

A New Dimension on Modes. (or Modes, My way.)

You've probably read all about them. The magic modes. The mystic modes.

And the spiritual, mystical and deep thoughts of blokes flying all over the fretboard through dozens of polytonal scales. And playing them without bursting out laughing. This must be serious stuff!

You may even have got as far as reading the fascinating story of how Pythagoras spent 22 years in Egypt studying with high priest of Memphis, learning the secrets of the Gods. Then the Persians conquered Egypt and they imprisoned him for a further 16 years.

He then returned to Greece, after a total of 38 years away, and started work on developing his theory about the musical scale being harmonically and mathematically divisible.

You've read about this haven't you?

You haven't?

Then let me enlighten you.

I'll tell you the story before I boil all of the technicalities down into some form of understandable logic.

Upon his return to Greece, Pythagoras founded a colony at Kroton. There he formulated his theory of a musical scale in degrees by scientific methods. He fell upon the idea after watching a blacksmith at work and noticing that the different notes that the different weights of hammer produced different pitches, or notes.

He began by experimenting with the length of the strings of the Lyre, a stringed instrument of that time, and differing the tensions. He then went on to change the stringing by adding an eighth string to the Lyre to improve its harmonic structure. To interfere with this such a venerated instrument, after all, music was intrinsic in the worship of God, could have been very dangerous. It was only because Pythagoras was considered a 'great master and religious prophet' that he was tolerated.

I suppose his intention may have been to deepen the understanding of harmony at the time, and being a philosopher and teacher, to prove it mathematically.

His main purpose was to mathematically prove the harmonies within the primary octave, and then to prove that the same could be said of the octaves above and below.

Of course this is all logical to us now, but we have the yard stick of other musical instruments for tuning comparisons. Today we tune our instruments by comparison with other notes, whereas these mathematicians and great thinkers were flying blind.

We know that the harmonic at the 12th fret of any guitar string gives us a note one that is an octave higher than the open string, and like all of the others, the 9th, 7th, 5th and even the 3rd harmonic, they can be mathematically calculated.

I won't go into the finer points of the mathematics because I'm not clever enough, but suffice to say that there had to be a flaw, and that was the 3rd interval.

Mathematically everything harmonised perfectly, but the problems came when repeating the same mathematical formula in other octaves. It didn't harmonise as perfectly. So an aural harmonic 3rd interval was set, as opposed to the mathematical one, and that is the one that we have all grown up to hear and accept.

There are those who prefer the Pythagoras intonation, but for me, as long as I can play a tune I'm happy.

So, at this stage in musical development around, 450 BC, we had a scale with harmonies, the only harmonies that were considered usable were the octave(?) and the fourth and fifth intervals. There were no set notes for comparison or tuning other than the bell on top of the local temple.

I should mention that the whole, original basis of music was religious and spiritual to the degree that it was thought that different modes held different medical and healing properties, and 'in harmony' was a condition pursued in every walk of life, be it health, music and even politics.

Before we start out on the subject of Modes there are a few points of view that I should, in all fairness, air.

One is that a lot of Pythagoras' work was somewhat mythical, and his accuracy regarding

his work on scales was questionable. Although he did sterling work, at the end of the day he was 1.62% out. It wasn't until Vincenzo Galileo (1606-1649) gave us better frequencies, thus better divisional proportions of the scale. He called it the 'Just Intonation Music Scale'. Finally in the 16c, Zarlino (1558), and later the Flemish mathematician Simon Stevin (1608) proposed that the scale should be accepted as 12 semi-tones of equal ratio. Along with the acceptance of the Ionian Mode as the most harmonious mode in the system. due to the positioning of the two semi-tones.

You will find more on the history of music elsewhere on my website.

Modes.

The first scales were pentatonic. The first scales can be traced back 3000 BC to ancient Sumeria and China, although music was developing at that time all over the Middle and Far East in some form another of a pentatonic scale.

Other than its obvious use for us guitarists for playing the Blues, take a close look at the Pentatonic scale. There are no semi-tones.

When the semi-tones were added we got the Diatonic scale, but what if the semi-tones were moved. Displaced or Repositioned within the scale?

Now we are approaching modes.

As I have already said, the origins of the modes were other than musical, they lay in beliefs in the healing properties of music. Different modes had different effects for different reasons.

