Useful Guitar Chord System

(and a few other tricks)

By Chuck Costarella

My plans for writing this book began sometime around 1975 when I bought a book called Chord Chemistry written by Ted Greene. And so it began...

When I was a kid learning how to play guitar, there was one chord book that every budding young guitarist had to have, and that book was *Chord Chemistry* by Ted Greene.

Chord Chemistry was an amazing compilation of chords and fingering diagrams that used a somewhat unusual orientation of the guitar neck and decidedly extended colorful harmonic structures and within just a short time, the book had outsold everything that had gone before and its popularity firmly established it as *the* book to have if you wanted to be taken seriously about chord knowledge on guitar. Before *Chord Chemistry*, *Mickey Baker's Jazz Chords* had been the most "hip" modern chord book you could buy, and Ted's book just seemed like it had so much more in it than the other method books for guitar chord structures available at that time.

But, *Chord Chemistry* was something of a puzzle. Its pages were crammed full of chord and fingering diagrams, outlining the most bizarre and unthinkable fingering combinations you had ever seen. Many of the short 4 chord progressions in the book were so hard to play, it took weeks of practice just to stretch your fingers out so that you could stumble through 1 or 2 of them, and with the sounds, voice leading, and numerous jazz flavored extensions common in most of the progressions, you could never seem to find a place in any song you might be performing in your nightly set where you could actually use the amazing new shimmering chords you had just mastered.

In the harshest terms, despite its obvious impressive intellectual content, for the student guitarist, *Chord Chemistry* was ultimately the undecipherable printed ramblings of an authentic musical genius, the target of which was way over the heads, hands, and ears of most of its audience. In later years, Ted himself often referred humorously back to his humble first publication as *"Chord Catastrophe"*.

I was fortunate in later years to meet Ted on several occasions, hear him play live in LA's San Fernando Valley a few times at those rare live gigs that he did, and speak with him and his publisher Dale Zdenek about *Chord Chemistry*. I want to make it crystal clear, for the record, that as a student in USC's Studio Guitar program in the 70s where I attended a series of master classes that Ted gave at the school, that I learned a ton from him. He was an absolute master guitar player and music teacher and I have nothing but respect and awe for Ted. As for *Chord Chemistry*, my copy took its place in my library of music books alongside Walter Piston's *Harmony*, Paul Hindemith's *Elementary Training for Musicians* and other de facto standard music texts I acquired while pursuing the Bachelors of Music at USC that I never completed. *Chord Chemistry* became a sort of "rare" reference book for me that I would use to look something up whenever I was in search of a rare and beautiful new sound that was starkly different from the usual idiomatic chord voicings and progressions that are the usual components of the literature of modern guitar playing. I still have that same copy of *Chord*

Chemistry and I still open it and read it to this day - once a year or so. I may even grab a guitar and finger a few of the voicings and work out my finger stretch a bit before I put it back on the bookshelf, where it sits for another year.

So I always wanted to author a guitar book. And I wasn't quite sure what it would be - what it would cover - but I knew that my book would be nothing like *Chord Chemistry*. I wanted a book that taught some important concepts that the player could easily hold in his head without any super powers of recall and actually use it with a guitar in his (or her) hands. I had taken a few lessons from Joe DiOrio, the incredible straight ahead bebop guitarist who was teaching at Howard Robert's GIT (later Musician's Institute) school at the time. Joe was playing at (70's LA Valley club) Donte's every week with a small 4 piece avant garde bebop combo. I went to hear his group play and immediately wanted to take lessons from him.

In our first lesson, I asked Joe, as I always did with a new instructor, "What books should I buy for our lessons, or what books do you recommend?" To my astonishment, he looked at me and said, "I don't believe in using any books. You already have all the knowledge you need in your head to play whatever you want to play on the guitar."

Well , I was a pretty "schooled" guitar player… hell, I was a pretty "schooled" guy. My father and mother were both teachers, both had Masters degrees, and my approach to learning anything in life was always, "Where is the book? I'll read it." Here was this incredible bebop master jazz guitarist telling me that I didn't need any more books, and that they would probably just get in the way! I was stunned. I had been playing music for years, literally studying music since I was 5 years old at my father's knee and it hit me so hard - he was right. I didn't need any more books. I had already intellectually absorbed more harmony and theory than most players will ever be exposed to their whole careers. And what's more, I had more knowledge of chords and harmony and theory than I could probably ever *musically use* in the material that I was playing.

I just had to figure out how I would get it from my head, down my arms, into my hands, and out through my fingers. This realization is the motivation for the bulk of this book's material. I might stray a little outside these boundaries with a tiny portion of the content, but for the most part, everything in the book is in keeping with the primary goal of my writing it - that the book's material is:

1. Easy to memorize - more accurately, easy to remember without really trying to memorize
2. Widely useable - applicable in many, many, multiple stylistic musical situations

So I knew that when writing a guitar book of my own, instead of page after page of diagrams that the reader has to ponder over and memorize, I wanted them to have the instrument in their hands and to be playing the exercises without any constant looking back and forth from the book to their hands, and be able to absorb the material into their musical vocabulary, their

ears, and their hands, as they played and learned. Their visual focus would be on their own guitar fingerboard, with the information flowing from the brain to the guitar. My book would have a minimum of actual visual information in it, because the “real” visual prompt would be the player’s own fingers on their own fingerboard with only enough graphics to demo the concept of what I was trying to get across. My book would be based on simple concepts that had complex depth that could be worked out “on the fly” so to speak. I wanted the organization and logic of the system to be so transparent and obvious that the reader could learn the entire system in a short sitting and start putting it to use almost immediately. The depth could be developed over time, as the material started to prove itself useful, and the value would reveal itself, so that the player’s need would become the motivation for more and more practice and study.

Where Ted’s chord system had a most decided jazz slant to it, my system would be almost void of any specific style or category of music that I was attempting to convey; instead allowing the reader to focus on the sound of the chords and allowing the context of the music to determine what kind of chord book it was. This fits perfectly with my life-long, musical mantra and musical psyche, that of being a disciple of the philosophy that “The song is King.” If it’s country, play country, if it’s jazz, play jazz, funk - funk, etc. And if it’s rock and roll, turn it up and well, you know what to do.

This chord system is built on a foundation of so few actual chords that the memorization of chord diagrams could literally take place during the first 10 or 20 minutes of reading, with only occasional referencing back to the book after that.

I remember very clearly browsing through the songbooks in mom and pop music stores as a teen. I didn’t have the money for most of them (I would have bought everything if I had), but there was no YouTube with seasoned players showing me how to tune for “Kashmir” or “Gimme Shelter”, or where to put my fingers for the opening to Giant’s “I’m a Believer.” So I would stand there for the better part of an hour, staring at the pages of piano transcriptions with minimal chord diagrams, trying to remember as much as I could, “hearing” the song in my head as I worked at memorizing, and then rushing home to grab my guitar and “try it out”. My book is the antithesis of that scenario. Spending a half hour with my book might likely make purchasing the book unnecessary. (Maybe that’s a big reason why I never wrote it during the period when the only books we had were printed on paper.)

Background pre-reqs?
A pretty decent mechanical knowledge of modern harmony fundamentals is required, but this doesn’t go beyond anything taught in a first semester course in Music Fundamentals at any community college or in any popular piano or guitar method. I suppose that in today’s world, I have to include YouTubers as well. Rick Beato has an excellent music education channel where you can get all you can eat in the way of fundamentals and there are scores of others as well. There is an appendix of this harmonic material that I assume that you have for learning the chord system - included in the back of the book.

And very importantly, the system's material had to have sufficient depth so that the student will then spend the next several years drilling down deeper and deeper into it in order to be comprehensive, but while still being able to use whatever they are actively integrating into their current harmonic vocabulary. And all without having to refer back to the printed information.

*It would be the **systematic organization** of the material that would reveal its **depth**, not the bulk of the material.*

So, throw away your "Encyclopedia of 10,000 Guitar Chords", or better yet, start a composting heap out back. Dust to dust, baby...

Appendix: Fundamentals of modern harmony (out of order for now)
Background pre-req: Diatonic harmony on the fingerboard
Don't let this section scare you off. There are **2 areas of focus** for pre-reqs within the topic of harmony that you will need to understand in order to "get" the point of this book:

1. First there is theoretical diatonic harmony, this is the typical IMa7, iimi7, iiimi7, IVMa7, V7, etc., and then there is…
2. The application of those harmonic structures on the fingerboard of the guitar. You could almost consider this to be "arranging for guitar"

1 - You need a good ***theoretical foundation of diatonic harmony*** as currently practiced in modern music. This is actually pretty simple, and really comes down to learning the 7 steps of the major scale and how you would harmonize those tones in 3 parts (root, third, fifth) and then 4 parts (root, third, fifth, and seventh tones) into some kind (or quality) of a triad (3 part chords), or 7th chords (4 part chords), such as major 7th, minor 7th, dominant 7th, or minor 7b5. This material is very simple and can be commonly found in tons of other places, but I will also cover it here if you need it before attacking the book's chord system. Without a pretty good working knowledge of diatonic harmony, the beauty of this system is going to be lost on you. You will see some nice stock 7th voicings, maybe learn 1 or 2 new ones that you hadn't thought of using before, and eventually, this book will take its place next to all the others that you never finished, and never proved of any real use for you. Neither of us wants that.

2 - The second part is that of applying the diatonic harmony you learned and ***mapping it onto the idiosyncrasies of the guitar fingerboard*** (in standard tuning). This is a deep, almost never ending area of study, and is something that this book will help you with over time with a moderate amount of consistent practice. Actually, a little bit each day.

> *Speaking of practice, without pounding it into the ground, obviously practice is important with any music subject, but I'm not talking about spending 8 hours "woodshedding" on one scale or mode. I'm talking about a regular, periodic, simple warm-up exercise that you can accomplish in 15-20 minutes and then repeat, every day, for an extremely long period of time, like say, the rest of your life.*

Polytonal improv approach to soloing: Can I really use this stuff?
Yes. A player as accomplished as Larry Carlton (one of my personal all-time favorites) has said that he prefers a polychordal approach to constructing single line solos on the guitar. One where he visualizes not scales, modes, or fingering patterns, but small chords (specifically triads in Larry's case) superimposed all over the fingerboard, ready to be used in contexts where the chord tones function as something else in the key center. Take, for example, a Dmi triad. In the key of D minor, the Dmi triad is simply a D-F-A triad and suggests maybe a pure minor (Aeolian) mode or if you want to get jazz freaky it could be D harmonic minor. But now imagine instead, you are in the key of C major, with a straight forward C major C-E-G triad being played. Now when you play ideas centered around that Dmi triad D-F-A, suddenly you

are emphasizing the 9th, 11th, and 13th of the C major scale, and the resulting sound is different (from the same notes over Dmi harmony) because of the foundation that is sounding underneath it. Well, even if you didn't know that Larry was doing all that, if you've ever heard him play, you have to admit he's doing something right. Never ending melodic ideas just keep flowing out of him as he improvises, with a rich harmonic content that keeps your ears constantly in flux between the oohs and ahhs. And very importantly, he never sounds like he's copying anyone else, unless he wants you to hear that.

So, one of the problems of such an approach in practice, is that in order to come up with linear melodic ideas and especially, the continuity of line (think Pat Martino, *Along Came Betty, Consciousness*, etc.) when using and applying this technique, you have to know lots of small triads. We are talking tons and tons. Basically, you have to know *all* of them. You have to know the locations and be able to visualize all of the Dmi triads on your guitar fingerboard, or whatever chord from that root with that quality (i.e., major Ma, minor mi, Dominant 7 chord, etc.) that you are "selecting" to base your improv line on at that moment. So I think you would agree that a systematic and organized way of learning and absorbing all those little Dmi chords would really come in handy, right?

Later on we will also talk about the topic of altered dominant chords where I will show you an easy way to alter the 5ths and 9ths from sharp to natural to flat for both some awesome voicings, but also some great moving lines within the chords you play, and also giving you an easy way to emphasize those high "color" notes in your lines when soloing. These tasks might sound complex and seem unreachable from where you're at in your knowledge, but they're not, if you know how to break it down into smaller pieces that you can master one at a time. That's what this system does.

Notes on the guitar neck, go ahead, take 5 minutes and learn them
So, obviously, we have our work cut out for us. Most guitar players don't know the notes on the neck very well. You can take a single piano lesson when you're 6 years old and know all 88 notes after the first 5 minutes, and you will remember them perfectly for the rest of your life, but the same person can play guitar for 20 years and not have a clue what's going on anyplace except the bottom 2 strings, where you find the roots of your "power chords" because the only chord book you ever got all the way through was written by Ernie Ball. Nothing wrong with Ernie Ball, but we're going to improve on that.

