

## Modes and Scales.

The first part of this file is a very basic introduction to modes as used in folk music. If you already know this stuff, you can skip it. The second part deals with B.H. Bronson's classification of modes, and you may find it interesting, even if you are already familiar with the subject. The final part explains how to use the "Analyse Melody" command in BarFly to determine the key and mode of tunes, and has lots of example tunes.

### Part 1

#### Modes for beginners!

If you sit down at a piano keyboard and play a scale using only the white notes, and starting on middle C, what you get is the familiar C Major scale. If you do the same thing starting on the note of A, and going up to the A above, you get an A minor scale. These two scales have a distinct sound; we make different associations with them, perceiving the major scale as bright and forceful, while the minor scale is sad and reflective. Starting on one of the other white notes will give us a different scale again, and some of these scales sound very strange indeed. However, each of them has a separate and distinctive sound, and with practice you could learn to recognise a tune as belonging to one of these scales as easily as you can hear the difference between major and minor.

#### A bit of history...

As with so much else in western culture, the beginnings of musical theory and the first documentation of music happened in ancient Greece. Because of the severity of that culture's taste, and its insistence on moderation in all things, music was limited to a compass of one octave: the ancient lyre had eight strings. A lyre was always tuned so that the top and bottom note sounded an octave apart. The tunings of the intermediate strings varied, however, and used different combinations of large and small intervals (what we would call 'tones' and 'semitones') in ways which are in fact quite familiar to us. The best-known of these tunings or 'modes' correspond to the seven scales which you get if you play only on the white notes of the piano. Mediaeval music and particularly ecclesiastical music took over these modes; originally only four were considered 'authentic', having been approved by Ambrose, Bishop of Milan in the fourth century. Later, Pope Gregory the Great added four more, which were known as 'plagal'. Finally, in the 16th century Glarean identified twelve modes, and assigned Greek names to them (although he got most of the names wrong!). Some of these modes were never used, and some fell into disuse in classical music, a process accelerated by the development of harmony, since some of them proved very difficult to harmonise. Eventually we were left with the two modes (major and minor) which remain in use in classical music today. People who were not taught music, and who generally were not aware of the rules of classical harmony continued to use a much wider selection of scales, however, and the ancient modes survive, along with many combinations and permutations in folk music.

#### Back in the present...

In modern usage, seven of the modes are used, corresponding to the seven different starting points on the white keys of the piano. These are their names, along with the starting note:

Ionian (Major)	C
Dorian	D
Phrygian	E
Lydian	F
Mixolydian	G
Aeolian (Minor)	A
Locrian	B

Of course they don't have to be played only in that key; each of them can be played starting on any note, but then you have to introduce some black notes to get the combination of tones and semitones which gives the mode its distinctive sound right. If you were to write a tune in each of these modes, each in the key listed next to it above, then when the tunes were written out, in all seven cases you would use a key signature with no sharps or flats - all seven tunes,

despite being in seven different keys would be written as if they were in C major. The implications of this are that you cannot tell what key a tune is in simply by looking at the key signature; every key signature can represent seven different combinations of key and mode.

Four of the modes are common, both in folk music and indeed in pop music: Ionian, Dorian, Mixolydian and Aeolian. The remaining three are known as the rare modes, and they are indeed exceedingly rare; I know of very few examples of tunes in each of those three modes. abc has a better way of representing the key signature than that used in conventional music notation; were we to write out our seven sample melodies in abc rather than on manuscript paper, we could write K:CIon, K:DDor, K:EPhr etc., rather than having to write them all as K:C. Of course this would make no difference to the tunes as played when we use an abc player program to play them; whichever way we do it "no sharps or flats" will produce the correct sound. However, it does give the human reader more information, and if that human reader wants to play a guitar accompaniment it will tell him what set of chords are most likely to fit.

Musical range.

Most vocal tunes cover a range of about an octave, or a little more. The words 'authentic' and 'plagal' are now used to describe the relationship between that range and the tonic (that is the keynote) of the scale. Tunes which range roughly from the tonic up to the octave or beyond are called 'authentic'; while those whose lowest note is half way between keynotes are called 'plagal'. You may also come across mode names starting with the prefix "Hypo", e.g. Hypodorian - this is simply the way in which Glarean named the plagal modes, so Hypodorian applies to a plagal tune in the dorian mode. With the invention of musical instruments which could play over a wide range, the distinction between plagal and authentic became meaningless - indeed it was never very significant as the range of a tune makes little difference to how we hear the underlying mode.

