The Lydian Chromatic Concept

-For Guitar-

-by Pebber Brown

Lydian Chromatic Scale for Guitar

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I would like to give thanks to the individuals who inspired me to undertake this work. Thanks for sharing the ideas and opening the window for me. It has opened up some new musical enthusiasm in my life and I every day I ponder more and more tonal possibilities.

Special thanks go to:

Dr. Reed Gratz – thank you for your infinite patience and wisdom and thank you for creating the course and allowing me to explore this concept in my own way without a fear of a lack of understanding due to academic deadlines. Supreme thanks to the revered Dr. George Russell who came up with and invented this concept.

A very deep thanks to all the great musicians who have embraced the ideas contained within the Lydian Chromatic Concept: McLaughlin, Holdsworth, Jarrett, Coltrane, Miles, Evans, and all the great Lydian aficionados and enthusiasts worldwide.

I would also like to thank my supporters on You Tube and everywhere else out there on the internet and all of the musicians and guitarists who have sent me supportive blogs, videos and supportive email messages. Those really were helpful and inspiring to me so thanks a lot.

Many thanks also to Chris Conway for his "Guiding Light" CD – the Lydian harmonies are absolutely awe inspiring and even angelic.

This book is written primarily for guitarists however I am hopeful that anyone can pick it up and start to work with it. It is not designed in any way to replace George Russell' book as that would be presumptuous and impossible to think of, however it is intended to help the guitarist better understand the concept rather than be put off by its complexities.

My role is that of a gatekeeper for guitarists who would like to explore the Lydian Chromatic Concept but find Russell's book a bit too intimidating and the notion of studying it and interpreting it too daunting a task for mortals. Please pass through my gate – I am here to help all those who have a sincere interest. Thanks to all.

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LCC for Guitar - Foreword

Back in the mid 20th century, jazz musician and composer George Russell came out with his vitally important book "The Lydian Chromatic Concept of Tonal Organization." Its introduction literally set the modern jazz world on its head. It was a totally new concept based in very old ideas which originated as far back as Pythagoras. Many musicians were very intrigued by the Lydian Chromatic Concept and many diligently studied it with devotion and almost all who have learned it's concepts and principles and who have integrated it into their own personal musical concepts and thinking have been able to achieve writing and improvising goals that far surpassed the ideas and imaginations of any musicians that came before them. Almost all of the top jazz players of the latter half of the century have either been overtly or covertly influenced by the ideas and tonalities presented within the Lydian Chromatic Concept. It contains some unusual theoretical ideas that fly in the face of traditional music theory, but as one digests and interprets the concept and begins to explore it for themselves, it makes more and more sense both harmonically and theoretically and logically. After you think about the concepts for a longer period of time, it starts to take on a new meaning and become a new and exiting realm for the exploration of new musical ideas.

There have also been equally as many detractors and debunkers of Russell's theory as there are supporters of it. The internet is full of blogs claiming that it's the most innovative idea that has ever been invented while simultaneously the debunkers argue against its practicality and like to criticize it and toss it aside in favor of their well worn traditional theoretical principles. This it itself always seems to be the case whenever a new advanced idea is presented to the world. Rather than investigate it and explore the possibilities, many are afraid to leave the music theory comfort zone and step "outside the box' and examine Russell's magnificent work, even if only a little. Many of these same debunkers are quick to criticize its usefulness, but at the same time, the Lydian Chromatic Concept is always there waiting for you and it quietly beckons your mind to come closer for another look. Once you start thinking for yourself about it and start working with and exploring it, many other musical ideas begin to start "clicking" and things start making sense and appearing to you. Some of which can become as simple as just an "ah ha!" in your mind with every new understanding. Or you can also experience something along the lines of a deep emotional response and reaction to nothing less than a personal internal musical revelation. One thing is for certain – John Coltrane, Miles Davis, Bill Evans, Jan Garbarek, Herbie Hancock and Keith Jarrett cannot all be wrong. These are only some of the long list of players who have embraced Russell's ideas and who have integrated it into their own writing and playing.

One of the main obstacles to having many more musicians, especially guitarists, learn Russell's theory and develop their own relationship with it is the fact that however brilliant the ideas are, as the original book is written; these ideas can also be confusing and difficult to understand. My only goal here is to help all musicians (mainly guitarists as that is my instrument) understand this concept in a more step-by-step manner and uncover and examine ways to look at it and integrate it into your own musical knowledge.

-Pebber Brown, Feb 2009

LCC for Guitar - Introduction

In order for guitarists to understand the significance of the Lydian Chromatic Concept of Tonal Organization and the concept of Tonal Gravity, one must first look at the nature of string vibration and what happens when a string vibrates. The Lydian Chromatic concept is based in the science of natural acoustics, so it is important to understand exactly what happens acoustically to a note and the harmonic overtones that nature creates.