I love Ernie Ball. I use his strings and his volume pedals, and I read and studied his bar chord book for my first garage band, but there is more to life. This limitation has to change in order to unlock the mysteries of the guitar's voice. Imagine wanting to be a great writer but having the vocabulary of a 5th grader. Unless you're planning on being another Ernest Hemingway, you need to get to work. This book doesn't specifically help you with that either, but I promise you if you go through this material carefully the way I instruct you to, you will improve miles beyond where you are now. And I think you might not even notice you are working on the locations of pitches on the fingerboard, because that is not the primary focus.

Background - another pre-req

As already mentioned, this material does not deeply cover basic modern diatonic harmony. I will assume you know your key signatures, chord spellings, and the numeric formulas for spelling the chords in a harmonized scale. I will spell the chords and scales and voicings when I use them as examples, but I will not be explaining where they are coming from or why. Here is a very brief review:

Here is the formula for a major harmonized scale, using numbers for the scale tones, and then some arbitrary examples in the keys of C, Db, and A major. I am choosing those 3 keys to demonstrate 1) a key with no sharps or flats (the key of C), a sharp key with 3 sharps (the key of A), and a flat key with 5 flats (key of Db):

Harmonized scale formula (by the numbers)

I Ma7	**ii mi7**	**iii mi7**	**IV Ma7**	**V7**	**vi mi7**	**vii mi7b5**

A few examples in the keys of C, Db, and A major:

(C) C Ma7	**D mi7**	**E mi7**	**F Ma7**	**G7**	**A mi7**	**B mi7b5**
(Db) Db Ma7	**Eb mi7**	**F mi7**	**Gb Ma7**	**Ab7**	**Bb mi7**	**C mi7b5**
(A) A Ma7	**B mi7**	**C# mi7**	**D Ma7**	**E7**	**F# mi7**	**G# mi7b5**

This harmonized scale will be one of the main foundational harmonic concepts for the chords we will study and learn in this system.

A few things to take notice of. The quality of the chord on any particular scale degree never changes with the key - eg - the **ii** chord is always a minor 7, the **V** chord is always a dominant 7, etc.

The arrangement of whole steps and half steps between the scale degrees never changes - eg - the sequence of whole step, whole step, half step, whole step, whole step, whole step, half step is always followed no matter what, to produce a major scale. It is the sharps and flats applied to the notes that “fixes” their relative position so that the order of intervals is consistent - eg - in the A major scale, the C must be raised to a C# in order to maintain the distance of a whole step above B natural which is the second note.

It’s all about the dominant 7th chord

Developing this chord vocabulary is based on learning the dominant 7th chord. Composers of all kinds from Beethoven to Bach, Brahms to Miles, Hendrix to John Coltrane to Chrissie Hynde have all known that the dominant 7th chord (the “V” chord) sits in a unique place in diatonic harmony. The dominant 7th (or V chord) ***uniquely defines a key center***. When you

hear a C7 chord, you “feel” that you are in the key of F. Doesn’t matter whether you intellectually know that or not, whether you are a concert violinist or a bricklayer.

> Some hmmm… things to think about: If you grew up in the western part of the world - on the planet Earth - where people tune their musical instruments in 12 equal intervals -and they’ve done this with reasonable mathematical precision since around 1750 - every time the fundamental vibration doubles (which is another way to say “one octave higher”), you just sense it, because it’s what you are used to hearing. As an example, if there is a motor “whining” and producing a sound, and the vibration is cycling 440 times per second (440hz) then the musical pitch produced is what we call “concert A”. It might be interesting to note that if a Martian landed on Earth tomorrow and heard the Beatles, they might not be able to distinguish those typical sounds from a chain saw. I’ve played many many wedding receptions and seen little kids walk too close to my speaker cabinet and cover their ears and make faces that looked like I was putting them in a pain they had never known in life, and I probably was. If they were young enough and had never heard those sounds before. It’s all what you’re used to hearing.

Why does the V7 chord define a key center?

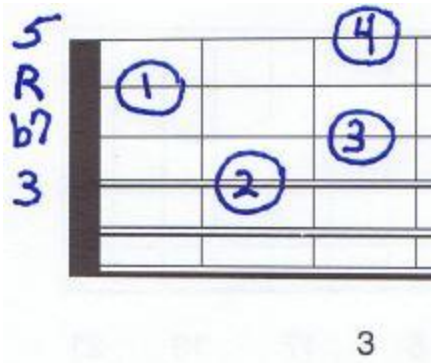
The V dominant 7 chord is fundamental in all types of music and forms the basis for diatonic key centers because of the unique tritone or diminished 5th interval that only occurs in one place in each major key, and therefore it defines a key center. For example, in the key of C, considering the notes **C D E F G A B C**, there is only one place where there is an interval of a tritone or diminished 5th (or augmented 4th, which is the same thing) and that is between the F and the B. There are 2 factors that make this interval unique:

- 1 - This interval does not occur between any other pair of 2 notes in the C scale, and
- 2 - There is 1 other major scale that has this specific interval (F and B) inverted. So in C, the tri-tone f and B wants to resolve to the notes E and C. The F and B are notes from the V chord G7 and the E and C and notes from the I major triad C major. If we consider the “other key” that can contain F and B, that would be Gb major. So (I’m going to invert the tri-tone) the B and F would resolve to Bb and Gb, which outlines a Gb major triad while the F and B interval outlined a V chord Db7. (To be 100% accurate, we would name the pitch Cb, not B, because each major key has 1 pitch of each letter name, and Bb is the 3rd note of the Gb major scale, making Cb the 4th note enharmonic equivalent to B natural).
- 3 - Not really a third thing, but note that the interval between F and B is musically and physically (meaning the vibration relationships) equal to the interval between B and F. In other words, you could work your way from one end of the piano keyboard to the other playing **F, B, F, B, F, B, F**, etc. and each interval would be a diminished 5th or tri-tone. The term tri-tone comes from the fact that a diminished 5th is also the distance of 3 consecutive whole steps.

So we will study the dominant 7th chord voicings in detail, and then observe how to alter the dominant 7th chords to form the major 7th, minor 7th, and minor 7b5 chords that are also in the harmonized scale. So let’s get started.

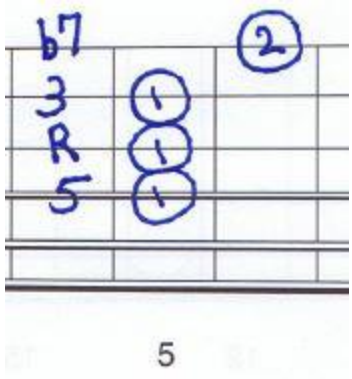
The Useful Guitar Chord System - starts here and now. Let's begin with an example that you probably already know…

- **C7 on strings 1 - 2 - 3 - 4**
    - Systematic inversions - all fingerings are typical suggestions. Feel free to finger the chords any way you like. For each chord I am including the scale tone number of the note on that string. It is absolutely critical that you become aware of which chord tone is being played on which string. Don't set about to do this, but keep looking at them, keep thinking about them and let it happen naturally as you absorb the material. Note that as you move each chord up the neck, the overall voicing moves up because the given notes on each string are all moving up to the NEXT chord tone. So the Root will move to the 3rd, then to the 5th, then to the 7th, then back to the Root, etc.
    - Because this is a C7, the chord tones R, 3, 5, and b7 become C, E, G, and Bb.



Now transpose each note up to the next note of the chord *on the same string*:

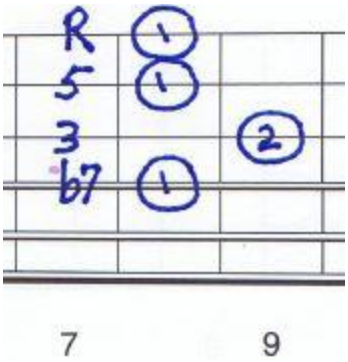
- 5th moves up to the b7th (G up to Bb on string 1)
- Root will move to the 3rd (C up to E on string 2)
- b7th moves up to the Root (Bb up to C on string 3)
- 3rd moves to the 5th (E up to G on string 4)
- Perform the steps above, and you have arrived at this voicing:



Now apply the same process again, transpose each note up to the next note of the chord *on the same string*:

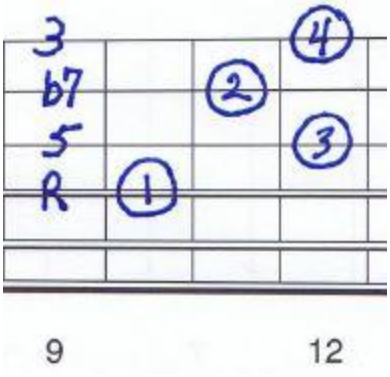
- b7th moves up to the Root (Bb up to C on string 1)

- 3rd moves to the 5th (E up to G on string 2)
- Root will move to the 3rd (C up to E on string 3)
- 5th moves up to the b7th (G up to Bb on string 4)
- And you should arrive at this voicing:



And move up again, finding the 4th inversion/voicing of this chord, by applying the same process again:

- Root will move to the 3rd (C up to E on string 1)
- 5th moves up to the b7th (G up to Bb on string 2)
- 3rd moves to the 5th (E up to G on string 3)
- b7th moves up to the Root (Bb up to C on string 4)
- Produces the 4th and last inversion (on this string combo):



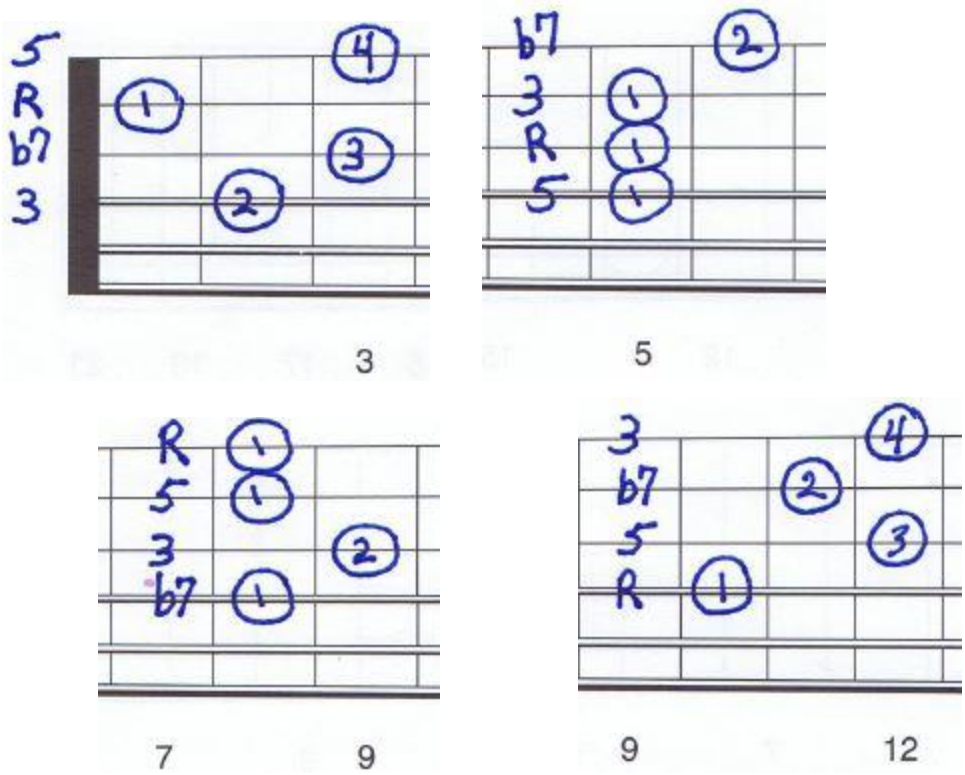
Finally, if you apply the same process one more time, you will arrive back at the very first chord voicing, transposed 1 octave higher on the neck. This makes sense because there are 4 tones in each chord voicing and you systematically moved each chord tone from Root to 3rd, to 5th, to b7th, back to Root again (in this example), on each of the strings in the string set 1-2-3-4. Once you played 4 different inversions on that string set with each chord tone always moving up to the next higher chord tone, you are back to the voicing where you started, only 1 octave higher.

**To be completely forthcoming, some harmonic systems, including traditional ones used for centuries by the “old masters” such as Bach, Mozart, etc., had specific base notes determine the “inversion” of a chord - eg - “a C triad in first inversion”. That is not the meaning I am

assigning to the terminology when I write that we are producing multiple different inversions of a C7 chord as we move it up the neck. In our example of C7, the first chord locates very nicely beginning on the first fret of the fingerboard and we “climb” up the fingerboard from there. If we were in a different key (D) and started with an A7 chord, we would begin with a different inversion that also fit nicely on the first few frets of the fingerboard. Part of what makes this book a guitar chord system.

