Lesson LAB

by Troy Stetina

SCALE EXTRAVAGANZA

Scales are your road map to the fretboard. Learning their patterns will not only help you see important musical structures, it will lead you to that ever-coveted "holy grail" of guitar: mastering the neck! In this Lesson Lab, we'll get you started on course by showing nearly every scale, type, each in the most common patterns. And in no time, you'll be able to use these scales to create your own riffs, licks, and solos.

EVERYTHING YOU EVER WANTED TO KNOW ABOUT SCALES, BUT WERE AFRAID TO ASK

What's a Scale?

Scales are simply collections of notes used in music. When we extract the notes from a piece of music and arrange them in order from a starting point, we call it a scale.

With any scale, there are two important aspects to consider: first is the starting note, or root—like, A, B, C, D, etc. The root is significant not just because it's the starting note, but also because it's the pitch center, or tonic, around which the rest of the scale gravitates. For example, an A major scale and a G major scale are both major scales, but one centers around the pitch A and the other around G. The second aspect of a scale is its quality—that is, its feel or mood—which is determined by the interval relationships, or structure, of the remaining notes of the scale. For example, A major, A minor, and A Phrygian are three different scales, each beginning on the starting pitch A, but each has its own unique structure and therefore its own unique feel, which makes it applicable to different situations, Remember, these two aspects of scales—root and quality—are completely independent of one another; any scale quality can be applied to any root or starting pitch.

When dealing with actual music, we're more likely to use the word "key" instead of "scale," However, scale and key are essentially the same thing; the difference is largely a matter of application. If a song or solo is in the key of A Dorian, then that is the scale we would likely use for soloing. (Of course, we wouldn't simply play the A Dorian scale one note at a time, in order; we'd use the notes of A Dorian creatively, creating licks or melodic ideas. That's what is meant by "playing in a key,")

Now, in the real world, a musician may simply say that a song or solo is "in the key of A" Technically, this identifies only the starting pitch and says nothing about the quality of the scale. In standard music theory, the "key of A would be taken to mean A major. But in practice, it's a little different and depends on the context or the style of music. In blues and rock, the "key of A generally means the key of A minor or perhaps A Mixolydian (a variation of major). In jazz, it may imply major or melodic minor. In metal, it may imply a Phrygian, Locrian, or diminished tonality. Sound confusing? Don't worry—there are a lot of different types of scales, but with a little practice, you'll get to know 'em all!

How Scales are Built

Let's begin with the major scale as our reference point, because all other scales can be seen as alterations of this basic, common scale. The C major scale is shown in **Fig. 1**. Notice that the root is labeled as Step 1, and each additional step, or scale degree, is labeled in a series: 2,3,4,5,6, and 7. (The octave root may be labeled either as 8 or 1.) When stretched out on a single string, you can see the major scale's distinct interval sequence: W-W-H-W-W-W-H, where "W" is a whole step (two frets) and "H" is a half step (one fret). This pattern may be easier to remember if you look at it as two W-W-H sections separated by a whole step.

The reason we number the tones of the scale, or concern ourselves with whole steps and half steps at all for that matter, is because these relationships remain constant, no matter what root we start a given scale on. For example, check out the D major scale [**Fig. 2**], and notice that the numbered tones and interval pattern remain identical—even though the letter names have changed.

This is where scales really come alive on the guitar. As this example shows, you can change key simply by shifting an entire scale pattern up or down the neck. Just place the root of the scale pattern on the fret that corresponds to the new root that you want, and play the same shape on the fretboard. Because changing key is so easy on guitar, we'll simply cover all of the following scales by beginning on the same starting pitch (A). Then, you can shift them to other keys and practice the patterns in other regions of the neck.

The table in **Fig. 3** is a handy reference showing the structures and interval patterns of all the different types of scales that we'll cover. Don't expect to memorize it at this point! But refer back to it as you learn each new scale pattern to help you latch on to its distinct structure.

A Few Practice

It will take a little practice and patience to really get familiar with all of these. Just learn one or two at a time, and as you add each new scale, notice any differences or similarities to the previous scales you have learned. Also, pay attention to the different moods that each scale evokes. This will help you remember them.