A guitar string (or any string from any stringed instrument) vibrates when plucked or struck, producing a tone. The vibrating string creates a natural resonant series of vibration patterns which are called Harmonics. When you strike the string by itself, it vibrates back and forth and moves air molecules, producing sound. This is called a FUNDAMENTAL. (See fig 1.01a)

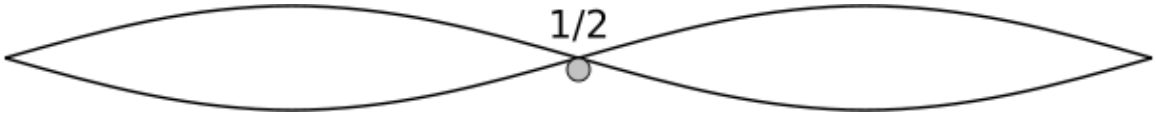
Fig 1.01a – FUNADAMENTAL/OPEN STRING = A 440hz/440cps

The fundamental vibration pattern on a single string. This is the FUNDAMENTAL vibration or tone and can be equated to a fixed amount of vibrations or cycles per second (cps) For example, consider this to be the open 'A' string producing the note A which in turn a universally considered to vibrate at 440cps or the equivalent of 440hz.

If you loosen a guitar string you can visually see the result of the vibrations; the string makes a wide arc near the center and it narrows towards each end.

When you touch the string exactly in the center (exactly between both ends or on the guitar the physical location is at the 12th fret) it divides the vibration exactly in half and produces a note or tone exactly one octave higher in pitch. This is called the first harmonic overtone and the center point of the string where it touches is called a harmonic node. The note produced by the first overtone is exactly double the vibration ratio of 440 so it would be 880 cps (of 880 hz) - (See fig 1.01b)

Fig 1.01b - First OVERTONE , one OCTAVE higher/12 Fret = 880 cps



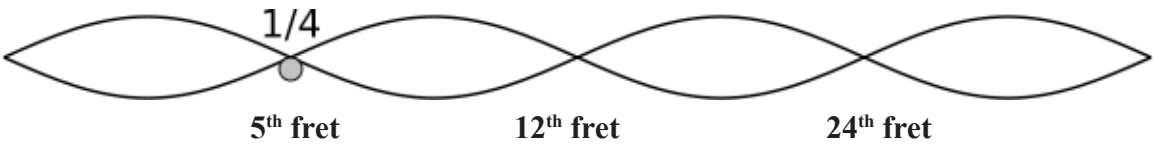
12th Fret

The second overtone produced by a vibrating string is from the harmonic node created at the 7th fret. This produces a note an Octave plus a Fifth interval above the fundamental. This itself is used to establish the strength of the Perfect 5th as the strongest consonant interval. See Fig 1.01c

Fig 1.01c - Second OVERTONE , one OCTAVE PLUS A FIFTH/7th fret = 1320 cps

The third overtone produced by a vibrating string is from the harmonic node created at the 5th fret. This produces a note an TWO OCTAVES above the fundamental. See Fig 1.01d

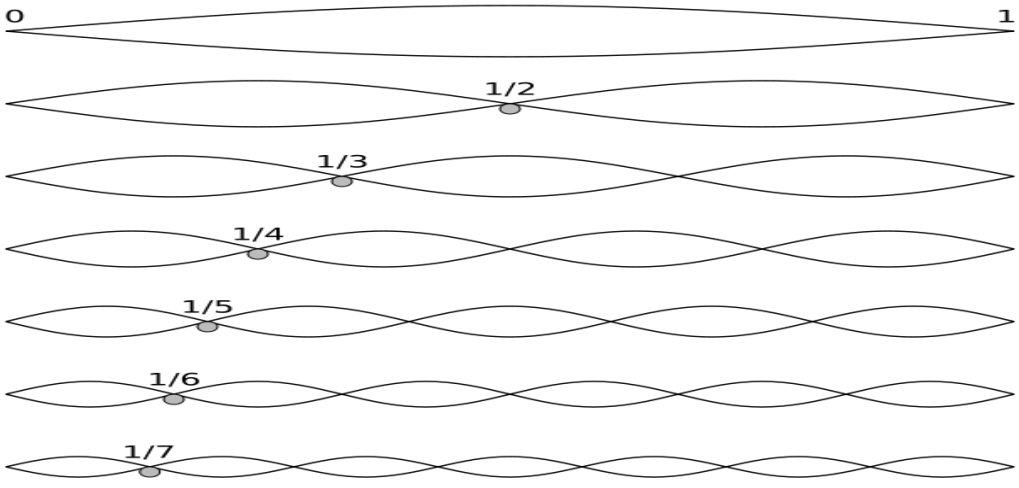
Fig 1.01d - Third OVERTONE , TWO OCTAVES/5th fret = 1760 cps