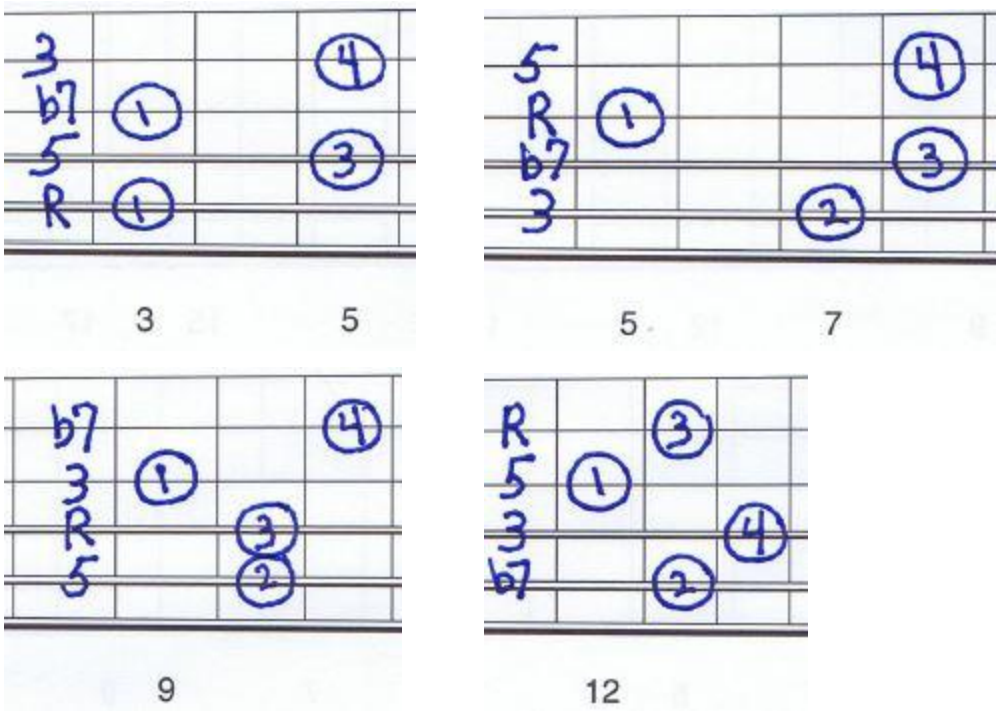
Once you get these first 4 voicings under your fingers, you can start to repeat as many voicings as you can reach on those upper frets. Try to see if you can repeat all 4 an octave higher. Usually you can’t repeat them all and still sound musical, but check it out - a 24 fret neck and deep cutaway might help, but your finger size could also be a roadblock. Your instrument will have a lot to do with this too. Players with nylon stringed instruments that have 12 frets clear of the body will have a different approach from rockers with 24 fret necks and deep cutaways. I am using a 25 ½” scale 22 fret neck, so I’m someplace in the middle. I can usually repeat the first 2 depending on bars and double stops.

- **For review, here are the 4 foundational voicings of C7 chords on strings 1 - 2 - 3 - 4**
    - Before we move on to the next step in the system, this section is for review only, so that you can see in a more condensed format, and hopefully all on one "screen" without scrolling, the 4 chords that I consider basic to this system. Here they are:



- **C7 on strings 2 - 3 - 4 - 5 (move down a string)**

Logically, the next group of voicings will be the 4 inversions that are located on the next sequential set of 4 inner strings 2-3-4-5. Here they are, more condensed than the above set. As I have stated, a major focus of this system is to keep the “printed” material to a minimum and keep it condensed down to the smallest chunks of information that you can keep in your head for immediate recall on a gig, session, lesson, etc., without hauling out books, charts, tablets, music stands, smartphone apps, whatever.



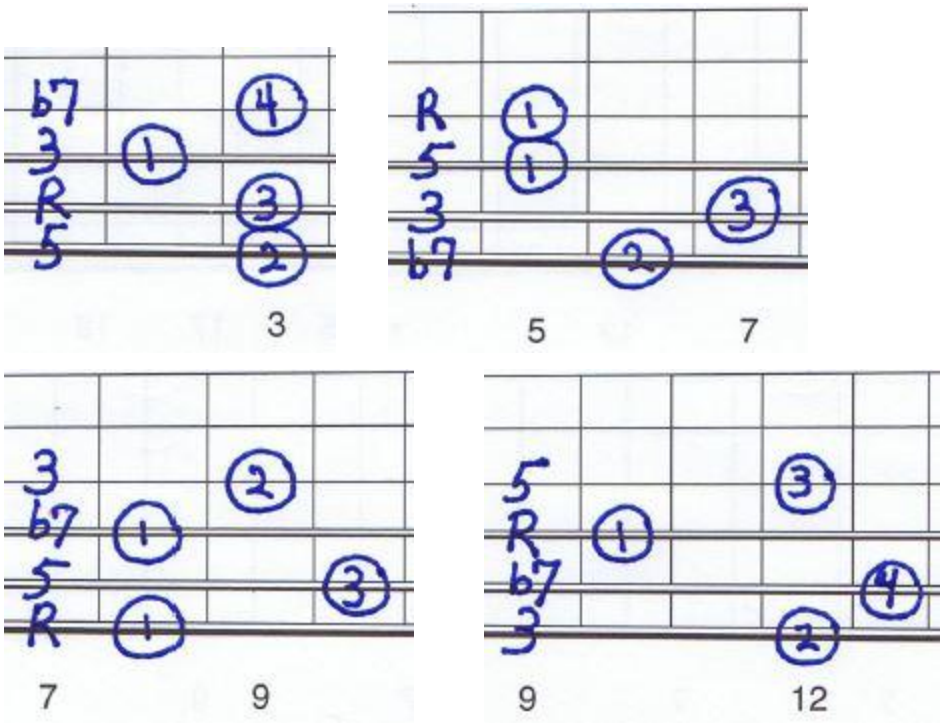
Once more, repeat back to the first voicing an octave higher, and squeeze those fingerings as tight as you can, to repeat as high as you can. Re-fingering is perfectly okay too. As far as I am concerned, once you’ve played for a few years and learned to use all 4 fingers (and even your thumb**) as well as you can, there are no rules concerning fingerings. Use whatever works and whatever you can grab at that moment. Remember playing the notes of chords doesn’t happen in isolation. The timing is usually just as critical as the pitches. Where the fingers are coming from and where they have to go to next. There is only one rule: Make it sound good.

> *** I can’t use my thumb for stopping notes. I cut the tendon going to my left thumb’s tip when I was a 15 year old kid working at a fast food joint. They reconnected the tendon, but it healed with scar tissue binding it to the sheath and doesn’t work to bend the tip. So, I’m limited to my 4 fingers. I don’t think this ever stopped me from anything I wanted to play and I actually believe it worked as a blessing in disguise. I have to drop notes out of my chords sometimes, especially on the bottom string, and as a result I think I’m a more tasteful ensemble player and I leave more space for the other musicians. The moral of the story though, is to be super careful with your hands. If this is the career path you’ve*

chosen, be careful of other part time jobs you take on while you're trying to pay the rent - or fix up a muscle car.

- **C7 on strings 3 - 4 - 5 - 6 (move down 1 string again to the bottom 4 adjacent strings)**

Now we're on the last group of 4 voicings that fall on adjacent strings. Here are the voicings that fall on strings 3-4-5-6. Don't neglect these because you initially think they're too dark or too muddy. With the right guitar, the right tone, the right strings, pick, mic, room, the right song, these chords can sound stunningly beautiful. I'm thinking Chris Isaacs or Pete Anderson, Michael Landau, Chet Atkins. And most guitarists *never* play them. But you will, so how cool is that? Listen to some of the Baritone guitar stuff from Pete Anderson or early Alan Jackson tunes - I think that might be Brent Mason.



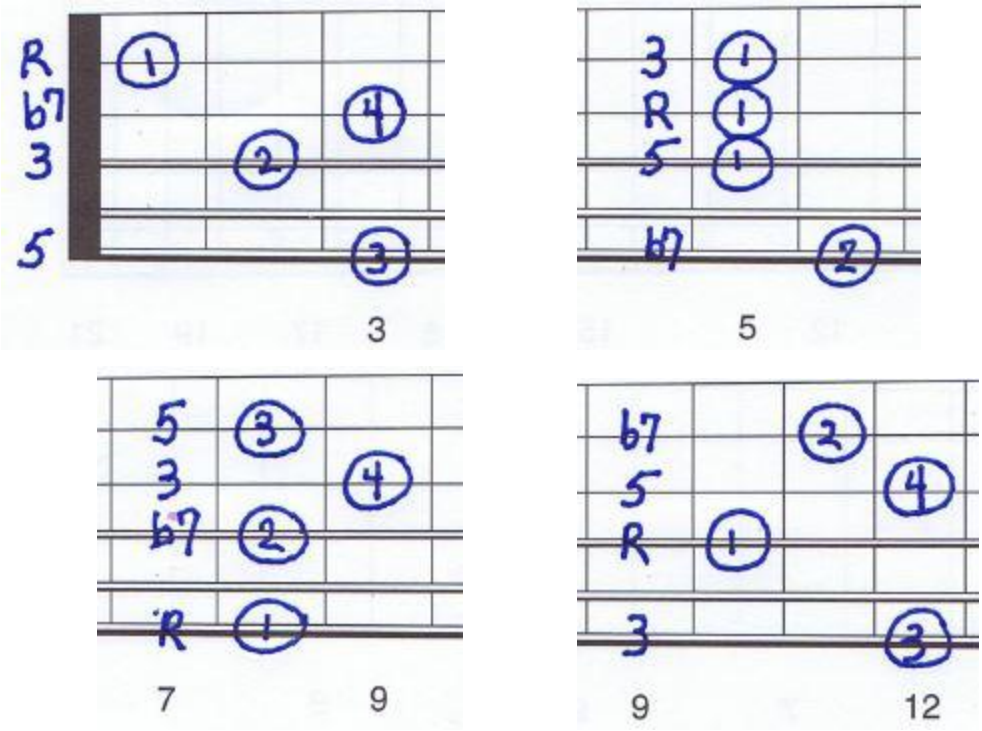
And again, repeat as far up the neck as possible.

- **C7 on strings 2 - 3 - 4 - 6 (non-adjacent string voicings)**

Now that we've covered these systematic inversions of the voicings of C7 chords on the 3 possible adjacent string sets, we will look at some voicings that are NOT on adjacent strings. There are 2 sets that come immediately to mind, are very useful musically, and are commonly played. These are the voicings on strings 1-2-3-x-5 and 2-3-4-x-6. The set on 2-3-4-x-6 is super easy to derive from the ones we just covered. 1-2-3-x-5 not so much, but I have a plan for you to work on that.

So we'll cover the 2-3-4-x-6 set first. These are super easy to derive from the very first set of voicings that were on 1-2-3-4. Huh? Yes, that's right, because:

Remember the guitar is tuned so strings 1 and 6 are exactly 2 octaves apart, so if you take those first 4 voicings on 1-2-3-4 and simply move the note on the top string down 2 octaves to the bottom string on the same fret, you get a brand new voicing that is easy to "visualize" based on the one you already learned, and yet it will sound very, very different, and is useful in completely different musical situations. Moving that note down 2 octaves is going to completely change many of the fingerings, so here goes:

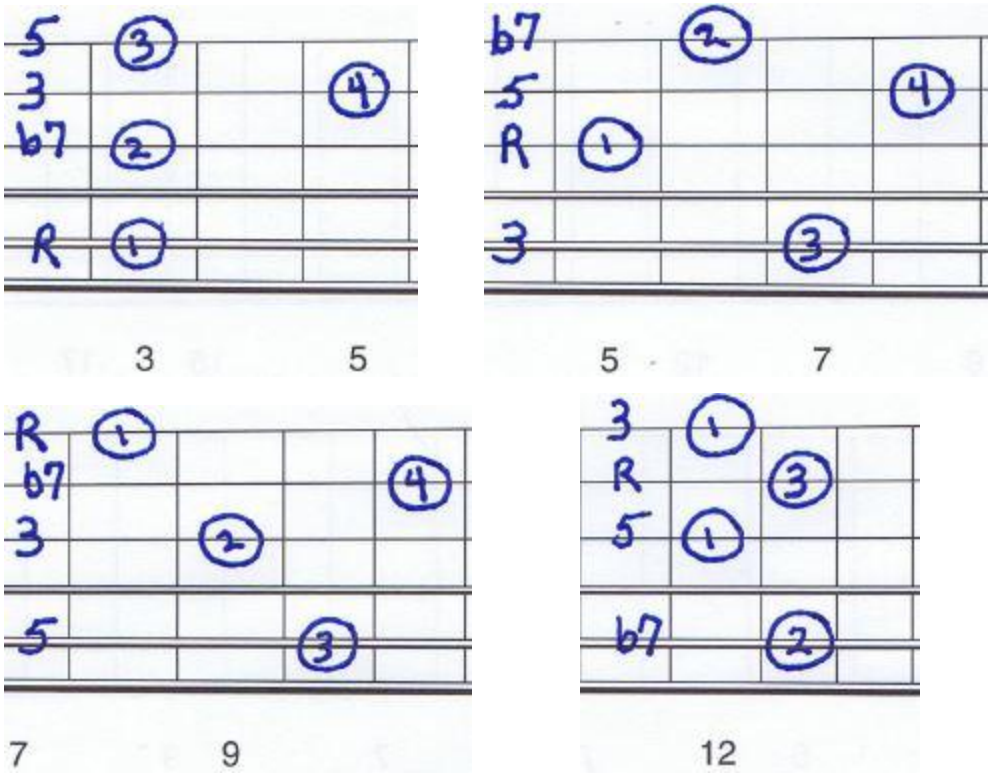


By now you should know what I'm going to say here - repeat as high up the neck as you can. When I practice these into the narrow fret spacing of the upper neck, I sit with my strat on my left leg (like I was playing a classical nylon string guitar at a formal concert) and tip the neck way up with my face very close to the upper horn cutaway. Sometimes I'll even let my left thumb come in front of the fingerboard to reach a really high chord voicing. Some online guitar teachers refer to this as the "Instagram position" for obvious reasons.