As for getting the patterns "under your fingers," you may find it helpful to practice using an "add one note at a time" approach. That is, start by first playing the lowest note of the scale, then play just the next higher note. Then return to the lowest

Fig. 1 C Major Scale

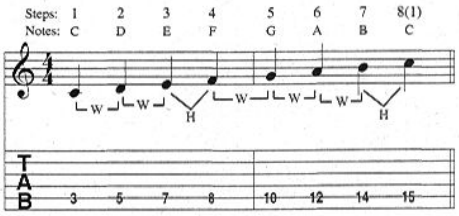


Fig. 2 D Major Scale

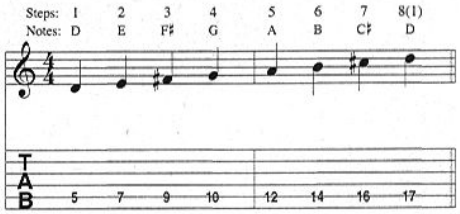


Fig. 3

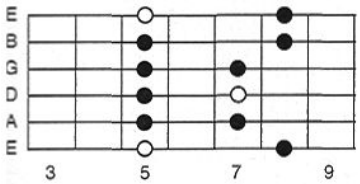
Scale	Tone Numbers	Interval Structure
Major	1-2-3-3-4-5-6-7	W-W-H-W-W-W-H
Natural minor	1-2-♭3-4-5-♭6-♭7	W-H-W-W-H-W-W
Major Pentatonic	1-2-3-5-6	W-W-W+H-W-W+H
Minor Pentatonic	1-♭3-4-5-♭7	W+H-W-W-W+H-W
Blues	1-♭3-4-♭5-5-♭7	W+H-W-H-H-W+H-W
Major Blues	1-2-♭3-3-4-♭5-5-6-♭7	W-H-H-H-H-H-W-H-W
Minor Blues	1-2-♭3-4-♭5-5-♭6-♭7	W-H-W-H-H-H-W-W
Ionian mode(major)	1-2-3-4-5-6-7	W-W-H-W-W-W-H
Dorian mode	1-2-♭3-4-5-6-♭7	W-H-W-W-W-H-W
Phrygian mode	1-♭2-♭3-4-5-♭6-♭7	H-W-W-W-H-W-W
Lydian mode	1-2-3-♯4-5-6-7	W-W-W-H-W-W-H
Mixolydian mode	1-2-3-4-5-6-♭7	W-W-H-W-W-H-W
Aeolian mode (nat.minor)	1-2-♭3-4-5-♭6-♭7	W-H-W-W-H-W-W
Locrian mode	1-♭2-♭3-4-♭5-♭6-♭7	H-W-W-H-W-W-W
Harmonic Minor	1-2-♭3-4-5-♭6-7	W-H-W-W-H-W+H-H
Phrygian Dominant (Spanish)	1-♭2-3-4-5-♭6-♭7	H-W+H-H-W-H-W-W
Jazz Melodic Minor	1-2-♭3-4-5-6-7	W-H-W-W-W-W-H
Dorian ♭2	1-♭2-♭3-4-5-6-♭7	H-W-W-W-W-H-W
Lydian Augmented	1-2-3-♯4-♯5-6-7	W-W-W-W-H-W-H
Lydian ♭7	1-2-3-♯4-5-6-♭7	W-W-W-H-W-H-W
Mixolydian ♭13 (Hindu)	1-2-3-4-5-♭6-♭7	W-W-H-W-H-W-W
Locrian ♯2	1-2-♭3-4-♭5-♭6-♭7	W-H-W-H-W-W-W
Super Locrian (Altered)	1-♭2-♭3-♭4-♭5-♭6-♭7	H-W-H-W-W-W-W
Chromatic	1-♭2-2-♭3-3-4-♭5-5-♭6-6-♭7-7	H-H-H-H-H-H-H-H-H-H-H-H
Whole Tone	1-2-3-♯4-♯5-♯6	W-W-W-W-W-W
Diminished Whole Half	1-2-♭3-4-♭5-♭6-6-7	W-H-W-H-W-H-W-H
Diminished Half Whole	1-♭2-♭3-♭4-♭5-5-6-♭7	H-W-H-W-H-W-H-W
Hungarian Minor	1-2-♭3-♯4-5-♭6-7	W-H-W+H-H-W+H-H
Double Harmonic	1-♭2-3-4-5-♭6-7	H-W+H-H-W-H-W+H-H
Enigmatic	1-♭2-3-♯4-♯5-♯6-7	H-W+H-W-W-W-H-H
Japanese	1-♭2-4-5-♭6	H-W+H-W-H-W+H

is a type of minor sounds sad. To resolve this little dilemma, we have start over, looking at modes in an entirely new light.