Gapped scales.

Up till now I have been talking exclusively about heptatonic scales, that is, scales which make use of all seven (different) notes in the octave. Folk tunes frequently leave one or more of the notes out. Scales which use only six of the seven notes are called hexatonic; those which use only five are called pentatonic. There are many different examples of both hexatonic and pentatonic scales, and Bronson explored the relationships between them, and the way in which folk tunes shift between scales as they evolve. His method of classification is described in the next section.

## Part 2

### Classification of Scales.

The folklorist B.H. Bronson noticed that it is possible to write out the seven modes in such a way that each differs from its predecessor by only one note. One way to show this is to imagine a set of Appalachian dulcimers, each made to play in one of the seven modes. On a normal dulcimer the frets look like this:

Nut-> | | | | | | |

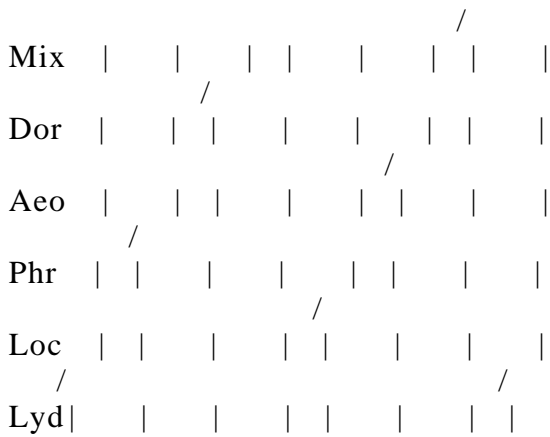
(Well actually the frets get closer together as you go up the fingerboard, but for the sake of clarity I've made the tones all equal and the semitones half that size.)

If you play a scale whose keynote is the open string on this instrument you will be in Ionian (major) mode. A dulcimer maker could, however, make an instrument which played in the Mixolydian mode like this:

| | | | | | |

Only one fret has to be changed, that corresponding to the seventh note of the scale. If we put all seven together in the right order, the same will be true for any adjacent pair:

Ion | | | | | | |



(When you go from Locrian to Lydian, it's the tonic which moves, and the pattern is actually circular - it goes back to Ionian by flattening the fourth.)

You can, in fact write the names of the seven modes in a circle, so that each differs from its two neighbours by only one note.

The ModeStar.

This wonderful Cabbalistic symbol summarises the relationship between the seven classical modes, and their derived hexatonic and pentatonic scales. (It would look very good on a tee shirt, I always think.) Here, the outer ring of seven dots on the points of the star represent the seven modes, in the order given above. In between them are the hexatonic scales which you get by leaving out the note which distinguishes between the two modes on either side. So, for example, between the Ionian mode at the top, and the Mixolydian mode to its right is a hexatonic scale called I/M, derived by deleting the seventh from either of the two modes on either side. Hexatonic scales like this are ambiguous - you can hear the characteristics of both the parent scales in them. This can cause problems if you try to accompany these tunes. Look for example at the hexatonic scale M/D. It lacks the third, and is derived from the Mixolydian (guitar player plays major chords) and the Dorian (guitar player plays minor). So what's a poor guitarist to do? Actually, she can play either. Both are equally correct, or from a different point of view, equally wrong. By playing either a major or a minor chord you fix the tonality one way, and destroy the ambiguity which is the characteristic feature of this scale. Myself, I'd sing it unaccompanied, or perhaps use chords without a third.

The inside ring of dots represents the pentatonic scales, each of which is derived from three of the modes, by deleting two notes. These are even more ambiguous, and when it comes to accompaniment you are best off with a drone. Bronson labels the pentatonic scales with the Greek letter  $\lambda$ , and numbers them from one to five.

Finally, the mysterious area on the left of the star which is drawn with dotted lines and open dots encloses three scales which cannot be used because one of the notes which needs to be deleted is the tonic, and a tune without a keynote is not a tune.