As stated previously, all fingerings are suggestions only. Double stops with the 1st and 2nd fingers are helpful sometimes, so work on being able to do that. It's like growing another finger. For the truly brave, a finger can be used to double stop notes on different frets (another old Ted Greene trick). Or stop one note with the tip or side of the tip, and another stop (usually on the top first string) with the fleshy part of the first knuckle. Takes some practice but you'll get it. I saw Ted actually use his nose once or twice on his bottom string and mostly for comedic effect but he made sure it sounded good. I've also seen him push his fingerboard up against arbitrary objects surrounding his playing position on stage to stop notes, such as furniture, railings, his mic stand, anything available. Quite an entertaining fellow. I think the only reason he didn't become a guitar hero was he never lit any of his Teles on fire.

- **C7 on strings 1 - 2 - 3 - 5 (non-adjacent string voicings)**

Now we take those 4 voicings and move every note up (across) 1 string to fall on strings 1-2-3-x-5. These are a little hard to visualize based on the original 2-3-4-x-6 set because they are all transferring notes across the dreaded **2nd/3rd string gap**, which plays hell with our shapes, but keep looking at them and comparing to the 2-3-4-x-6 chords, and your mind's eye will start to see it faster and faster.



Speaking of the dreaded 2nd/3rd string gap transfer, a great way to learn visualization across this gap is to practice playing a simple melodic phrase involving at least 2 adjacent strings, and then start moving it freely around to different locations on the neck. Practice playing it in tempo starting in a variety of places and work until you can do this spontaneously and not slow down or hesitate (or hit any clams!) when negotiating the 2nd and 3rd strings. Any melody or riff will do, but start simple, such as Mary had a Little Lamb, and then build up to longer and more involved melodies that traverse more strings.

Congratulations!

You just reached a major milestone in this system. These 20 voicings of C7 (not counting octave repeats) represent the basic voicings for all the chords in this entire system. Practice these 20 C7 chords every day until you can lay in bed at night and "see" them under your hands with your eyes closed and no guitar.

When you practice them on a guitar, always start by playing them with the C root, slowly as a warm-up, then play them all again with a root other than C, making your way around the circle of fourths/fifths on consecutive days. With 12 total chromatic roots that leaves C plus 11 other roots that you can practice through all of the keys in 18 days.

Next steps? Well, the music I play does not consist of dominant 7th chords alone, does yours? This system has an answer for that too. Read on.
But before we jump to other chord qualities, this might be a good place to step back and look at the big picture again and make sure you don't lose sight of where you want to take your guitar playing and musicianship in general.

Although this system is a great way to learn lots and lots of chord voicings on the guitar's fingerboard, I don't necessarily look at that as the end goal at all. I look at these voicings as a systematic way of building your knowledge of the notes on the entire fingerboard for whatever goal that will imply for you and your music. For myself, and I think for many guitarists, I learned the modal scale patterns and pentatonics quite easily and had mastered most of them within the first few months of playing the instrument. But my improvisation still sounded amateurish and very "pattern" oriented because of the way I was visualizing the note locations and hearing the sounds, Most horn players, without the visual aid of note locations on a fingerboard or keyboard, have a much more linear and therefore melodic approach and to achieve this more natural melodic orientation on guitar, we usually focus our studies in 2 areas: arpeggios and chord tones or target notes. So I see a major benefit of studying this chord system to be the ability to see not just the scale tones of a pattern all over the neck of the guitar, but also which notes are the chord tones and eventually, which specific chord tones those notes actually are.

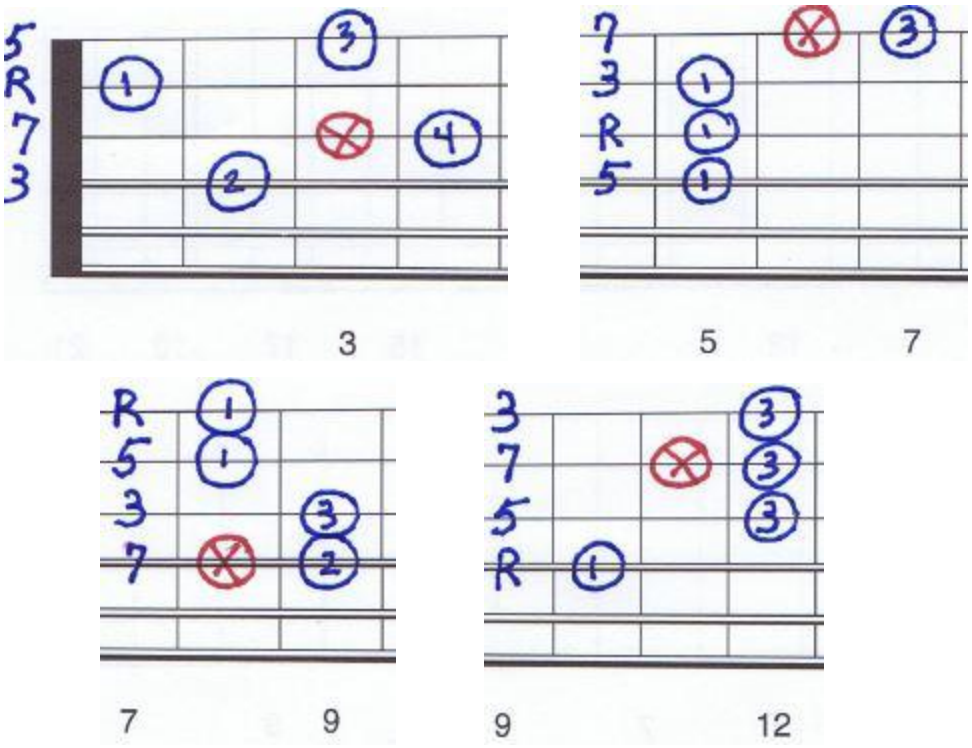
Try it. Practice improvising, starting with your usual bag of blues licks you might play over a C7 chord and work at visualizing all these C7 chords all over the neck, focusing on ending your

licks and fills on C7 chord tones. You should immediately hear a difference and the difference sounds like you know where those target notes are, because now you do!

We'll talk more about arpeggios later in the book, after we've covered the basic four 7th chord qualities - major 7th, minor 7th, dominant 7th, and minor 7b5.

CMa7 chords (look Ma, sounds just like Steely Dan!)

We're going to move to the CMa7 chord next. But we're going to derive each CMa7 voicing from its corresponding C7 chord that we already "know". You spell a C7 chord 1-3-5-b7 and if you were paying attention, you saw the chord tone number written on each of the 20 basic voicings. The Major 7 chord is spelled 1-3-5-7 (that's the diatonic 7th of the major scale, not the flat 7th like the dominant chord). On guitar, the diatonic 7th that occurs in the major scale is located just 1 fret higher than the flat 7th that occurs in the dominant 7th chord. So all we have to do is play our C7 chords that we already know, locate the b7th of each voicing (the Bb in this case) and raise it one fret to a B natural, making the chord a CMa7. I'm going to do this for you on the first 4 voicings that lay on strings 1-2-3-4. The red X circle shows where the b7 was located in the C7 dominant chord, with the raised 7th one fret (1 half step in pitch) higher.



As before, many re-fingerings will be needed, but the visualization of the original chord and comparison to the new chord is what's critical. Some of these voicings will have the major 7th right next to the root, like the first one. You are playing B on the 3rd string and C a half step higher on the 2nd string. Although not right for every musical situation, at the right time and place, with the right tone and feel, these voicings can be stunningly beautiful. This interval in particular can be very sensitive to the extreme registers, both low and high. Again, used in the right place, this dissonance can be beautiful.

> ***If you've ever heard their music, it should be obvious to your ears that Steely Dan loved them some major 7 chords. They also loved major 9. And early on in their careers, they had a special fondness for the sound of the major 9 chord without the 7th in it. This is just a*

major triad add 9 or sus 2 (Reelin' in the Years, Katy Lied, Dr. Wu, Ricky Don't Lose that Number, Any World, etc).

I'm not going to exhaustively go through all 20 chords and show you each one,

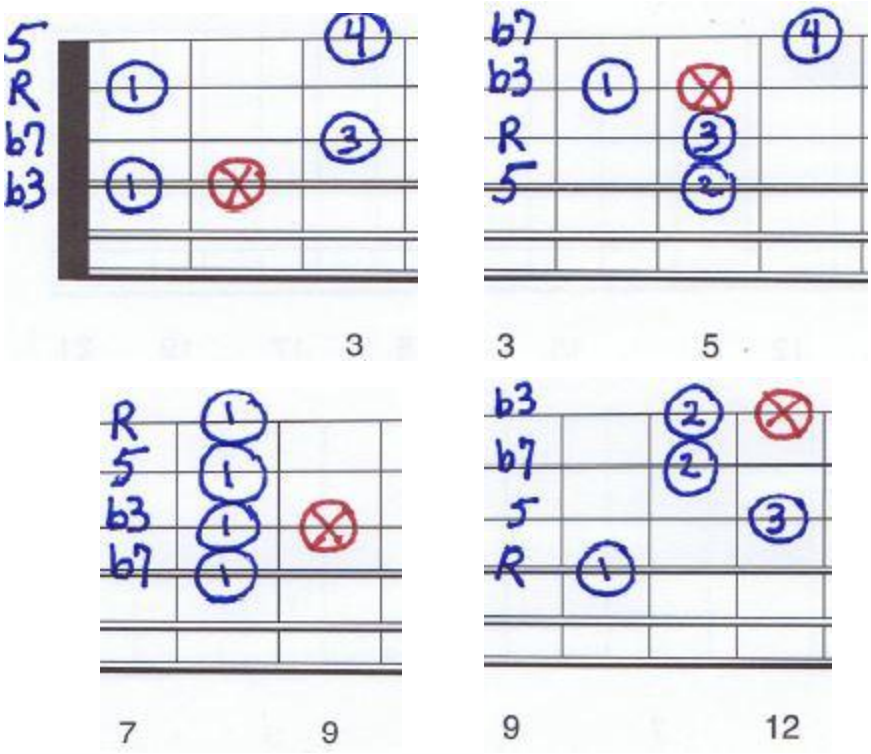
because I told you how to find them yourself based on what you already know, and Joe DiOrio would agree with me 100%.

Remember one of the goals of the system is for it to be easy to learn and recall/carry around with you in your head. If you're not on board, go buy the Ted Greene book. It's still available.

Cmi7 chords

As my closing remarks to the coverage of the chord system, I'm showing you the voicings for the Cmi7 chords the same way I did for the change to the CMa7 chord. These are the first 4 Cmi7 (minor 7th) chords. As before we will derive them from the dominant C7 chord that functions as our "home base" to systematically learn them. Recall, dominant 7th is spelled 1-3-5-b7 and the minor 7th chord is spelled 1-b3-5-b7. So the difference is that the 3rd of the chord moves down a half step for the minor 7th chord.

In these 4 diagrams, I've shown where the original diatonic 3rd of the chord was (with the red X circle) and where it went (down a half step or 1 fret) to the b3. With a C root, this means that E moves down to Eb.



That's it! The mystery of the guitar fingerboard is solved! If you know the 20 C7 chords we covered and you know them very well by now, and you know how to find and lower the E to an Eb, then you now instantly know 20 different Cmi7 chords, all "memorized" already.

> ***Best kept secret about the mi7 chord:*** *Inside every minor 7 chord is a relative major 6th chord just waiting to break out. Example: Ami7 is spelled A C E G (R, b3, 5, b7). By re-arranging those notes we spell a C6 chord C E G A (R, 3, 5, 6). It just so happens that A is the relative minor to C Major. Every minor 7th chord also functions as the major 6th chord of its relative Major key. Examples:* ***Ami7 = C6, Dmi7 = F6, Bmi7 = D6, etc.*** *So while you weren't looking, I just sneaked another 20 chords into your head.*

It's all about smoothly altering the pitches, boys and girls

Ted Greene wouldn't have had any problem finding those E notes and lowering them to Eb notes. If you're like me though, you don't know the fingerboard quite as well as Ted did, and it might take a little bit of thinking. I suggest you play each of the 20 C7 chords, letting each chord ring out and then locate the E natural and figure out how you will re-finger the Cmi7 chord with the lowered Eb, and then play the new Cmi7 chord. Do this for each of the 20 C7 voicings, going from C7 to Cmi7 on each one.