The Parallel Perspective

Fig. 4 A Minor Pentatonic

box pattern



diagonal pattern

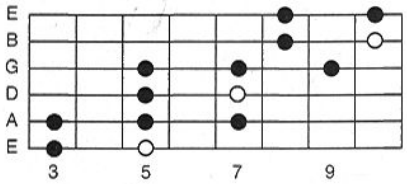
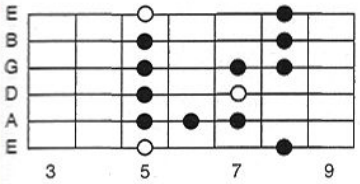


Fig. 5 A Blues

box pattern



diagonal pattern

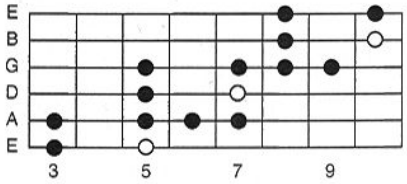
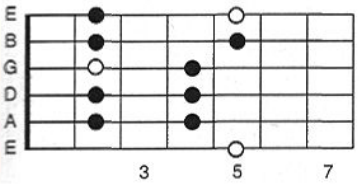


Fig. 6 A Major Pentatonic

box pattern



diagonal pattern

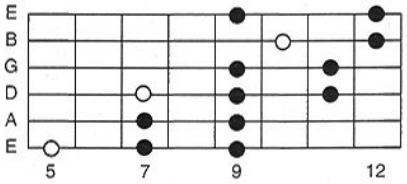
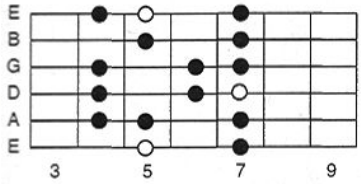


Fig. 7 A Major

box pattern



major barre chord derivative

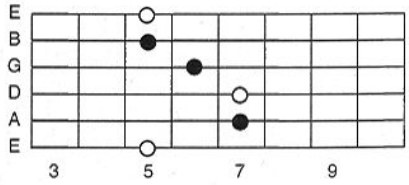
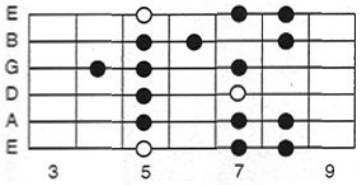


Fig. 8 A Natural Minor

box pattern



minor barre chord derivative

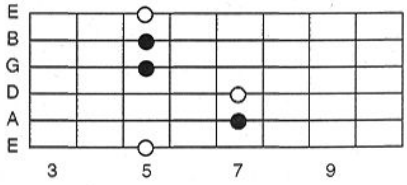
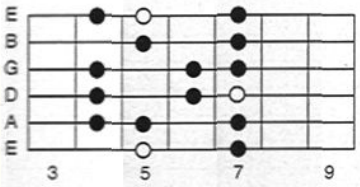
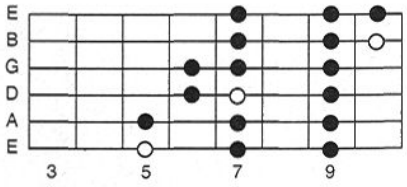


Fig. 9 A Ionian (Major)

box pattern



diagonal pattern



note, play the next higher note, and add a third note, then back down. Next, play up to the fourth note and back down. Then the fifth, six, etc. Continue cycling up and down the scale, adding just one note at a time until you are playing the entire pattern.

Pentatonics

We will start with the pentatonic scales because they are relatively easy to memorize and are the most widely used scales in rock, blues, and country music. "Penta" is a prefix meaning "five," so all pentatonic scales are five-tone scales. That is, they all have only five different tones per octave, unlike the major scale you saw in **Fig. 1**, which had seven tones (a diatonic scale). Generally, pentatonic scales tend to have more of an aggressive character, as opposed to diatonic scales which have a "smoother" and more natural sound.

The minor pentatonic scale [**Fig. 4**] appears in two patterns. The first is called a "box" because of its two-note-per-string shape. In fact, this is the most commonly used box, so it is called "box 1" or the "primary" box. To the right, you'll see the diagonal shape that cuts across box 1, starting below it and shifting up into a higher position. Notice that the lowest note of the pattern is not the root. Start and end the scale on the root A to train your ear to hear A as the root.

The blues scale [**Fig. 5**] isn't quite a pentatonic scale (it's actually a hexatonic or six-tone scale), but it is so closely related to the minor pentatonic that we'll cover it now. Simply take the minor pentatonic and add a b5th tone and you have the blues scale.

The major pentatonic scale [**Fig. 6**] has the curious property of looking a lot like the minor pentatonic. That is, if you took the first minor pentatonic shape from Fig. 4 and shifted it down three frets, you would have the same shape as here (except here, the lowest note has been omitted so the scale will begin on the root A.) The reason they look the same is because A major and F# minor are related, which means that A major pentatonic and F# minor pentatonic scales share the same notes.