The first four modes were named after the four oldest and therefore most important tribes of Greece. The Dorian, Phrygian, Lydian and the Mixolydian.

More modes were added around the 5th century by the monks of St. Gregory and on through to the 16th century, when a monk by the name of Henricus Glareanus added, along with his theory that there should be 12 modes, the Ionian (the major scale as we know it today) and the Aeolian modes.

So in a nutshell the result is this.

If you reposition the two semitones you will get a MODE or a KEY.

Let's start with the most simple to understand, the Lydian Mode.

This is created by moving the semitone intervals to the 4th and 7th position;

Ex. 1 The Lydian Mode.



I always look for the 'recipe for the cake'. All of my regular readers will know that. So, if you were to change the root note of Ex. 1 to G, you would have the scale of G major. It is as simple as that. The effect of the Lydian Mode is to play the scale of G major over the chord of C major. Or the scale of Bb over Eb, etc.

Now let's try another, the Mixolydian mode

Ex. 2 The Mixolydian Mode.



Now we have an original semitone at the 2nd position but one has now been moved to the 6th position, giving us a note of Bb. And starting with the note of F you will get the scale of F major. So the effect of the Mixolydian is the scale of F over the chord of C.

I won't labour my point with the rest of the modes, I will just map them out and indicate the TRUE scale that are.

Ex. 3 The Dorian Mode



The positioning of these semitones gives us the scale of Bb.

Ex. 4 The Locrian Mode



This is the scale of Db.

Ex. 5 The Phrygian Mode



The scale of Ab.

Now this next statement is crucial in understanding what is happening. **ALTHOUGH THE SEMITONES ARE REPOSITIONED, THE OTHER INTERVALS STAY IN THEIR SAME RELATIVE PLACES, HENCE, IF A MODE STARTS WITH A SEMITONE THE NEXT INTERVAL WILL BE A TONE. THERE ARE NEVER TWO CONSEQUETIVE SEMITONES IN A SCALE.**

The correct construction of the diatonic scale is this:



So if the scale starts with a semitone, as in the Phrygian mode, the following note must be a tone. Hence C, Db, Eb, etc. What is throws us is that fact that the scales, as we know them and the way that they are written down as examples are not starting on the correct root note. Start them off on the right root note and it all seems to make sense!

Ex. 6 The Aeolian Mode.



Above, and infact all of the examples that I have given here, are written as you would see them in music text books, but approach it my way. Consider them as I do, with a correct root note for the spacing on the intervals. So Ex. 6, which is made up of the scale of C with three flats, is really the scale of Eb.

The other names that you will see will be like, Hypodorian and Hypolydian. The 'Hypo'

simply means 'lower', and by that it means that the scale in question is started three intervals below. So these are easy to work out.

Now it's important to appreciate that most of what you are reading here is of historical interest only and of very little use in what you will be playing today be it rock, country or jazz, but some of the modes are useful.

And they will be;

The Dorian mode, Bb over C, or Eb over F.

The Lydian mode for that flattened fifth effect in modern jazz. The scale of C over Dm9 effect,

The Mixolydian for the C, Gm7 vamp type thing. Actually in the key of F again.

And the Phrygian and the Locrian for the Eb and Ab over C. This is the 'slip-sliding' effect and is used as a passing scale jazzy type of thing.

I shall end this piece with a conclusion to the history of the scale.

You will have noticed that of all the modes, the Ionian is the one that is the correct diatonic scale as we know it. It prevailed at a time when harmony was developing and the third interval was required for more adventurous things like the Operas of the day in the French theatre around 1400. So the modes as we know them, although still in use some of the time, went into semi-retirement.

In today's day and age your choice of mode will be dependant on the music you play and the effect that you are trying to achieve.

Slip-sliding is very much an American approach to jazz but we all do it to some extent. It is usually done with the pentatonic scales, but it sounds good with any mode as long as the sliding in and out with the contrasting, and some times clashing, scales is done smoothly and with confidence. And if it sounds good, why not play it?

Remember to play games with the modes and have fun. Don't waste your life trying to understand them. Most of them belong to the history of music so leave that to the historians and musicologists.

Musicians have always been free spirits and we tend to play what comes from our heart and the soul, not what comes from a calculus.

J.A.T.