### Part 3

#### Melody analysis

Finally, we get to the point. Just how do I decide what to put in the key signature of the abc? If you already know the tonic, and how many sharps or flats there are in the key signature, you can look the answer up in the table below. In fact, if you know any two of tonic, mode and key sig you can easily get the third.

Key Sig	Major	Minor	Mix	Dor	Phr	Lyd	Loc
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## Ionian Aeolian

7 sharps:	C#	A#m	G#Mix	D#Dor	E#Phr	F#Lyd	B#Loc
6 sharps:	F#	D#m	C#Mix	G#Dor	A#Phr	B#Lyd	E#Loc
5 sharps:	B	G#m	F#Mix	C#Dor	D#Phr	E#Lyd	A#Loc
4 sharps:	E	C#m	B#Mix	F#Dor	G#Phr	A#Lyd	D#Loc
3 sharps:	A	F#m	E#Mix	B#Dor	C#Phr	D#Lyd	G#Loc
2 sharps:	D	Bm	A#Mix	E#Dor	F#Phr	G#Lyd	C#Loc
1 sharp :	G	Em	D#Mix	A#Dor	B#Phr	C#Lyd	F#Loc
0 sharps:	C	Am	G#Mix	D#Dor	E#Phr	F#Lyd	B#Loc
1 flat :	F	Dm	C#Mix	G#Dor	A#Phr	B#Lyd	E#Loc
2 flats :	Bb	Gm	F#Mix	C#Dor	D#Phr	E#Lyd	A#Loc
3 flats :	Eb	Cm	B#Mix	F#Dor	G#Phr	A#Lyd	D#Loc
4 flats :	Ab	Fm	E#Mix	B#Dor	C#Phr	D#Lyd	G#Loc
5 flats :	Db	Bbm	A#Mix	E#Dor	F#Phr	G#Lyd	C#Loc
6 flats :	Gb	Ebm	D#Mix	A#Dor	B#Phr	C#Lyd	F#Loc
7 flats :	Cb	Abm	G#Mix	D#Dor	E#Phr	F#Lyd	B#Loc

The trouble is that printed music gives you only the key signature, and does not tell you the tonic or mode. The best way to get the answer here is to use your ears. Listen to the tune and try to harmonise it - if you can put chords to it you know what key it's in. This doesn't help if you only play instruments which don't play chords. You can try playing the tune against a drone - in most cases you will pick the tonic as the note which sounds best as a drone, however, it's not foolproof. One popular and simple method to get the tonic is to look at the last note of the tune, as most tunes end on the tonic. Again, this is not foolproof, as many traditional tunes are circular - the last note does not end the tune, but leads back to the first note. You can usually identify these tunes by the fact that the last note is not on a stressed beat. Where a tune does end on the tonic the last note falls on a stressed beat and is usually sustained. Even when this is the case, though, there are still many examples of tunes which end on other notes.

BarFly's melody analysis routine can help to decide what the tonic and mode are. It's not perfect, and no computer analysis can ever be perfect when it comes to determining the tonic and mode of a tune, since it's perfectly possible to write music which isn't in any key, and even when a tune is clearly tonal expert musicians may differ as to what the tonic actually is. Nonetheless, if you are having difficulty making up your mind about a tune this will give you some extra information about it.

To use the routine, first enter your tune using any K: setting which gets the key signature right (or even enter it as C and put accidentals wherever necessary). The tune must play correctly before the program can analyse it. Place the insertion point in the tune as usual, and select Analyse Melody from the Edit menu. In the dialog which follows, select "Determine key and mode from tune" (otherwise the routine will take the K: entry as being correct). If you know that the existing key signature is correct, you can check the "Consider only compatible modes" checkbox. If you want to see the histograms which give information about the way in which the tune uses notes, pitches and intervals you can check those boxes too. When you click OK, the program compiles a table showing the amount of time the tune spends on each note, then compares this with a set of experimentally-determined data to see which key/mode combination fits best. If there is a clear winner, the program will give it alone; if there is another possible solution whose score is within 10% it will give that too, and so on up to a maximum of four guesses. The score (given in brackets) shows how well the pattern of note usage fits the typical pattern for the mode given. If the score is below 10, the result is almost always correct. If it's above 20 then you should treat the results with suspicion, while if it's over 30 it's probably total garbage.