Diatonic Major and Minor

You've already seen the major scale structure and pattern on a single string. Now we'll look at the common two-octave pattern for the major scale [**Fig. 7**]. To the right of this is the standard A major barre chord. Look for the notes of this chord shape hiding within the scale. It is helpful to view the chord as the underlying skeletal" structure, and see the scale as fleshing it out" more fully.

The minor scale [**Fig. 8**] is the counter-part of the major scale in Western music.

Where major is happy and bright, minor is dark and sad. Lower the 3rd, 6th, and 7th steps of the major scale one half step, and it is transformed into the natural minor scale. Again, an A minor barre chord appears to the right of this scale; look for this shape hiding within. In fact, the entire A minor pentatonic scale is also completely contained within A natural minor. Omit the 2nd and b6th tones, and natural minor instantly becomes the minor pentatonic.

The Modes

The modes of the major scale are formed by treating each note within the major scale as a root in its own right—without changing any of the surrounding notes or their pitch relationships. Since there are seven different notes in the major scale, there are seven different modes. The subject of modes and their applicants could easily fill volumes. (For an in-depth Lesson Lab specifically on the modes, see GuitarOne's Oct. '98 issue.—Ed.) For our purposes, we'll look at the modes as a collection of independent scales, each starting from the same root note A. To make learning the patterns easier, we'll look first at the "major" sounding modes—Ionian, Lydian, and Mixolydian—then at the "minor"-sounding ones—Aeolian, Dorian, and Phrygian. Then, we'll look at the diminished-sounding Locrian mode.

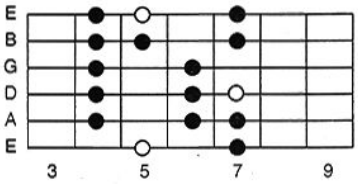
The first mode is what you have when you start on the first step of the major scale. This is—not surprisingly—the major scale itself. Its modal name is the Ionian mode. **Fig. 9** shows the same scale pattern shown earlier for major, then adds an alternate pattern consisting of three-notes-per-string. This is useful for faster scale runs and extends the scale into a slightly higher range.

The Lydian mode [**Fig. 10**] begins on the fourth step of the major scale. This is just like the major scale except that it has a raised, or sharped, 4th (also called an augmented 4th). Lydian has a characteristically odd, mystical-major type of sound. Again, look for that same A major barre chord within the A Lydian mode. Because of its major 3rd tone, Lydian can be regarded as being a "major-type" mode, but having a somewhat different color than the major scale itself.

The Mixolydian mode [**Fig. 11**] begins on the fifth step of the major scale. This one is just like the major scale except that it has a lowered, or flatted, 7th (also called a minor 7th). Again, visualize the A major barre chord and notice that it is contained within this scale also. This is another "major-type" mode. It sounds basically major, but smoother, less conclusive, and more easygoing.

Fig. 10 A Lydian

box pattern



diagonal pattern

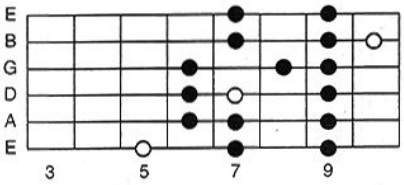
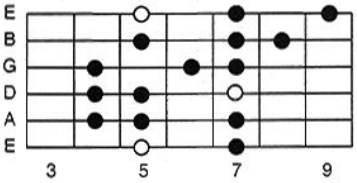


Fig. 11 A Mixolydian

box pattern



diagonal pattern

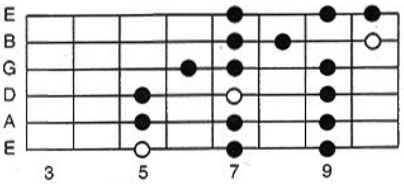
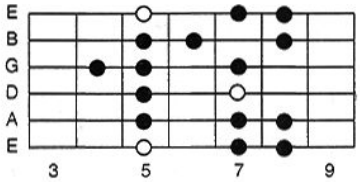


Fig. 12 A Aeolian (Natural Minor)

box pattern



diagonal pattern

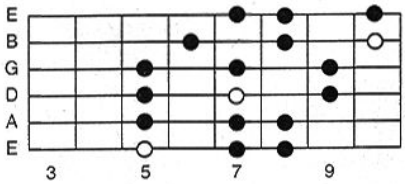
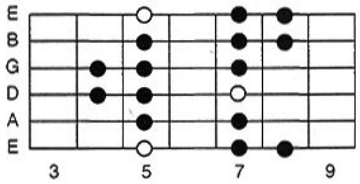