And what good would systematic inversions be without systematic practice of them? Suggested systematic practice routine:

- C7 to CMa7 on strings 1-2-3-4
- C7 to CMa7 on strings 2-3-4-5
- C7 to CMa7 on strings 3-4-5-6
- C7 to CMa7 on strings 2-3-4-x-6
- C7 to CMa7 on strings 1-2-3-x-5

Play each transition above, back and forth from dom7 to major 7 chord 2 or 3 times, slowly. Get used to "seeing" the Bb moving up to B and back down to Bb.

Then Practice the next change:

- C7 to Cmi7 on strings 1-2-3-4
- C7 to Cmi7 on strings 2-3-4-5
- C7 to Cmi7 on strings 3-4-5-6
- C7 to Cmi7 on strings 2-3-4-x-6
- C7 to Cmi7 on strings 1-2-3-x-5

Again, focus on watching and listening as the 3rd moves down to b3 and back up.

The mi7b5 chord

Now that you have the C7, CMa7, and Cmi7 going smoothly, start working on the next progression, C7 to Cmi7 to Cmi7b5 (we'll leave the Ma7 out of things for now). So now you will

be locating the 5th of each chord and lowering that note 1 fret, along with the 3rd and the 7th.

The mi7b5 chord naturally occurs on the 7th scale degree of a major scale, so in the key of C Major, the chord naturally appears as a Bmi7b5, or (vii mi7b5 for you Roman numeral fans). This chord really doesn't have a function in the major key, meaning Bmi7b5 doesn't really have a function in C Major, but it sounds like 2 chords that do have important functions, one in C Major and one in A minor, the relative minor to C Major.

Function 1 - In the Key of C Major, Bmi7b5 functions as an incomplete G9 chord (missing the root G). That is the dominant 7th chord with a 9th extension and without the root G. So if you need a dominant G9 chord, you can play the mi7b5 chord a major 3rd above the G dominant root. Since the Bass player will likely play a G, the piano player will certainly play a G, and any other guitar players on stage might also play a G, why should you join the party and sound obvious as well? Just find a nice Bmi7b5 chord voicing and fill out the harmony - no G needed.

Function 2 - In the key of A minor, the B mi7b5 chord functions as the diatonic ii chord in the key. Recall that A minor is the relative minor to C Major, so the Bmi7b5 chord is the naturally occurring ii chord in A minor. The mi7b5 chord being the ii chord in a minor key is of course the first chord in the most popular jazz chord progression of all time - the sacred ii-V-i, or as a part of a series of ii-V chord progressions, ii-V, ii-V, ii-V, etc. descending by whole steps (more on this later).

So the formula will start like the last one:

C7 1 - 3 - 5 - b7
Cmi7 1 - b3 - 5 - b7
Cmi7b5 1 - b3 - b5 - b7

To practice you will:

1 - play the C7 chord voicing
2 - locate the 3rd, lower it 1 fret, play the Cmi7 voicing
3 - locate the 5th, lower it 1 fret, play the Cmi7b5 voicing

- C7 to Cmi7 to Cmi7b5 on strings 1-2-3-4
- C7 to Cmi7 to Cmi75b on strings 2-3-4-5
- C7 to Cmi7 to Cmi75b on strings 3-4-5-6
- C7 to Cmi7 to Cmi75b on strings 2-3-4-x-6
- C7 to Cmi7 to Cmi75b on strings 1-2-3-x-5

Voice Leading (wha?)**
These linear transitions from chord voicing to voicing by moving 1 or 2 pitches while the rest of the notes stay where they are is called ***"voice leading"***. Voice leading is what makes Simon and Garfunkel sound so good, or when the Eagles sing "Seven Bridges Road", or anything Vince Gill ever did. It's what was special about JS Bach's treatment of Choral Hymns. It's the "inner game" of music (or one of them anyway). People respond to this inner beauty, and most don't even know why, or can't articulate it. No matter, you are the musician, it's your job to make it happen.

Doing this one time for each of the 20 C7 voicings will be playing a minimum of 60 chords, plus any octave repeated voicings. As always, I would encourage you to play the voicings as high on the neck as you can. Repeat the voicings as high as you can and still make them sound good.

This also might be a good time to bring up playing the voicings as low as possible on the neck in addition to as high as possible. With many of these voicings, you can lower it to the point where there are 1 or more open strings involved in the chord. Play each voicing low enough so that you have open strings on some voicings. This will mean some unusual and unique fingerings, but the sounds will be unique as well. Open strings are part of what makes a guitar a guitar. Just ask Keith Richard, Jimmy Page, or Manuel Barrueco.

***** When Hendrix was breaking into the London scene, he regularly played a club called the "Cafe Wha?" Loosely translated, "wha?" could be the 60s equivalent of today's Twitter inspired phenomenon "WTF". Damn Europeans! Always ahead of us in fashion and culture.***

Major 7th progressions
Finally, it's time to work in the major 7th chord voicings into our voice leading progressions. So this formula will build on what we just did, start with the newly added Ma7 chord, then repeat the previous progression:

CMa7	**1 - 3 - 5 - 7**
C7	**1 - 3 - 5 - b7**
Cmi7	**1 - b3 - 5 - b7**
Cmi7b5	**1 - b3 - b5 - b7**

To practice you will:
1 - play the CMa7 chord voicing
1 - locate the 7th, lower it 1 fret, play the C7 chord voicing
2 - locate the 3rd, lower it 1 fret, play the Cmi7 voicing
3 - locate the 5th, lower it 1 fret, play the Cmi7b5 voicing

- CMa7 to C7 to Cmi7 to Cmi7b5 on strings 1-2-3-4
- CMa7 to C7 to Cmi7 to Cmi75b on strings 2-3-4-5
- CMa7 to C7 to Cmi7 to Cmi75b on strings 3-4-5-6
- CMa7 to C7 to Cmi7 to Cmi75b on strings 2-3-4-x-6
- CMa7 to C7 to Cmi7 to Cmi75b on strings 1-2-3-x-5

Now you are playing 80 chord voicings (all just with the root C) plus repeats all over the neck as high and as low as you can. Do this every day at least once to warm up. It's a great warm up for the rest of your life.

At this point, if you haven't already, it's time to start thinking of a couple tunes that you play all the time that might have places for harmonies like this in them, and go through this exhaustive search for all the chords in those tunes. This is a great way to really learn to do some unique things in a standard or any song really.

There are tons of musical situations where knowing lots of chord voicings comes in handy. Take rhythm guitar playing on straight funk, rap, R&B, or anything with a single chord static harmony. Systematic inversions are great for being able to play through verse - chorus - verse - chorus - bridge - chorus - chorus - chorus, etc., and not run out of ideas. Even if the song only has 1 chord in it, you can find a characteristic voicing and rhythm for the verse, then a different, contrasting one for the chorus. Now you are helping to define the song according to the section of the tune that you are in. Producers (and artists) will love you for this. It's also very useful when backing up soloists who are blowing over a 12 bar blues and really stretching out.

Daily regimen

Every day when you first pick up the guitar, play this exercise all the way through with the chord root C, then repeat the entire exercise using some other root of your choice. Change the second key choice each day, but always do the first time through in C for consistency and warm up. You will be amazed at how this will start to show up in your playing, including in your single line soloing, your rhythm playing, and any recordings that you play on.

Chord nomenclature

What's in a nomenclature? You might have noticed that I've consistently used lower case letters when referring to minor chords, i.e., Cmi7, Cmi7b5, etc., and I consistently used an upper-case letter for the first letter of a Major chord quality, as in CMa7. This is not a mistake.

This is the preferred way to name and notate chord symbols on professional lead sheets and chord charts, made popular in the LA studios during the time of the Wrecking Crew all the way through Quincy, David Foster, Michael Omartian, Larry Muhoberac, and others. When written by hand there can be some confusion about "is that a little m or a big M?" But if you consistently use **Ma** for major and **mi** for minor, there is no confusion. Another confusing symbol is the use of a triangle for Major 7 and the use of a small circle "o" for fully diminished. But there isn't any confusion about **mi** and **Ma**. They can only mean one thing. Some copyists also like to distinguish the dominant 7th chord with a written out "dom" as in C dom7. The problem with this combination of letters is that some chart readers will confuse this with the first letters of the word "diminished" even though "dim" and "dom" are different letters. Too bad not many musicians have won spelling bees. Some notation rules:

- The use of **dom** is not preferred (don't use it), but
- The **Ma** for Major and the **mi** for minor are good (use them).
- Avoid the small circle for fully diminished and use dim as in **C dim7.**
- Some copyists (European style) use the so-called "French 7" to mean Major 7. A "French 7" is a seven with a small line across the downward vertical slanted stroke of the figure. This is the ultimate stupidity. Who the hell even knows that rule? And why risk it?
- Use **CMa7** and no one will ever ask what that means, whether they studied music in France, Italy, the US or Papeete..

Arpeggio studies

We should probably talk about arpeggios at this point in the book. Arpeggios are a great way to incorporate nothing but chord tones into your single line playing. Although by themselves they can sound very dry and almost boring after a bit, they are a great way to study and learn to play though changing chord structures underneath. Your playing goal is to be able to play arpeggios for all the major, minor, dominant 7th, and minor 7b5 chords you would encounter in the major diatonic scales. Once you reach that goal, you can expand it from there to include 9th, 11th, 13th, and altered dominant chords. But as always, I like to start with a small bite sized chunk and scale things up from there.

Start by learning a C7 arpeggio in 2 locations, starting on the bottom string C at the 8th fret, and starting on the 5th string C at the 3rd fret. Just those 2 should be fine for starters. Again, the goal is to get something that you can play right now under your fingers so you can start to work it into your playing. Completeness and thorough coverage of the fingerboard will come with time and necessity.

Once you have the 2 C7 arpeggios under your fingers and in your ears, alter the notes required in order to grab the other qualities of chords to cover major 7th, minor 7th, and minor 7b5. Do this before going on to other positions or even changing the root note from C. So before you go to other keys or other positions, you should have mastered 2 arpeggio fingerings for each of the 4 common quality chords, one with the root on the bottom string and one with the root on the 5th string.

******* SECTION ABOVE NEEDS COMPLETING *******

Even more chords

These 20 foundational C7 voicings and their derived Major 7, minor 7, and minor 7b5 counterparts are an incredibly complete system of **basic** chords on guitar. You heard right. **This is a basic system.** It's a system designed to be thorough and complete enough to give you something musically correct to play in just about any situation no matter what the style, the chord, the rhythm, the feel, the guitar, the amp, etc. And you can, with a little study and practice, hold all this information in your head and channel it out of your hands when you want. But no chord "system" can really be completed, ever, and this one is no different.

The guitar has a finite collection of note locations, but within that finite system of notes, strings, and frets, you can always find one more voicing. Even if it's just adding the next extension tone to the chord. Examples:

- Instead of minor 7, play the minor 9 chord
- Instead of Major 7, play the major 6th chord
- Instead of adding a chord tone, leave one out
- Instead of Major 7 and minor 7 voicings, make them all triads
- Play Root, 3rd, 7th, leaving out the 5ths
- Leave out the Root and 5th, play 3rds and 7ths for a really minimal approach (think Freddy Green).
- Forget about the 3rds and 7ths and just go for the open 5ths (Root - 5th)
- Invert the above power chord and play double stops with 4ths - Smoke on the Water anyone?
- Take 2 of these adjacent inversions, play the Root and 7th from the lower voicing and the 3rd and 5th from the next voicing up the neck for a really "spread out" sound (this might require both hands "tapping" the notes)

One of Ted Greene's "tricks" in his (quite large) bag when he played live was to play a relatively closely voiced chord (like any one of these voicings) except he would tap the chord on the fingerboard using the first 2 fingers of both hands. Then he would simultaneously slide the notes he was playing with the left hand fingers down to a lower voicing while he slid the right hand fingers up to a higher inversion. The sound of the chord literally expanding outwards up and down at the same time was amazing. Watching him casually do it without apparent effort was humbling.

Section will have more added here to additional voicings -- to be added...

Jazz(y) Chord primer - color tones (where do all those weird jazz chords come from?)
The “colorful” notes in a “jazzy” sounding dominant chord come primarily from altering the 5th and 9th tones of the scale. Ignore the altered 11ths and 13ths for now. We’ll come back to them later.