The routine is not fazed by tunes which don't end on the tonic, since it pays no more attention to the last note than to any other. What does cause it problems, though, is when a tune changes key. This is surprisingly common, and many tunes contain enharmonic key changes (i.e. the key and mode change together in such a way that the key signature remains unchanged). If you get a surprising result you may want to split the tune up into separate parts and analyse them separately to see if it makes a difference. It will also give poor results with tunes which contain very few notes, since the statistical sample is too small. If you try it on "Shave and a Haircut" it will be puzzled, although the key of

that little tune is very obvious to the human ear.

## Part 3

### Examples

In the examples which follow, I'll start at the top of the mode star and work clockwise, giving first examples for all the heptatonic modes, then do the same for the ambiguous hexatonic modes, and finally the pentatonics. Some of these are very rare and I don't know of any examples.

#### Heptatonic tunes

##### Ionian mode

This is the familiar major scale - more music is written in this scale than any other. It has a characteristically - dissonant seventh note which leads back to the tonic. Tunes which use it tend to place little emphasis on this note. Since it has a major third, you use major chords to accompany it, and the guitarist's three chord trick (in the key of C) is C, F and G(7).

X:1

T:'e-ner-y the eighth

C:Murray/Weston 1911

H:English Music Hall song.

Music hall songs usually had a complex and lyrical tune to the verse, followed by a roaring great chorus. There's a strong tendency for the verses to be forgotten while everybody remembers the chorus. It's possible therefore that there's another part to the tune here, and more words, but if so I've never heard them.

M:4/4

K:C

G4 | A G E F G2 e2 | c4 c c c c | d2 c2 A2 c2 | G4 G2 G2 |

w:I'm 'e-ner-y the eighth I am. 'e-ner-y the eighth I am, I am. I got

A G E F G2 e2 | c4 d2A2 | B2c2 e2d2 | B4c3 d|

w:mar-ried to the widow next door, she'd been married seven times be-fore. Ev-ry

e2 d c B c d2-| d2 e2 ff d d | e e c c d4-|d2 c d e2 c2 |

w:one was an 'e-ner-y\* sheÊÊ wouldn't\* have a Willy\* or a Sam\* I'm her Eighth old

d2B2 c A G2- | G3 G c c c c | d2 B2 c4- | c4 :|

w:man called 'e-ner-y\* I'm 'e-ner-y the eighth I am.

W:

W:Second verse, same as the first

W:And so on...

##### Mixolydian mode

The mixolydian mode differs from ionian only by the seventh note of the scale, which is flattened. That minor seventh is much less dissonant than the major seventh, and tunes which use this mode tend to spend much more time on it, and to use it for emphasised notes, as it is the note which gives the scale its characteristic sound. Since the scale has a

major third, its overall feel is major and you accompany mixolydian tunes with major chords. The three-chord trick here (in the key of A) is A, D and G.

X:2  
T:The humors of Tralibane  
C:anon.  
O:Ireland  
R:Double jig  
B:O'Neill's 1001  
Z:Transcribed by Frank Nordberg - <http://www.musicaviva.com>  
%<http://www.musicaviva.com/abc/oneill100.abc>  
M:6/8  
L:1/8  
K:Amix  
g/f|ecA Ace|dBG GBd|cBA ecA|def {a}gfg|ecA Ace|dBG GBd|cBA edB|{c}BAA A2:|  
|:d|efg efg|(f<a)f ged|efg efg|(b<a)a a2d|efg efg|{g}f>ed Bcd|gfe edB|{c}BAA A2:|

### Dorian mode

The dorian mode differs from mixolydian by having a flattened third. The third is probably the note which makes the most difference to the overall sound of the scale, and the flattened third gives this mode a minor sound. Most players probably think of the tune below as being in a minor key. Guitarists will base their accompaniment on a minor chord, with the three chord trick (in A) being Am, G and Em.