The fourth overtone produced by a vibrating string is from the harmonic node created at the 4th fret. This produces a note an TWO OCTAVES plus a Major 3rd above the fundamental. See Fig 1.01d

Fig 1.01d - Fourth OVERTONE - Two Octaves plus a Maj 3rd /4th fret = 2200 cps

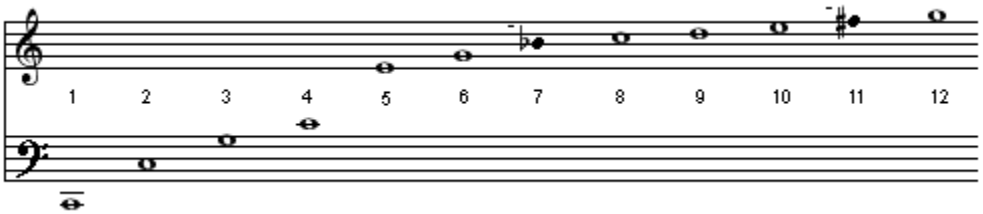
These string divisional points are called harmonic nodes, and they progress successively on the string by touching the nodes exactly on the locations where the 12th, 7th , 5th, 4th, 3rd and 2nd frets occur.



The open string creates what is called the fundamental tone. The next tone created by the harmonic overtone series is at the 12th fret which is exactly one octave higher than the fundamental tone. The next sequentially

created harmonic overtone is a 5th above the first harmonic at the 7th fret. The next harmonic after that is created on the 4th fret and the note is a major 3rd above the octave.

When you map out all the naturally occurring harmonics on a string you get what is called the Harmonic Overtone series. The specific order of the notes that are naturally acoustically created are 1, 1, 5, 1, 3, 5, b7, 1, 9, 3 #11, 5, 13, b7, 7, 1, b9, 9, #9, 3.
The following example shows the notes of the **Harmonic Overtone series up to the 12th overtone:**



1 1 5 1 3 5 b7 1 9 3 #11 (#4) 5 ..etc

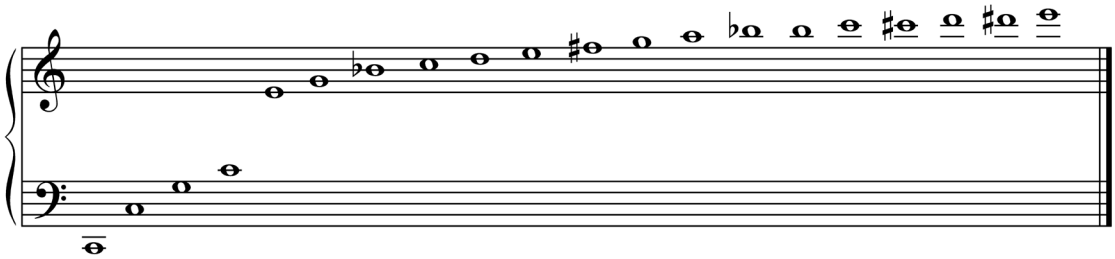
If one looks at the numeric names of the notes created with the overtone series, one can easily see that the first interval is an Octave, which is the strongest tonal center, followed immediately by a perfect 5th and then another octave. The perfect fifth occurs immediately after the octave, and it occurs 3 more times within the first 12 overtones, which gives further proof as to the strength of its natural occurring harmonic consonance. Notice that the interval of the Perfect 4th does not occur, yet the #4 occurs as a #11 (augmented eleventh or augmented 4th) in the series.

The perfect fifth therefore is the strongest naturally occurring consonant interval in music and it is used as the basis for the Lydian Chromatic Concept. This naturally occurring harmonic structure of 1,1,5,1 forms that basis of what are called "power chords" on the guitar. Power Chords sound as strong as they do because of the octaves and 5ths used to create them. This proves that the interval of the 5th may be the strongest musical sound after the octave.

> According to Wikipedia, "The perfect fifth is occasionally referred to as the diapente, and abbreviated P5. Its inversion is the perfect fourth. The term perfect has also been used to distinguish intervals tuned to ratios of small integers from those that are "tempered" or "imperfect" in various other tunings such as equal temperament. The perfect unison is 1:1, the perfect octave is 2:1, the perfect fourth is 4:3, and the perfect fifth is 3:2. Within this definition, other intervals may also be called perfect, for example a perfect third (5:4) or a perfect major sixth (5:3). The perfect fifth is an important interval in tonal music. It is more consonant, or stable, than any other interval except the unison and the octave. It is a valuable interval in chord structure, song development, and western tuning systems. It occurs on the root of all major and minor chords (triads) and their extensions. It was the first accepted harmony (besides the octave) in Gregorian chant, a very early formal style of musical composition."