> *When we refer to the “scale”, we are always talking about the Major scale, regardless of the quality of the chord (major, minor, dominant, diminished, half-diminished, or whatever). For example, if we say a C minor 7th chord is spelled C, Eb, G, Bb, this would be written as a numbered formula as 1, b3, 5, b7. So, even though the C minor scale would already have an Eb and a Bb in it, we still say that the formula for the chord is 1, b3, 5, b7 because compared to the C Major scale, the 3rd and 7th notes are lowered 1 half step. This naming and spelling paradigm is widely accepted and used. So, no matter what the quality of the immediate chord we are talking about,* ***the numbers ALWAYS relate to the Major scale from that root****.*

Easy manipulation of the 5th and 9th in dominant 7th chords and how to easily and systematically remember all those damn chords. Here’s a cool trick:

- When Root is located on **6th** string
- **9th** is manipulated on the **1st** string
- **5th** is manipulated on the **2nd** string

				b5	
R		b7	3	5	
				#5	b9
					9
					#9

- When Root is located on **5th** string
- **5th** is manipulated on the **1st** string
- **9th** is manipulated on the **2nd** string

				b9	b5
	R			9	5
				#9	#5
					13

- #5 is same as b13 and b5 is same as #11

Organizing your altered dominants this way takes advantage of some basic facts. Most guitarists have learned some system of bar chords early in their study. They know the notes on the 6th and 5th strings pretty well. The positions of the 5ths and 9ths on strings 1 and 2 trade places as the root of the chord moves from string 6 to string 5, and vice versa. In many musical situations, altered dominant chords can be freely substituted. In other words, you come across a chart that calls for C7#9. You can play the C7#9, or maybe a C7b9. Or, what I like to do, is play a fragment of a chord melody with a voice leading melody line on that altered 9th. Play C7#9 - C9 - C7b9. The listener's ear will focus in on the moving #9 - 9 - b9 chromatic movement that becomes a counter melody to whatever else is going on. Of course, you have to be careful when doing this to not step on the vocal (or other) melody that is going on and only if the chords work in context, but this concept of the altered notes in dominant chords is a great place to work on this.

Enharmonic equivalents

There are several enharmonic equivalents in the altered 5th and 9th tones added to these altered dominant chords.

- **#11** is the same pitch as **b5 (note that b11 is not a thing because the b11 is enharmonic to the 3rd)**
- **b13** is the same pitch as **#5 (note that #13 is not a thing because the #13 is enharmonic to the b7)**
- Also for completeness, although obviously these notes are not altered tones:
    - 11th is the same as the 4th
    - 13th is the same as the 6th

Some combinations of these altered dominant tones in combination with other tones left out of the voicing make the sound of the chord (as it stands alone out of context) ambiguous. For example, if you play C E G Bb D F A (on a piano, because I don't think you can do that on a guitar unless you have fingers like you're from Area 51) you have a dominant 13th chord (including the minor 9th from E to F that I told you not to play). Now if you leave out that 3rd (E), put in a sharp 9 (D#), you have C G Bb D# F A. Since D# is the same as Eb, and you could choose only to play C Eb Bb F A, does this chord sound major or minor to you? There is no E but there is an Eb. The answer is that chords have a sound quality in isolation, and they might take on other sound qualities in different contexts. This chord gets its context from the key center of F major, like all the C dominant chords we look at in this system. It is functioning as the V chord in the key of F and that is (usually) its context.

‘Pat Martino Chords’ (how to derive lots of chords from a single diminished 7th chord)
This chord mini-system is really an idea that I learned from the great jazz guitarist Pat Martino. Probably my favorite bebop artist of all time. I’ve never met Pat. He explained this system in an article I read about him in Guitar Player magazine sometime in the 1970s when I first started to play guitar. I remember at the time, thinking that this was the most brilliant thing I had ever heard of, and at the time, I had never heard of him. But this sounded like such a great idea, it made me want to listen to him and I went on to become a huge Pat Martino fan and he is one of my all time favorite jazz soloists. He’s got chops for days and an unbelievable continuity of line in his improv soloing, and I repeat his system of deriving dominant chords from diminished chord voicings here.

This system is one that has far reaching impact on your playing, including single line soloing, improv over jazz chord changes, as well as dominant chord voicings for jazz and pop tunes.

The theory behind it

Each dominant 7th chord is spelled 1 - 3 - 5 - b7. I think we’ve established this pretty well by now. A fully diminished 7th chord could be spelled 1 - b3 - b5 - bb7 (that’s a double flat 7th tone) or 1 - b3 - b5 - 6 (6 is the same as bb7). Another maybe more effective way to look at it is a dim 7 chord is made up of 3 consecutive minor 3rd intervals. And the interval from the top note in the chord, the bb7 back to the root again 1 octave higher, is ALSO a minor 3rd. This means that the interval structure of the chord is perfectly symmetrical. Every interval is the same as every other interval in the chord. Let’s consider the key of C for a minute and consider the chords:

G B D F - a regular dominant 7th chord in the key of C
B D F - drop the root G and you’re left with a B dim triad (2 consecutive minor 3rds)
B D F Ab - take the previous B dim triad and add another minor 3rd on top.

Now this last chord example (B D F Ab) is a B dim7. Here’s the critical step: **we can look at this B dim7 chord as an incomplete G7b9 chord**, or a G7b9 chord without the root in the chord. This is okay that there is no G in the chord because the bass player is going to play G, and maybe the keyboard player will play a pair of octave G’s too, so why should you jump on the bus and then you all sound dumb? You don’t need to repeat the G. Be your own fish and swim out of the school. Now, mentally, you can play a B dim7 in place of the G7b9, but wait! B dim7 is the same chord as the dim7 chord with any of the 4 notes in a B dim7 chord functioning as the root.

Let me say that again.

B dim7 is spelled B D F Ab, so B dim7, D dim7, F dim7, and Ab dim7 are all enharmonic equivalents - **They are all the same exact chord**, and they all substitute in place of the G7b9. Personally, since I am probably going to use an 8 note dominant scale to solo over this chord, I

am already looking at my guitar fingerboard in terms of locating the **G's** and **Ab's** (up one fret). G is the root of the chord (the root that I am not playing) and Ab is the location of the 8 note dominant scale and also my visual anchor for the fully diminished 7th chord that I could play in order to solo over the G7b9.

Note that I wouldn't bother to think of all this stuff when I use this concept. I simply look at the root of the dominant chord, let's say it's a **Bb7b9**. I look at the note Bb and think about my scales and chord shapes from the "starting point" of B natural, because B is 1 half step higher than Bb. Now I am just all ears and fingers, operating from the "anchor location" of B.

> *I am purposely NOT using the word Root here. I am using the term "anchor location" so that you do not confuse the location which is currently **B** with a key or tonal center, because **B** is NOT the key or tonal center of what is going on here. The key would actually be **Eb** and the root of the dominant chord would be **Bb,** so you can see that **B** has no musical relevance to either of those, but **B** serves as a fast visual anchor that I can use to orient the locations on my fingerboard where I would find the scales and chords that I can select tones from for this situation.*

Now here's the cool part for guitarists. If you take that Bdim7 chord and move it up 3 frets (a minor 3rd or 3 half-steps) all the notes in the original voicing will move up a minor 3rd to the next chord tone in the chord, and you have the same chord shape, but you now are producing systematic inversions of the original Bdim7 chord, just by sliding it up 3 frets. You can do this again, and again, and again, and then you are back on the same voicing you started with. The guitar has 12 frets and then repeats, so you will produce 4 different voicings by sliding the chord shape up 3 frets a total of 4 times.

So, not only do you practically instantly know tons of voicings of altered dominant chords, but you can also solo over them using a very cool sounding scale, the 8 note dominant scale, all over the fingerboard, with very little effort at learning chord or scale shapes.

Now, next up is an even cooler thing you can do using diminished chords on guitar.

All a diminished chord wants to do is swim, eat, and make little chords

No, wait, that's what Richard Dreyfuss said about sharks in the movie Jaws. Well, no matter, because it applies to dim7 chords as well.

And even more impressive, at each location, if you take any single tone in that dim7 chord and lower that tone 1 fret, you will produce a dominant 7th chord with that note (the one you just lowered 1 fret) as the root of the dominant 7th chord. Remember the original G that was dropped from the G B D F? Well, now it just came back as the root of a 7th chord! We went from a fully diminished chord spelled Ab B D F, lowered the Ab to G and now we have G B D F (a G7 chord if I ever saw one).

So for the chord B D F Ab, here are the 4 dominant 7th chords that would be produced from lowering any tone in the chord by 1 fret:

B D F Ab → B D F G (lowered Ab to G makes a G7 chord)
B D F Ab → B D E Ab (lowered F to E makes an E7 chord - Ab is same as G#)
B D F Ab → B Db F Ab (lowered D to Db makes an Db7 chord - B is same as Cb)
B D F Ab → Bb D F Ab (lowered B to Bb makes a Bb7 chord)

Let's see what these chords would look like on the guitar fingerboard on the top 4 strings

- **3 - 5 - b7 - R (lower the Ab to a G for a G7)**
  - B D F Ab → B D F G (lowered Ab to G makes a G7 chord, x is original note)

x	x				
		1		1	1
			3		x

- **3 - b7 - R - 5**
  - B D F Ab → B Db F Ab (lowered D to Db makes a Db7 chord - B is same as Cb)

x	x				
				1	
		2		x	
			3		4

- **3 - R - 5 - b7**
  - B D F Ab → Bb D F Ab (lowered B to Bb makes a Bb7 chord)

x	x				
		1	1	1	
					2

        - **R - 5 - b7 - 3**
    - B D F Ab → B D Fb Ab (lowered F to Fb makes an E7 chord - Fb is same as E)
    - Re-spell (B D Fb Ab) as E G# B D

x	x				
		1			
				2	
			3		4

Of course, you already knew all the dominant 7th voicings that resulted from this exercise, because those are the dominant 7th voicings you learned on the top 4 strings at the beginning of this book.

Now since these voicings cover 4 of the chromatic roots possible for dominant 7th chords, that means that the other 8 possible chromatic roots are available by moving the original dim7 chord up 1 fret (an additional 4 dominant 7th chords) and then another fret (for the final 4 dominant 7th chords). By sliding the original chord up a third time, you will arrive at the next inversion of the original dim7 chord, and you can start over with the same 4 dominant 7th chords (E7, Bb7, Db7, G7)

Another way to practice this concept is that given a diminished chord shape, you can lower any note in the chord 1 fret to produce 4 dominant 7th chords, then do the same thing 1 fret higher and 1 fret higher and you will have played all 12 chromatic dominant 7th chords.

Augmented chords can be treated similarly

Martino also does the same or similar thing with the pure augmented triads. Beginning with a C aug triad (C, E, G#). The augmented triad is two major thirds stacked, and if you attempted to add a 4th tone to the triad, you can't, because if you move in major thirds from C to E to G# then the next note is another C (the octave). So lowering the C one half step (1 fret) to B and the chord becomes E Ma triad (E, G#, B).

Scale ideas for improv

Thinking and working with diminished 7th chords is critical to a modern jazz improv sound because the modern sound of the **8 note dominant** scale (half-step/whole-step) scale for single line soloing. The half-step whole step scale is the same as a diminished scale except that it starts with a half-step instead of a whole-step as its first interval.

- **8 note dominant (half step/whole step) scale**
  - This scale is an alternating series of half-step/whole-step, repeat.
  - First we look at some easy to learn fingering patterns on the fingerboard
  - We will analyze what scale tones this scale provides against the chords when we choose to use it (Roots marked with **R**)

1**R**		1	1	1	1**R**
1	1		2		2
	2	3**R**		3	
3		4	4	4	4
4	4				

  - Here is a very useful way to play this scale selection over an extended range on the instrument (Roots marked with **R**)

1**R**					
1	1				
	1	1**R**			
3		1	1		
4	3		1		
	4	3		1**R**	
		4	3	1	1
			4		1
				3	
				4	3
					4

You can really go crazy with possibilities on this scale. Please don't get lost...

Random musings of a former student of music theory
Someone once said that the legendary bassist Jaco Pastorius had a “Bag of Tricks” and that all his musical ideas came out of that bag and once he had exhausted those ideas, his playing would become bland to the listener. Then the guy behind that guy in line (outside the club where we were waiting to get in to see Jaco) said, “Yeah maybe, but it’s a really big fucking bag”. That’s kind of how I feel about the next ideas I want to share, sometimes.

These following techniques could just be considered a bunch of tricks in a fairly big bag of tricks that I have accumulated over the years. Like it or not, if you use them sparingly, and make sure each one has impact when you do, and don’t overuse any one of them, they can have a dramatic impact on your playing.

These are some random musings that I want to include in the book but they really don’t fit anywhere else, except in the bag with all the other trick ideas.

Bag of Tricks
Idea #1 - This idea comes from the Dick Grove Music Workshops, a legendary little music school that used to be across Ventura Blvd. from the Sportsman’s Lodge in Studio City. I took some small group arranging and theory classes there in the 1976-77 timeframe. My instructors were Dick Fritz, Marc Silver, and Dick Grove himself. The Workshops were a favorite hang for LA studio players from the Valley and the learning environment there was amazing.