X:3  
T:Old man Dillon  
C:anon.  
O:Ireland  
R:Double jig  
B:O'Neill's 1001  
Z:Transcribed by Frank Nordberg - <http://www.musicaviva.com>  
%<http://www.musicaviva.com/abc/oneill100.abc>  
M:6/8  
L:1/8  
K:Ador  
(A/G/)|E>AA ABd|edB {d}c2A|BGG DGG|Bdc BAG|E>AA ABd|ede a2e|edc Bcd|ecA "H"A2:: g|gef g2a|  
gef g2d|B>GG D>GG|Bdc BAG|[1 gef g2a|gef g2d|e>dc Bcd|e>cA A2:|[2 E>AA ABd|ede a2e|edc Bcd|ecA A2|]

### Aeolian mode

This is the familiar minor scale. It differs from the dorian mode in having a flattened sixth note. The three chord trick here (in A) is Am, Dm and Em.

X:4  
T:The Gaelic club  
C:anon.  
O:Ireland  
R:Double jig  
B:O'Neill's 1001

N:Jack Campin tells me that this is actually called "The Glasgow  
N:Gaelic Club", and it's a Highland Pipe tune from the late 19th  
N:century - i.e older than O'Neills. It's popular as a Scottish  
N:Dance tune and has been recorded by Jimmy Shand.

Z:Transcribed by Frank Nordberg <http://www.musicaviva.com>

M:6/8

L:1/8

K:Am

(A/B/)|cBA AGE|ABA ABc|BAG BdG|Bdg GAB|cBA AGE|ABA c2d|efe dcB|cAA A2:|  
|:B\ceg gec|ceg dBG|ceg gec|BGG G2 (A/B/)|cBA AGE|ABA c2d|efe dcB|cAA A2:|

Phrygian mode

This is the first of the three rare modes, and is very little used in English speaking countries, although it's quite common in Spain. It differs from the aeolian mode in having a flattened second, which gives it a very distinctive sound.

X:5

T:Butterfly, The

C:Tommy Potts

R:Slip jig

M:9/8

K:B Phr

B2 E G2 E F3 | B2 E G2 E FED| B2 E G2 E F3 | B2 d d2 B AFD :|  
B2 c e2 f g3 | B2 d g2 e dBA| B2 d e2 f g2 a| b2 a g2 e dBA :|  
B3 B2 A G2 A | B3 BAB dBA | B3 B2A G2 A | B2 d g2 e dBA :|

Malague—as has a major third (G#) in one bar, so it's not completely phrygian; it is, however, the very essence of a Spanish tune.

X:6

T:Malague—as

O:Spain

L:1/8

M:3/4

K:E Phr

F,C FA | Bc BA GF | E,6 ||

M:9/8

|: E,^GB ^G,GB B,GB :| A,Ac CAc B,Ac |A,Ac G,GB F,AB | E,6 ||

M:3/4

G2 F2 E2 | D2 C2 E2 | D2 D2 C2 | B,6 |  
F2 F2 F2 | F2 E2 D2 | E3 F ED | C6 |  
C2 D2 E2 | F2 G2 F2 | F2 EF GF | E6 |

X:7

T:Rond de St. Vincent

R:rond

A:Bretagne

D:Kornog: Ar Seizh Avel

Z:id:hn-breton-3

M:4/4

Q:1/4=180

K:B Phr

FF BB cB AG|FF B2 cB AG|(3FGA B2 cB AG|FF BB cB AG||  
|:fg fe dc B{c}B|AB cB AG FB|(3FGA B2 Ac Bc|dd cA B{c}B AG:|

The next tune is often quoted as one of the few examples of an English song in the phrygian mode, but I'm not sure. To my ears, the A at the end of each part sounds unresolved, and BarFly's melody analysis is quite certain it's in F Major. Either way, it's a weird and interesting tune.

X: 8

T:The Begger Boy

M:6/8

L:1/8

R:Jig

N:This tune is in the rare Phrygian mode--suggested chords are given

H:The tune name may derive from the song "The Begger Boy of the North"

H:(c. 1630)

W:From ancient pedigree, by due descent

W:I well can derive my

W:generation

W:Throughout all Christendome, and also Kent

W:My calling

W:is known both in terme and vacation

W:My parents old taught me to be

W:bold

W:Ile never be daunted, whatever is spoken

W:Where e're I come,

W:my custome I hold

W:And cry, Good your worship, bestow one

W:token!