Fig. 13 A Dorian

box pattern



diagonal pattern

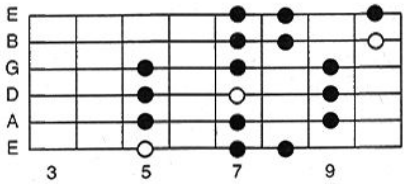
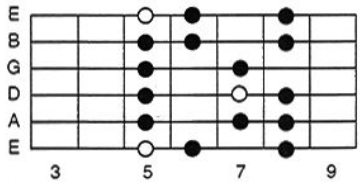


Fig. 14 A Phrygian

box pattern



diagonal pattern

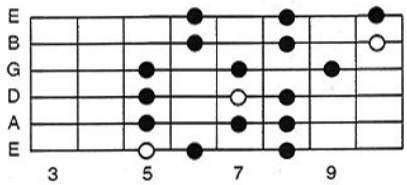
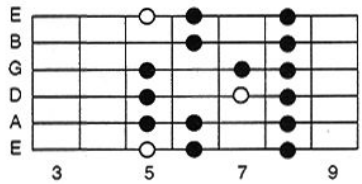


Fig. 15 A Locrian

box pattern



diagonal pattern

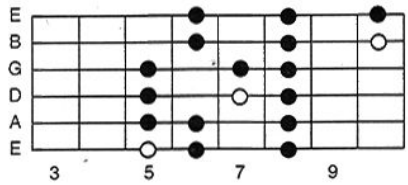
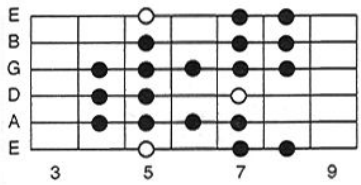


Fig. 16 A Major Blues

box pattern



diagonal pattern

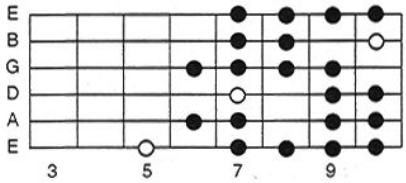
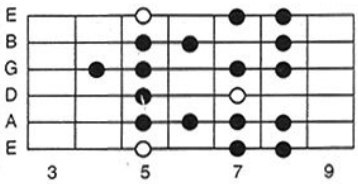


Fig. 17 A Minor Blues

box pattern



diagonal pattern

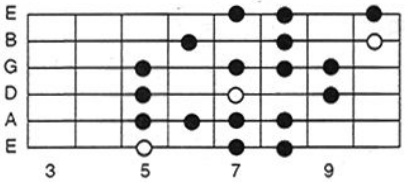
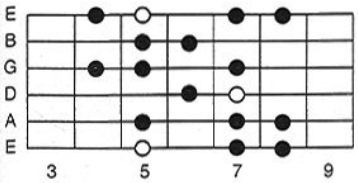


Fig. 18 A Harmonic Minor

box pattern



diagonal pattern

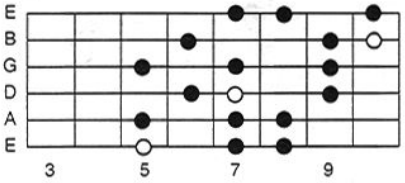
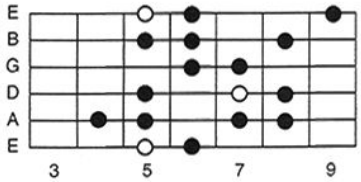


Fig. 19 A Phrygian-Dominant

box pattern



diagonal pattern

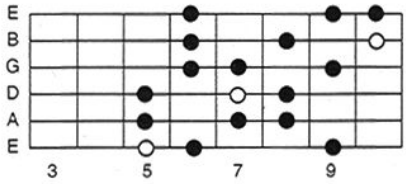
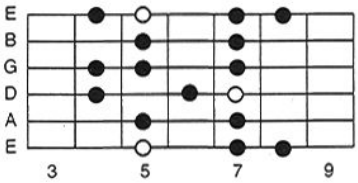