The idea is that with dominant chords, when you start to add extensions to the chord (extensions are thirds added beyond the 7th, such as 9-11-13) there is a particular dissonance of a minor 9th found between the 3rd and the natural 11th of the chord that is to be avoided at all costs. In a C7 chord, C E G Bb, and add D F A (9-11-13) the minor 9th is between the E and the F (3-11). If you don’t believe me, try playing this interval on piano or guitar and then use that interval to play Mary Had a Little Lamb, and you’ll see what I mean. It will be the most disturbing sounding Mary Had a Little Lamb you’ll ever want to hear. Great for Halloween, but no place else. So, out of this “problem”, came the solution of leaving out the 3rd.

And since we’re leaving out the 3rd, who needs the 5th? As I’ve previously shown, the 5th doesn’t really bring anything to the party as far as defining a key. In fact, the argument could be made that the 5th is the most ambiguous note in the scale. The 2 notes taken as a pair, C and G, can be a part of over a dozen chords in several different keys. How do you think power chords got so popular? So leave the 5th out as well. So what you end up with is the structure of a major triad built on the note a whole step down from the root, Bb D F over a C in the bass. These pitches would represent R-b7-9-11.

Examples:
- C11 becomes Bb/C - functions as V in the key of F
- G11 becomes F/G - functions as V in the key of C
- D11 becomes C/D - functions as V in the key of G

Okay, those are extremely useful and common, they should sound very familiar as very “sussy” sounding dominant chords in all kinds of popular music styles. In fact it *is* kind of a super suss chord, the triad is the IV chord over the V bass note.

For the full 13th chords this would translate to:

- C13 becomes voiced as BbMa7/C
- G13 becomes voiced as FMa7/G

Not as commonly heard though still nice and interesting. But the 13th is most commonly voiced on guitar as R-b7-3-13 or R-3-b7-9-13 (notice that the original problem of the minor 9th interval between the 3rd and 11th is gone because the chord has no 11th). So, another way to put this idea is: DON’T PLAY A MINOR 9TH! Leave one of the 2 offending pitches out of the chord.

I think one of the coolest things to do with 13 chords is to ignore everything in the first octave (R-3-5-b7) and just play the upper extensions (9-11-13) thinking of them as a minor triad 1 step up from the root of the dominant chord. So in theory a C13 can be broken down into a C7 chord with a Dmi triad superimposed an octave up, but you play it like a Dmi triad over a C (single note) in the bass.

Your “go to” 11th and 13th chords

This makes the go to 11th and 13th voicings easy mentally. The 11th voicing is a major triad 1 step **lower** than the root note: Bb over C in the bass, notated Bb/C and the 13th voicing is a minor triad 1 step **higher** than the root note: Dmi over C in the bass, notated Dmi/C.

When split between instruments, the minor 9th interval of E to F gets washed out quite a bit, and maybe it won’t bother anyone, but you can tell the keyboard player what you’re doing and ask him not to play the E, especially when recording.

This can actually be a good audition test for a keyboard player. If he’s that good, he’ll hear what you are doing and either he’ll back off of it or make a weird face implying that *you* should back off of it. Either way, at least you know he’s hearing it. This kind of thing should have made it into the movie “Whiplash”, instead of the preposterous “There’s a bone that’s out of tune.”

Single line Improvisation idea
Superimposed pentatonic scales to imply Dorian, Phrygian, and Aeolian modes.
This is a really cool technique that comes directly from the so-called modal period of Miles and other vanguard jazz artists. As an example, say you are soloing over some progression where you can use the A dorian mode. This technique works best over a static modal harmony, and is effective at building tension away from the basic modality and then resolving back to it.

A Dorian -> Ami pentatonic
A dorian is related to G major. If you harmonized a G major scale in thirds to form 7th chords, you would derive 3 minor 7th chords on Ami7, Bmi7, and Emi7, or scale steps ii, iii, and vi.

Think about a scale as simply a collection of tones for a moment. Now take note that the A minor pentatonic scale is a subset of A dorian. Study the minor pentatonic in 5th position and compare the notes to an A dorian scale pattern in 5th position:

A Dorian: A B C D E F# G A
Ami pentatonic: A x C D E x G A

SO ON YOUR FINGERBOARD 1st finger at fret 5 (A DORIAN - A MINOR PENTATONIC)

- We will analyze what scale tones this scale provides against the chords when we choose to use it (Roots marked with **R,** eliminated notes marked with x)

		x	x		
1**R**	1	1	1	1	1**R**
x	3	**3R**	3	x	x
4				4	4

B Phrygian -> Bmi pentatonic
Remaining in the relative key of G major, the B minor pentatonic scale is a subset of B phrygian mode. Study the Bmi pentatonic in 7th position and compare the notes to B Phrygian scale pattern in 7th position:

SO ON YOUR FINGERBOARD 1st finger at fret 7 (B PHRYGIAN - B MINOR PENTATONIC)

- We will analyze what scale tones this scale provides against the chords when we choose to use it (Roots marked with **R,** eliminated notes marked with x)

1**R**	1	1	1	1	1**R**
x				x	x

	3	**3R**	3		
4	x	x		4	4

E Aeolian -> Emi pentatonic

Remaining in the relative key of G major, the E minor pentatonic scale is a subset of E Aeolian mode (pure minor scale). Study the Emi pentatonic in 12th position (or open position - a little harder to see) and compare the notes to the E Aeolian scale pattern in 12th position:

SCALE DIAGRAMS GO HERE (E AEOLIAN - E MINOR PENTATONIC)

- We will analyze what scale tones this scale provides against the chords when we choose to use it (Roots marked with **R,** eliminated notes marked with x)

			x		
1**R**	1	1	1	1	1**R**
				x	
x	3	**3R**	3		x
4	x			4	4

So it should be clear that there are no “wrong” notes in any of these 3 minor pentatonic scales. They all fall within the tone selection available in a G major scale. The advantage of focusing on each subset of notes is that you will emphasize ***that*** tonality over the static A dorian sound. This is a polytonal technique, because you will be superimposing a B minor sound over an A minor sound or an E minor sound over the A minor sound. Very cool.

I prefer the sound of the Bmi over the A dorian sound. It comes off sounding very urban, kind of like Carlos Santana meets Mike Stern. The licks and phrasing will be very fluid and bluesy because they are already in your hands from all the pentatonic shit you’ve been playing all your life, but the notes sound fresh. Enjoy it, and you’re welcome. Larry Carlton also did his fair share of this on his “Live from the Baked Potato” and “Sleepwalk” recordings from that period: Last Night, 10PM, So What, and All Blues.

Side-slipping

Another cool technique that is extremely easy to add to your improvisational skill is side-slipping. Side-slipping is a technique used by many jazz players, but probably most notably used by John Coltrane in his famous “sheets of sound” modal period (this is the “Impressions” period just after Giant Steps). Pat Martino also uses this to great effect on

“Consciousness”. Many post-modern hard bop players have a distinctive “modal” period in their catalog of output.

This leads naturally to the next section on Quartal harmony (chord structures built on stacked 4ths in place of 3rds). The superimposed pentatonic scales lend themselves to all kinds of motivic development (licks!) based on the plentiful fourth intervals that are right there under your fingers.

Toward the future - Quartal harmony - or, how to sound like Miles Davis or Pat Metheny
Improvising using chords instead of single notes. Taking 4th harmonies built in descending 4ths down from the scale tone of a minor pentatonic scale.

Most guitar players can play and hear a minor pentatonic scale while sleeping. Practice playing one on the second string in the key of C minor. C - Eb - F - G - Bb - C (all on the second string).

Now go back to each pitch and build a chord under each of the notes using fourths instead of thirds. Here are the stacks of 4ths you should come up with:

String						
#2:	C	Eb	F	G	Bb	C
#3:	G	Bb	C	D	F	G
#4:	D	F	G	A	C	D
#5:	A	C	D	E	G	A

Once you are comfortable playing those voicings up and down the neck, add the following passing chords before them: take the notes on strings 3-4-5 and play the note 1 fret higher, then resolve back down to the original 4th structured chord.

So, for example, for the first chord, you would play:

	Passing chord ->	Resolving to:	
#2:	C	C	(the top voice C is like a reverse pedal tone)
#3:	Ab	G	
#4:	Eb	D	
#5:	Bb	A	

For the passing chord, you can simply bar the first fret, then resolve the chord by fretting the C on string 2 and playing open 3-4-5 strings. This same pattern can be repeated all the way up the pentatonic scale. It's easy to play and all the chords have various colors against the overall tonality of C minor pentatonic. Miles, Coltrane, Pat Martino, and others have recorded entire albums based on this harmonic structure. It is a really hip sounding thing to play against any modal jazz or modern minor modal tonality when "vamping" or soloing. It works great on tunes like ***All Blues, So What, I'm Buzzed (Landau), My Favorite Things (Coltrane), Consciousness, Impressions, etc.*** Many of Robben Ford's tunes from his Yellow Jackets "fusion" period are based on similar harmonic structures. Larry Carlton's Last Night and 10PM are more examples.

You can also work out similar fingerings on the top 4 strings that sound brighter and give you the ability to play melodies using the quartal structure technique under the melody.

Use this chord approach in combination with side-slipping, and you'll be amazed at how "sophisticated" your jazz playing sounds with the addition of 2 simple techniques.

Improv using octave and 3rd, and octave and 6th - Sound like Wes or George Benson
This is a very sophisticated sound that instantly gives the impression that you are harmonizing your single line solos with entire chords, yet it is really no more difficult than playing a major scale in 3rds or 6ths.

Although the quartal harmonic concept is tailor made for guitar due to the standard tuning, this technique is similarly easy to get under your fingers, because of the idiomatic way guitar players have learned to play thirds and sixths in many other styles.

Begin by playing a major scale in 6th using strings 2 and 4, like this:

String #2:	C	D	E	F	G	A	B	C
String #4 :	E	F	G	A	B	C	D	E

Now go up to fret 5, playing 3rds on strings 2 and 3:

String #2:	E	F	G	A	B	C	D	E
String #3:	C	D	E	F	G	A	B	C

Get very used to the fingerings of these two before continuing. Now you will simply add octaves to the top notes, 1 octave lower:

String #2:	C	D	E	F	G	A	B	C
String #4 :	E	F	G	A	B	C	D	E
String #5:	C	D	E	F	G	A	B	C

These fingerings are a little tricky, but work on using the first finger to bar strings 2-3-4, allowing strings 2 and 4 to sound while muting string 3 by “lifting up” slightly on the middle of the bar, allowing the fleshy part of the first finger to mute.

and

String #2:	E	F	G	A	B	C	D	E
String #3:	C	D	E	F	G	A	B	C
String #5:	E	F	G	A	B	C	D	E

The fingering of this one is more straightforward, simply finger the low note with the third finger, muting the 4th string. Played fluently and with some style and swing, these 3rds and 6ths can sound like you are playing the whole chord. Listen to Wes, George Benson, and Lee Ritenour’s jazzier stuff. They are all masters of this technique. There will be a fair amount of string mute noise in this and that is a part of the style and sound, similar to the way jazz melodies are played using octaves on guitar.

Scores of country players use this idea too (listen to Brent Mason)

DADGAD

The very words strike fear and dread into most guitarists' hearts and make fingers tremble! No need. DADGAD, and other altered tunings are really just a time honored tradition of taking advantage of the fact that we play a stringed instrument that can be tuned so that we have available to us certain dominant (as in dominating, not necessarily the 5th of the key center) pitches that we can use to easily embellish the ever changing stopped notes of a particular piece of music while freeing up our limited number of fingers (usually 4 but go talk to Django about that) and thumb for other things.

Many guitarists over the years have made great use of altered (and standard for that matter) tunings to provide pedal tones and unusual or nearly unique chord voicings that otherwise would be difficult or even impossible on the fingerboard. Jimmy Page, Keith Richard, Ralph Towner, and many slide players, have used this area to extreme creativity, so my coverage is only going to focus on a few things.

If you are looking for a place to start, specifically with DADGAD, I recommend Page's Kashmir or Black Mountain Side. There are many others that use DADGAD.

Another thing I like to do once I've learned to play a tune composed and recorded originally with DADGAD is to take it back to a standard tuned guitar and see how much of it I can still play. This is a great way to test yourself on knowledge of the fingerboard, and surprisingly, most DADGAD tunes are usually still pretty play-able in standard tuning without leaving out too many notes and the practice gives the advantages of 1 - being able to play it in a band at a gig where you have one guitar w/o retuning, and 2 - being able to transpose for the singer (who may not have the range of the original vocalist).

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Musical example
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Kashmir, by Led Zeppelin

As a case study, I'll use Kashmir, recorded, performed live, and obviously composed using one of Jimmy's favorite tunings, the DADGAD Celtic tuning. First, some mechanics: The notes DADGAD are written *low string to *high string, meaning that strings 5-4-3 are tuned to ADG, or the same notes they are tuned to in standard tuning. So, the low 6th string and top 1st string E's are tuned down a whole step to D, and string 2 is lowered from B to A - just to be clear.