W:--Roxburghe Ballads

K:APhr

"Am"AAA "Dm"f2f|"Am"ec2 "Bb"d2c|"Dm"AF2 "C"G2G|"F"A2B"Am" cA2|

"Am"AAA "Dm"f2f|"Am"ec2 "Bb"d2c|"Dm"AF2 "Gm"G2G|"Dm"A2B "Am"cA2||

"F"AAA f2f|"C"ec2 "Bb"d2c|"F"Ac2 "C"ede|"F"FA2 "C"G3|

"F"Acc "C">dc|"Bb"dfg/2f/2 efd|"F"CAF "Gm"G2G|"Dm"A2B "Am"cA2||

## Locrian mode

This mode differs from the phrygian mode in having a flattened fifth. Having abandoned the sweetest of intervals (the perfect fifth) for the most dissonant of all (the tritone, or flattened fifth) we end up with a scale which always sounds grim and funereal. This is the rarest of all modes, and I know of no traditional examples from anywhere in the world. The only reasonably well known tune in this mode is John Kirkpatrick's "Gravedigger's Song", which he wrote just to see if it could be done. I can't use that as an example here, first because it's copyright, and secondly because it doesn't use all of the seven notes.

So I wrote a tune of my own. In a determined attempt to write something in the locrian mode that sounds cheerful, I set out to write a reel. The result is interesting - it certainly sounds like a reel, it's playable on the fiddle and you could dance to it. The overall impression however is that it sounds like the sort of music you might hear if you came across a group of dark figures dancing at a deserted country crossroads at midnight; a dance that you might be reluctant to join in.



X:9  
T:The Vampire's Lair  
C:Phil Taylor  
R:Reel  
M:C|  
K:D Loc  
A,2|\  
D2 (FD) ADFD | EFGA (3dcd AF | D2 (FD) ADFD | EFED CA,B,C |  
D2 (FD) ADFD | EFGA d2 d2 | (3fed (3edc ddAF | DFEC D2 :|  
(dc) |\ \  
dcde ddAd | defd edBd | ({f}e)def eddc | defd d2Ad |  
dcde ddAd | defd edBc | dcde dBAF | DFEC D2 :|

### Lydian mode

This is the last of the heptatonic modes, and is also very rarely used in the English-speaking world, although lydian mode tunes are not uncommon in Scandinavia, and particularly Norway. We get here from the locrian mode by flattening the tonic, although since we have now flattened all of the notes except the fourth it's easier perhaps to think of the lydian mode as being a major scale with a sharpened fourth. Since we now have a major third in the scale the overall sound is major, and a guitarist would base an accompaniment on major chord. Your three-chord trick here (in A) would be A, B and E (which might lead you to think that the tune was actually in E major).

X:10  
T:Old Nick's Lumber Room, or the Pawnbroker's Warehouse  
S:Edinburgh Public Library "Musical Scraps" v2 p116  
Z:Jack Campin 1998  
N:press cutting in 19th century style  
N:anybody know where it comes from?  
R:jig  
M:6/8  
L:1/8  
K:A Lyd %Originally in A major with all Ds sharp  
A3 (cAc)|eae cAc|E3 (GEG)|BdB GEG|A3 cAc|eae cAc|faf dBd|e3- [e3E3] :|  
E3 GEG |BdB GEG|A3 cAc |eae cAc|faf dBd|eae cAc|BdB GEG|A3 [A3A,3]:|

X:11  
T:The stolen purse  
C:anon.  
O:Ireland  
R:Double jig  
B:O'Neill's 1001  
Z:Transcribed by Frank Nordberg <http://www.musicaviva.com>  
m:Tn3 = no/4n/m/4n  
M:6/8  
L:1/8  
K:G Lyd  
G|FED (c/B/Ag)|fed cAG|(A/B/A)(G A)Bc|dcA ABG|FED (c/B/Ag)|fed cAF|TG3 GA(F|D)GG G2:|  
||B|cBA fAg|fed cAG|(A/B/A)(G A)Bc|dcA ABG|FED fAg|fed cAF|TG3 GA(F|D)GG G2:|  
||f|(a/g/f)a (g/f/e)g|fed cAG|(A/B/A)(G A)Bc|dcA Afg|(a/g/f)a (g/f/e)g|(f/e/d)(f e)cA|TG3 GA(F|D)GG G2:|

The next song is often quoted as the only example of an English song in the lydian mode, but again I'm not sure. Certainly both lines end very solidly on the lydian F, but they start out in Am, and I suspect it modulates in the middle of each line. It's one of my favourite tunes, and perfectly matched to the grim and bloody ballad that it carries. This a transcription of my own singing, and as usual I've been singing it for many years, so it's probably not the same as it was originally.