Fig. 20 A Jazz Melodic Minor

box pattern



diagonal pattern

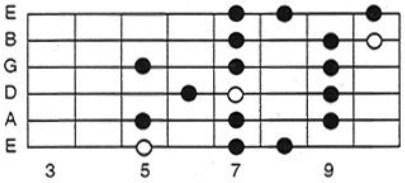


Fig. 21 A Dorian ♭2

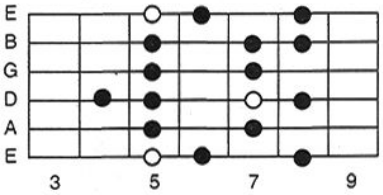
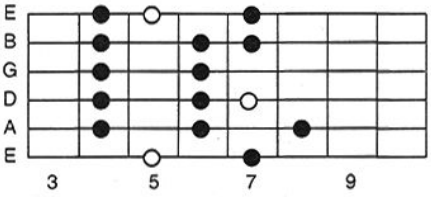


Fig. 22 A Lydian Augmented



The mode starting on the sixth step of the major scale is the Aeolian mode. This is just another name for the natural minor scale. **Fig. 12** shows the same pattern shown earlier for A natural minor, then adds a three-note-per-string pattern.

The Dorian mode [**Fig. 13**] begins on the second step of the major scale. This is just like the natural minor scale (or Aeolian mode) except it has a major 6th tone. Dorian is a "minor- type" scale, so look for an A minor barre chord hiding inside this pattern. It is a somewhat brighter-sounding minor scale due to the presence of the major 6th.

The Phrygian mode [**Fig. 14**] begins on the third step of the major scale. This is an "excessively minor" mode with all the minor tones of natural minor plus a flatted (minor) 2nd. The lowered 2nd tone leans strongly to resolve down to the root, giving Phrygian a distinctly Spanish or Middle-Eastern flavor. Look for the A minor barre chord within.

The mode starting on the seventh step of the major scale is Locrian [**Fig. 15**]. This demented piece of work is most at home in the heavier modern metal styles. Neither a major nor a minor barre chord will fit into it, as this one invokes a diminished tonality.

Major and Minor Blues

The major blues scale [**Fig. 16**] is a hybrid combination of two scales: the blues scale and the "major-ish" Mixolydian mode. This results in an interesting nine-tone scale with a mix of brighter major tones set against blues minor tones.

Its counterpart is the minor blues scale [**Fig. 17**]. This time, the hybrid is between the blues scale and the natural minor scale.

Harmonic Minor and Phrygian-Dominant

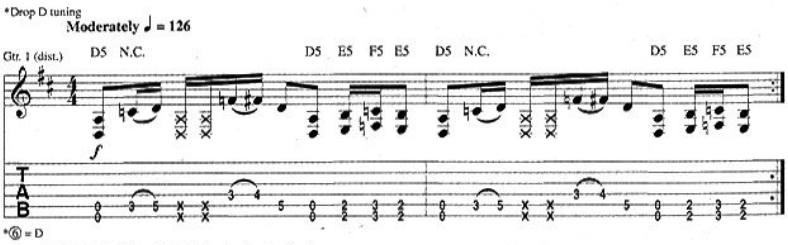
Harmonic minor [**Fig. 18**] is a natural minor with a raised (major) 7th tone. This major 7th in an otherwise minor environment creates an unusual three-fret interval between the b6th and 7th steps, flanked on either side by half steps. This gives the scale its somewhat "snaky" or exotic feel. Alternatively, harmonic minor can be used to create a strong classical resolution with its major 7th-to-root pull. For this reason, it is the scale of choice for shredding, neoclassical guitar work.

The Phrygian-dominant scale [**Fig. 19**] is also known as the Spanish-flamenco and major Phrygian scale. It is a Phrygian mode with a raised (major) 3rd tone. This exotic beastie has the same three-fret interval flanked by half steps as harmonic minor, so it bears some similarity; the difference is that it occurs at a different point in the scale. (In fact, Phrygian-dominant is the fifth mode of harmonic minor, hence the term dominant.)

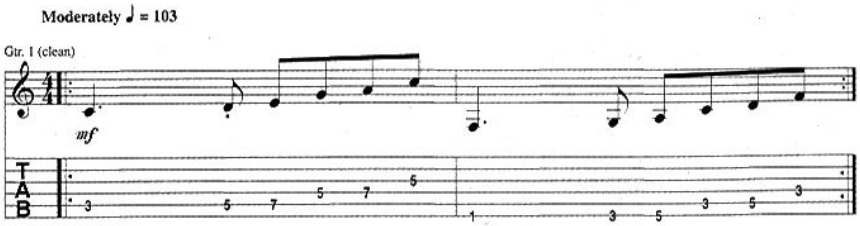
Scales in the Real World

Four Classic Riffs Built from Four Common Scales

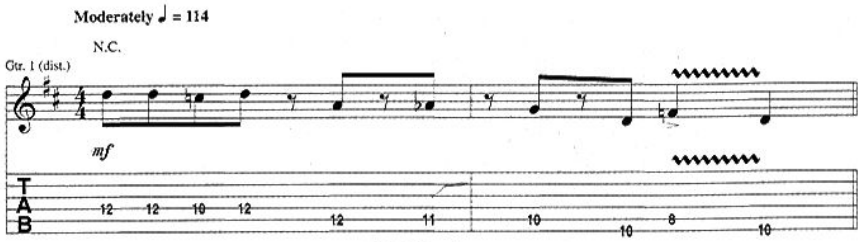
"Killing in the Name" (Rage Against the Machine)—D Major Blues