This means that any riff, chord, double stop, or single notes, etc., that fall on strings 5-4-3 are exactly the same in either tuning. Analyzing the open DADGAD tuning a bit will also reveal that you are never far away from some notes that will imply G, D, and/or A chords/tonality fairly easily. D and G both have their roots and 5ths available as open strings and A has some great drone possibilities with open 2 and open 5 on the A root. …and these 3 key centers are all next door neighbors on the circle of 4ths, circle of 5ths wheel.

In addition, since neither G nor D (or A for that matter) has its major or minor third available as open string (no B's, F#'s, or C#'s), the whole instrument takes on a very drone-like, open 5th, mood, somewhat ambiguous between major and minor. Finally, when considered from D as the root, G is the sus4, and when considered from G as the root, A is the add9 or sus2. When considering A as a root, D's are sus4, Both of these sounds add to the rich harmonic tonality while still leaving out a defining "by the book" tritone resolution that would nail down a definitive authentic (V-I) or even plagal (IV-I) cadence in either key.

The DADGAD tuning is often credited as being Celtic in nature, owing its history to Celtic music, and having said that, I must confess that other than some recent pop-culture renditions of performances using large orchestras and dancers/singers I have no authentic knowledge in this area and can't really say one way or the other, but, hey, that's what the Internet is for!

What I can tell you for sure is that, 1 - Jimmy Page is British, 2 - he used DADGAD for several compositions over the years, 3 - Page has traveled to Wales, and 4 - he at one time owned a rather infamous house on the shores of Loch Ness in Scotland which had previously belonged to a self-professed Satanist. Put this all together and you have… not sure. But Kashmir is a great tune and it uses DADGAD, so let's get started!

There are 5 sections of guitar parts to learn for the tune. They all involve open strings altered from standard tunings by DADGAD to play them as played on the original studio recording or one of the many live performances you may find of Page performing the tune. Originally released on Physical Graffiti in 1975, Page played the song using his Black and White Dan Electro (a cheapo guitar copied and sold by Sears-Roebuck in the 1970's). Dan Electros had highly sought after lipstick pickups and a fairly cheap and flimsy bridge arrangement that was held in place on the top of the guitar only by the string tension. This is normal for instruments like violins, banjos and jazz hollow bodies, but rather unusual for an electric solid body guitar however it definitely contributed to the drony, almost sitar-like electric sound of the Dan Electro. I've noticed in more recent videos, Jimmy (who is famous for keeping all his gear from over the years) has replaced the bridge with a popular aftermarket Bad-Ass Bridge. The Bad-Ass is a hefty piece of metal, mounts solidly on studs like a Gibson stop tailpiece and allows for wide intonation correction. Most recently, when performing Kashmir, Jimmy has ditched the Dan Electro altogether and uses a burgundy top Les Paul Deluxe with a B-bender which he uses on the tune (and other DADGAD tunes). His tone definitely has moved more towards the overdriven Les Paul through a Marshall (and Orange amps) on this tune and away

from the original Indian flavored sitar sound. (The burgundy Deluxe has had the stock mini-humbuckers replaced with full size humbuckers like Page's vintage Pauls).

The verse (main chromatic riff):

This riff uses the open D 6th string as a pedal tone and the moving chords are entirely played using strings 5-4-3. This is a good example of a part of the tune that can be played using standard tuning in a band. Just make the bass player aware that you can't provide the low D pedal (he will usually be happy to hear this and provide more than enough octave D on the bottom).

Anyhow, the main chromatic riff uses stopped notes on strings 5 and 3 and the semi-open/muted D on the 4th string for all chords. the 5th string stays on D at the 5th fret while the chromatic part starts on A (string3, fret 2) and moves up 1 fret at a time until it reaches the C on fret 5, then it skips C# and goes to D on fret 7 for the "top" of the riff before starting over at the bottom on A (fret 2) again. Try it, you'll hear it. Here are the notes of each chord:

5-4-3
====
D-D-A (replace with graphic img)
D-D-A#
D-D-B
D-D-C
D-D-D

The rhythm of the tune is 6/8 against 4/4 in the drums which is so cool, but makes explaining the chord changes harder, since they aren't all in equal harmonic rhythm. For example, when the top D-D-D is reached, it only stays there for half the bar, then drops back to the starting point of D-D-A to complete that measure. Again, listen and you'll hear it. Hard to explain, easy to hear. Finally, at the end of every other bar, there is an open D 6th string pedal tone as a pick-up note for the next chord.

The "cello fill" riff (turnaround in between verse riffs):

Page was a master of building intensity in his tunes, with a real sense of the dramatic. Always a part of his style he began long before Kashmir, on the first album with Dazed and Confused and Babe I'm Gonna Leave You. This was the natural progressive next step of a movement going on in rock music at the time called the "Rave Up", which referred to an extended instrumental section placed in the middle of a song that featured long self-indulgent solos from various "star" instrumentalists, whether they be lead guitar, drums, or vocals, etc. Page came to Zep directly from his time in the Yardbirds, a British band that popularized this kind of instrumental showcase, beginning with Eric Clapton and then transitioning to Jeff Beck and

finally, Jimmy. It was something that English rock musicians prided themselves on as a kind of separator distinguishing them and their music from the pop stars such as the Beatles and Stones that had made such a huge impact on the global music scene. Interestingly, the English bands looked to an American band, The Byrds, with a kind of mild envy that they wanted to emulate in terms of non-commercialism, extended instrumental showcasing, and a focus on the counter-culture in terms of dress and personal appearance (hairstyles and facial hair, etc.). John Lennon and Keith Richard both expressed direct envy of the American bands and their "prickly" relationships that they had with their record labels that were attempting to monetize on things that were going on in San Francisco, Berkeley, and other centers of the counter culture such as Los Angeles' Laurel Canyon scene, Malibu Canyon, etc.

This riff is also a layered part, in the studio mix it is hard to discern any guitar playing this part at all, with the dominant instruments being cello and keyboards, but YouTube videos document Page playing this riff occasionally as well. It has a very middle-eastern flavor to it, although it only uses 4 stopped pitches (all on the 5th string) along with the open 6th string D and open 4th string D accompanying most of the counterpoint melody. Here it is, played on strings 6-5-4:

6-5-4
====
D-A-D
D-G#-D
D-A-D
D-B-D
D-A-D
D-G#-D
D-A-D
D-F#-D
Where the final D-F#-D becomes the first part of the next appearance of the main riff.

The "cascading descending" progression release:

This iconic section of the tune, more than any other, takes full advantage of the idiomatic use of the DADGAD tuning in the song. Beginning at fret 12, Page stops the notes on strings 1 and 3, letting strings 2 and 4 (and even occasionally string 5) ring open throughout the descending progression. The mood of this progression has the unmistakable signature of the "light/heavy" blend that Zeppelin did so well in their catalog throughout their careers.
Here:

A-D-G -A-D (replace with graphic img)
A-D-F#-A-D

A-D-F-A-C

A-D-E-A-C

A-D-D -A-A
A-D-C#-A-A

A-D-C-A-G
A-D-B-A-G
A-D-A#-A-F
A-D-A-A-F

This shimmering cascade of semi-chromatic voice leading along with the open strings droning and pedaling the whole time certainly must be considered one of the most beautiful harmonic passages in all of rock music. And because of DADGAD tuning, it is actually simplistic for guitarists to perform. It is a series of chord changes which involve nothing more than replacing one stopped note (3rd string) with the note ½ step lower, then sliding the hand down 2 frets (3 frets in one case) and repeating the pattern at the new location.

There is a turnaround signature riff that is added to the mix, building it up in typical Page style after the first couple times we hear the chords. This riff, played only on the 4th and 5th strings, is again exactly the same in DADGAD as in standard tuning. It ends in an open 5th using open A and E (4th string fret 2). This A-E fifth is actually the downbeat of the next vamp section:

The vamp (the A chord over and over w/ turnaround riff in between):

The open A-E “power fifth” (which Page often plays live by rocking back and forth in typical rock and roll “Chuck Berry” 5th - 6th - 5th fashion) with a turnaround figure of octave E-A-E played on strings 5-4-3 (frets 7 and 9) and then slid back down to the original open 5th A-E. This is all there is to the section.

The out-tro vamp (G - A, happens earlier in the tune also):

Just an epic, dramatic, build to the end of an epic, dramatic masterpiece of harmony. Of course, most musicians (drummers and others) will go on and on about Kashmir in terms of its rhythmic significance, and the time signatures are clever and odd and the “back beat” keeps shifting around and around in various places in the tune, but Page’s harmonic structure is a stunning invention of the human mind. In my opinion, the only thing that comes close to Kashmir in Page’s harmonic catalog is the similarly beautiful open string droning on “The Rain Song” (different tuning however).

As a player, one thing I always tried to do when learning a tune that uses an altered tuning, is to then figure out how to play the song in standard tuning. This is mostly a practical matter - as a player, I rarely had more than just one guitar with me at most of my gigs. So it was

important to be able to play a tune within a few seconds of the title being suggested and no swapping guitars with an alternately tuned one was possible. Of course, a note for note performance is not always going to be possible and various compromises will have to be made in order to approximate the important tonal aspects of the original, but the challenge is great fun and one that also quickly improves your knowledge of the fingerboard in ways you may not have even considered. Those voicings that you will come up with in standard tuning to try to approximate the altered tuning voicings are often very useful in other songs you may be playing currently in your set list.

Gratitudes and Thanks

I have always been blessed to have had access to great teachers in my life. I was born with a father who was a music teacher (and an incredible trumpet player) and a mom who was a school teacher. My many amazing music teachers over the years are all thanked here (the order is more or less chronological):

My dad, Charles Costarella (my very first memories are rolling around on the floor at the base of his music stand while he practiced his trumpet)
My cousin, Ramona Costarella (a 60s hippie-chick and owner of the first guitar I ever touched with my own hands)
Rob Adolph - childhood friend and long-time bandmate and the owner of the first electric I ever played - what a rush it was when I plugged in and hit that Big E chord for the first time.
Dick Bailey - my first official "music store" guitar teacher. Dick took me through MelBay Book 1 and filled me with encouragement.
Danny McKinney - my first guitar teacher who wasn't a guitarist - but he was a bassist and later a Grammy award winning producer.
Peter Zaferes - my second guitar teacher and high school garage band hero - Pete later went on to get a PhD in music education from Cal Arts and plays the lute almost exclusively now.
Marc Silver - my first "LA pro" guitar teacher, from the Dick Grove Music Workshops in the mid-1970s.
Lee Matalon - my first jazz improv teacher who taught me all about the modes and ii-V, ii-V, ii-V…
Joe DiOrio - first "Donte's gigging heavy jazz cat" teacher
Duke Miller - USC faculty 70s and 80s and an LA studio session guitarist in the 40s and 50s
Jimmy Stewart - LA studios, played with Gabor Zabo cohort, my first USC guitar teacher, etc.
Eddie Arkin, USC fac, 79-82, many of the harmonic ideas in this book come from Eddie's class and lessons that I took from him at USC
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Larry Munson, USC fac, 79-82, Paul LaRose, USC fac, 79-82
Thom Rotella, LA Studios, USC Master classes, 79-82,
Mitch Holder, LA Studios, USC Master classes, 79-82
Tim May, LA Studios, USC Master classes, 79-82
Larry Koonse, USC student cohort, class of 79-82, son of legendary bebop artist Dave Koonse
Bruce Bollinger - OC club player, in Boz Scaggs' touring band w/Mike Landau
Matt Henneger - friend and roommate, knucklehead extraordinaire, great guitar player
Carl Verheyen - LA studios, Supertramp, etc., the last teacher I ever took lessons from - until the next one comes along
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Dorris Costarella - my mom, who didn't teach me a thing about music, but she taught me everything else.

And a very special thank you to my ultimately cool big sister, Cindy, who profoundly influenced the music I listened to growing up - IMHO, at least as important as the music I tried to make over the years. Cindy always, somehow, had the coolest new records and bands right there in her room with her record player and stereo waiting for me to give them a spin and listen to the treasures locked inside those vinyl grooves. And, of course, my brother-in-law, Alan Michaels, who is several years older than Cindy and so he had a whole other collection of records to listen to.

These central ideas in this book came from my time studying with Eddie Arkin, Larry Munson, Paul LaRose, and Duke Miller, et al, at the USC school of music from 1979 to 1982 in Los Angeles. Many of these ideas were presented to me in my lessons, as best I can recall, and the impact on my playing was incredible and profound and has lasted a lifetime.

And the best endorsement I can give that this system is great and it works is myself. I am living proof that I kept it all in my head for anywhere from 35 to 50 years - without any notes or books. Even through a period of time when I didn't even touch a guitar or play any music for years. This is the first time I have ever attempted to put it down in "writing" even though I seriously considered writing it down many times. And I don't think I've left anything out.

So that's my story and I'm stickin' to it.

--Chuck Costarella, 2018
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