The 5th produces a perfect mathematical ratio of 3:2 and is the most consonant sounding interval after the unison or octave. It is the most widely used and accepted interval to use as a base for chord structures and is used extensively in guitar music. By taking any perfect 5th interval and successively stacking a series of perfect fifths above it, we begin to unravel the ideas behind Pythagoras' discoveries of tonality. The Pythagorean system of tonality takes the notes in the naturally-occurring Harmonic Overtone series and re-arranges them as to stack the notes in perfect fifths so that a total stack of twelve perfect fifths are derived. **Here is the harmonic overtone series up to the 20th overtone and a diagram showing the Pythagorean re-arrangement of the stack.**

Harmonic Overtone Series



C	C	G	C	E	G	Bb	C	D	E	F#	G	A	Bb	B	C	C#	D	D#	E
1	1	5	1	3	5	b7	1	9	3	#4	5	13	b7	7	1	b9	9	#9	3

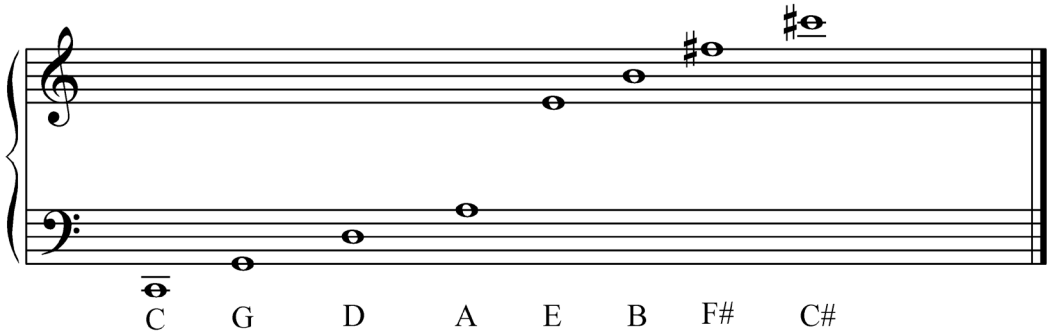
This is the naturally occurring arrangement of the notes in the overtone series:

C C G C E G Bb C D E F# G A Bb C C# D D# E

Pythagoras organized and re-arranged them and stacked them in order using the strongest naturally occurring consonant interval, fifths:

C G D A E B F# C#

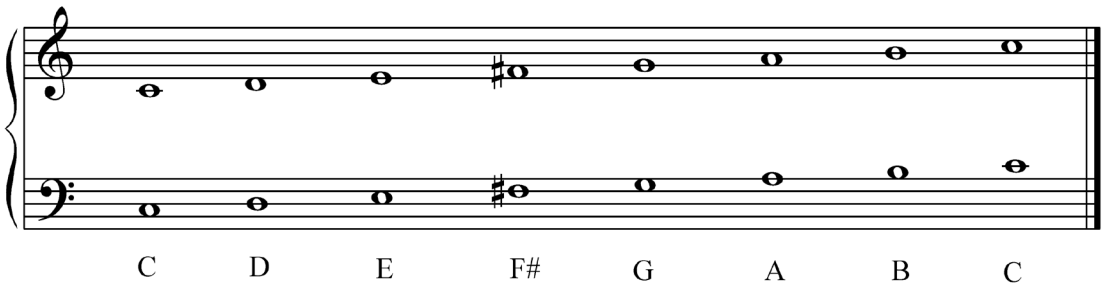
Pythagorean System



Note: There does not exist a G# or Ab in the overtone series, so we stop at C#.

If you take Pythagoras stacked fifths and re-arrange the notes in alphabetical order to get a scale, you get: C D E F# G A B omitting the C# (or adding it in between C and D as a passing tone).

Lydian Scale



This arrangement of notes based on stacked fifths is the LYDIAN Scale, and it is the most organic and harmonically natural sounding scale as it originates with intervals of fifths, the strongest consonant interval. Notice the naturally occurring raised 4th (F#).

This is the basis of the theory of the Lydian Chromatic Concept. The Lydian Chromatic concept is a music theory organizational framework based entirely on the idea of a naturally occurring harmonic system of musical tonality which is derived from the Lydian Scale (1-2-3-#4—5-6-7-1) instead of the commonly-used traditional major scale (1-2-3-4-5-6-7-1). All harmonies are derived from the original Lydian Scale and it is used in place of the traditional major scale. The raised 4th degree (#4) of the Lydian Scale changes the way we hear and think about tonality. We have traditionally been used to thinking of the 4th degree of any scale as a Perfect 4th however the Lydian Scale always assumes the 4th is raised to a #4. This allows perfect harmonic alignment with chords and allows for an understanding and complete organizational framework for Jazz and Modern Harmonic structures.