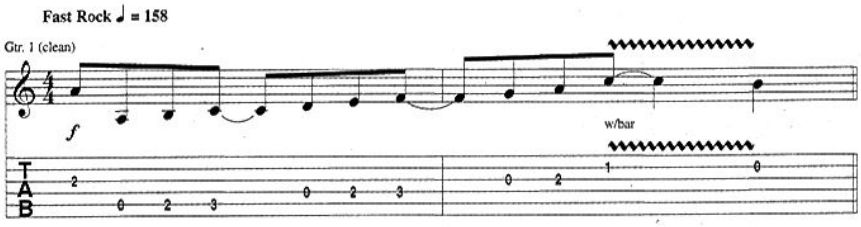
"My Girl" (The Temptations)—C Major Pentatonic and F Major Pentatonic



"Sunshine of Your Love" (Cream)—D Blues



"Walk Don't Run" (The Ventures)—A Natural Minor



Jazz Melodic Minor and Its Modes

In classical music theory, the melodic minor scale has a different structure when it ascends compared with when it descends. When its ascending structure is used both ways, it is known as the jazz melodic minor [**Fig. 20**] or jazz minor scale. This is a minor scale with both a major 6th and major 7th.

Now, for its modes. Here's where things get a little hairy. I'd suggest that if you don't already know the "standard" modes really well, it may be best to skip these additional modes for now, because they are advanced alterations. Or, if jazz scales just aren't your cup of tea, you might consider skipping them altogether. Still, in the interest of the curious and the jazz-minded, here they are.

Dorian b2 [**Fig. 21**] begins on the second step of jazz minor. Like the name implies, it is a Dorian mode with a flatted 2nd.

Lydian Augmented [**Fig. 22**] begins on the third step of jazz minor. This is a Lydian mode with a sharped (or augmented) 5th.

Lydian b7 [**Fig. 23**] begins on the fourth step of jazz minor. This is a Lydian mode with flatted (or minor) 7th.

Mixolydian b13 [**Fig. 24**] begins on the fifth step of jazz minor. This is a Mixolydian mode with a flatted (or minor) 6th. (The 6th is known as a 13th in the extended-chord lingo common in jazz.) This also happens to be the same structure as the Hindu scale, although it is used differently.

Locrian #2 [**Fig. 25**] begins on the sixth step of jazz minor. This is a Locrian mode with a raised (or major) 2nd.

Super Locrian [**Fig. 26**] begins on the seventh step of jazz minor. This one is also known simply as the "altered" scale, and consists of a root followed by every interval being flatted.

Non-Diatonic Scales

The chromatic scale [**Fig. 27**] contains every half step. Most often it is used in smaller sections within the context of other scales and gives an interesting, "slippery" feel. Since it includes every note, any note can be made to be the root. Therefore, any chromatic scale is also every chromatic scale. Or, to view it another way, there is only one chromatic scale.

The whole tone scale [**Fig. 28**] is just that: a sequence of whole steps. Since every note is equidistant, there is no intervallic features that your ear can latch onto as a root, and any note may be considered a root. It works nicely over augmented chords, and gives its characteristically odd, "rootless" feeling.

Fig. 23 A Lydian ♭7

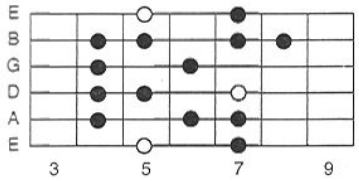


Fig. 24 A Mixolydian ♭13 (Hindu)

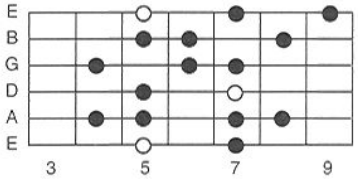


Fig. 25 A Locrian ♯2

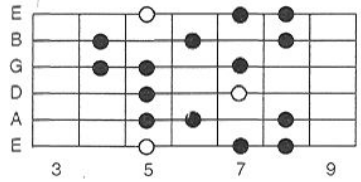


Fig. 26 A Super Locrian (Altered)

