR Roller Nut – This nut features ball bearings which reduce friction that can cause tuning instability. For use with Fender Stratocaster guitars. Preferred by Jeff Beck.

FRFR (Full Range, Flat Response) – Speakers that can amplify a modeler or piezo guitar system ensuring detail and consistency without any noticeable coloration of the tone.

Fuzz Pedals – The original distortion effect, characterized by extreme levels of drive and odd-order harmonics.

Gain – Boost provided to an electronic signal by an amplifying circuit.

Historiography – The study of the methods of historians in developing history as an academic discipline, and by extension any body of historical work on a particular subject. The historiography of a specific topic covers how historians have studied it using particular sources, techniques, and theoretical approaches.

Humbucker Pickups – These have two coils and sets of magnets that cancel out most of the hum the coils pick up. More powerful than a single-coil pickup producing a smoother sound with more bass.

Impedance – The tendency of a speaker to resist the flow of AC electricity. It is measured in ohms.

Impulse Response (IR) – Impulse responses are mathematical functions representing the sonic measurements of audio systems (speaker cabinet and microphone combinations).

Interval – The distance between any two notes.

Intervallic Functions – Based on the major scale as a reference point, a method of identifying the notes of a scale by number as opposed to name. For instance, a C-major scale is C-D-E-F-G-A-B, but the tones will be referred to as C is "1," D is "2," E is "3," F is "4," G is "5," A is "6," and B is "7."

Locking Nut – Type of nut often fitted to guitars with modern vibrato units. It features bolts to prevent strings from going out of tune when the vibrato bar is used.

MIDI – (Musical Instrument Digital Interface) is the standardized language which allows any digital musical device to talk to another.

Neo-Riemannian Theory – named after Hugo Riemann (1849-1919), whose "dualist" system for relating triads was adapted from earlier nineteenth-century harmonic theorists. Harmonic proximity is characteristically gauged by efficiency of voice leading. A central commitment to relating harmonies directly to each other, without necessary reference to a tonic.

Overdrive Pedals – The gain is reduced beyond the clipping point, giving a smoother, more natural-sounding effect with even-order harmonics usually obtained with a technique called soft clipping.

Paradigmatic Dimension – describing something that is ideal or standard from a vast set of possibilities.

Passive – Standard guitar volume and tone controls are passive (i.e., without gain circuitry). They can reduce output level and attenuate higher frequencies but are unable to boost signals from the instrument's pickups.

Phase Switches – Reverses the polarity of a pickup swapping around the positive and negative outputs. When used together with another pickup, all the common frequencies cancel out leaving only the difference between them. The resulting sound is very low-powered and has a nasal tonal character.

Pickups – These sense mechanical vibration of the strings and convert it into electrical energy which can then be changed by means of effects and amplified.

Piezo Saddles – These are built into the bridge saddles of the guitar, and the electronics are internal. The resulting sound is very similar to an amplified acoustic guitar. Often utilized in performance by guitarists John Petrucci and Alex Lifeson.

Series/Parallel Switches – Changes the way the two coils of a humbucking pickup are wired together. The standard humbucker is wired in series. A humbucker wired in parallel will have less power but more treble response, similar to a single-coil sound without the hum.

Shred Guitar – A subgenre of heavy metal music that observers would describe as neoclassical-rock guitar. Features a blistering showcase of virtuosic electric-guitar technique.

Single Coil Pickups – The simplest type of pickup, commonly seen on Stratocaster style guitars. Generally, produces a more trebly sound with more "snap" and "punch."

Stacks – The amplification electronics are packaged in a separate box (head) from the speaker cabinet(s). Ideal for overdriven tones.

String Mute – Fret wraps are adjustable straps that wrap around the neck of a guitar to dampen or mute the strings. Helps to control unwanted string noise while executing right hand techniques like multi-finger tapping.

Syntagmatic Dimension – refers to the stringing together of elements in time.

Tremol-No® - Patented device that is added to an electric guitar equipped with a tremolo/vibrato unit. It allows guitarists to turn their tremolo unit "on" (raise or lower the pitch of the note with the tremolo unit) or "off" (tremolo is blocked).

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