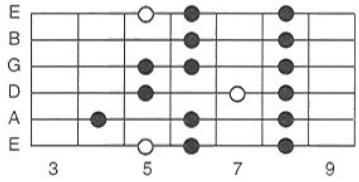


Fig. 27 A Chromatic

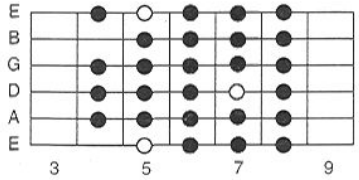


Fig. 28 A Whole Tone

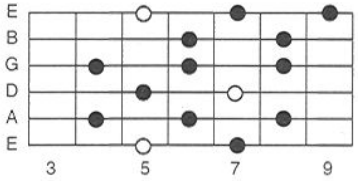


Fig. 29 A Diminished (Whole-Half)

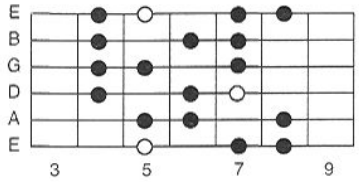


Fig. 30 A Diminished (Half-Whole)

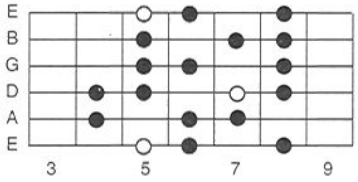


Fig. 31 A Hungarian Minor

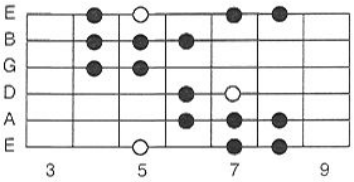


Fig. 32 A Double Harmonic

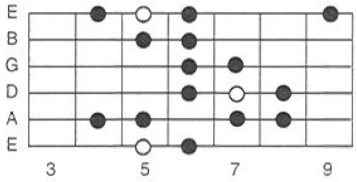


Fig. 33 A Enigmatic

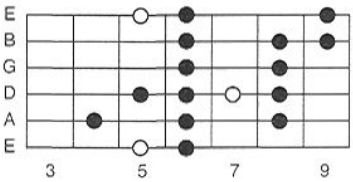
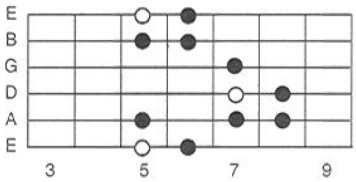


Fig. 34 A Japanese



The diminished scale comes in two varieties. The first is called a whole-half scale [**Fig. 29**] and is a repeating series of whole and half steps. Its inverse is the half-whole scale [**Fig. 30**]. Both scales accommodate all the notes of the diminished 7th arpeggio. These are used occasionally in jazz as well as in some of the heaviest thrash metal.

More Exotic Scales

The Hungarian minor scale [**Fig. 31**] is a harmonic minor with an augmented 4th, giving this scale two distinct segments of three-fret intervals flanked on either side by half steps.

The double harmonic scale [**Fig. 32**] also contains the same two segments, but the lower one appears at a different point. This one has the top half of a harmonic minor scale with the bottom half of the Phrygian-dominant scale.

The enigmatic scale [**Fig. 33**] is a bizarre concoction, featuring the lower portion of Phrygian-dominant, the middle portion of Lydian-augmented, and half steps surrounding the root.

The Japanese scale [**Fig. 34**), a pentatonic scale, consists of tones 1-b2-4-S-b6.

Completing the Neck

So you got through it! Congratulations! Now for the bad news. Like I mentioned at the beginning, this lesson was intended just to get you started on your way to mastering the guitar neck. You see, each scale here has been presented in just one or two of its patterns. But any scale in any tonality may be played at any position on the fretboard. This is the challenge of the guitar.

So the next step is to begin expanding these scales over the rest of the neck. This is a tall order, and very few guitarists really master every scale in every position. Rather, players will focus on those scales that their styles require and that they use the most, expanding those over the neck. Start there, and eventually you'll amaze yourself and everyone around you. And if you continue long enough, ultimately you will reach a certain "critical mass" of knowledge and the whole neck will sort of "fuse together"—The Holy Grail! Yes, there will always be some regions of the neck that you are more familiar with than others, but with a knowledge of scale structures and that critical mass of patterns under your belt, you'll be able to navigate those less practiced regions and actually fill in the shapes that you need "on the fly." Good luck!

Troy Stetina is a guitarist and freelance writer living in the Milwaukee area.