X:12

T:Lucy Wan

S:A.L.Lloyd

M:4/4

K:F Lyd

c2 A G FG A c | B2 AG A4 |[M:3/4] c2 A d B G |[M:4/4] F4-F2 ||

w:Lu-cy she sits\* at her fa-ther's\* door, wee-ping and ma-king moan.\*

D2 | F2 G2 A2 c2 | c2 B2 A2 >F2 |[M:3/4] F2 GA B G |[M:4/4] F8 ||

w:When by thereÊ comes her bro-ther John, "What ails thee\* Lu-cy Wan?"

W:

W:I ail and I ail, O me brother she said

W:And I'll tell you the reason why.

W:I have a baby between my two sides

W:It's of you dear brother and I.

W:

W:Then he's ta'en out his good broadsword

W:That hangs below his knee

W:And he has cutted off his sister's head

W:And her fair body in three

W:

W:He's away to his mother's house

W:As fast as he could run

W:When by there comes his mother dear

W:"What ails thee Geordie Wan?"

W:

W:"And what's that blood that's on your sword

W:My son come tell to me?"

W:"Oh that's the blood of my grey hound,

W:He would not stay by me."

W:

W:"Your grey hound's blood was neer so red

W:My son come tell to me."

W:"That's the blood of my grey mare,

W:She would not ride with me."

W:

W:"Your grey mare's blood was neer so clear

W:My son come tell to me."

W:"Oh that's the blood of my sister Lucy,

W:She made a baby by me."

W:

W:"And what will you do when your father comes to know,

W:My son come tell to me."

W:"I'll set my foot in a bottomless boat

W:And sail across the sea."

## Hexatonic tunes

You can make a hexatonic scale by dropping any of the notes from any of the heptatonic scales, but the interesting cases happen where the note which is missing is the one which distinguishes between two adjacent modes. This results in a scale which is ambiguous - you can think of it as being in either of the parent modes. When entering the key field for such a tune you have a choice of two modes, and neither is wrong.

### Lydian/Ionian (-4)

In this case it's the fourth note of the scale that's missing, and although the result is ambiguous, we tend not to hear it, since the ionian (major) scale is very familiar, while the lydian is almost unheard of. Mostly we don't notice these tunes as being any different from the major scale.

X:13

T:The Old Man

S:Straloch MS, 1627

Z:Nigel Gatherer

O:Scottish

L:1/8

M:2/4

K:G %Hexatonic ( -4) Lydian/Ionian

g2 g2|fg a2|g2 gd|B2 d2::e2 dB|A2 A2|BG dB|G2D2:|

X:14

T:Flowers of Edinburgh

S:from the playing of Dave Swarbrick

Z:Nigel Gatherer

M:2/4

L:1/8

K:G %Hexatonic ( -4) Lydian/Ionian

D|GG BG/B/|dB g>e|dB B/A/G/A/|BG ED|

GG BG/B/|dB g>e|dB B/A/G/A/|BG G:|

d|g2 f>e|Be e>f|g2 f/g/f/e/|Be eg/e/|

d/B/G/B/ dd|e/d/e/f/ gg/e/|dB B/A/G/A/|BG G:|

X:15

T:Seneca Square Dance

T:Waiting for the Federals

Z:Nigel Gatherer

M:2/4

L:1/8

K:G %Hexatonic ( -4) Lydian/Ionian

B2 BA/B/|dB B/A/G|B2 d>B|A/B/A/G/ ED|B2 BA/B/|dB B/A/G|

A/B/A/G/ EF|G2 G2::g2 g>e|d B2 B/d/|g2 g/f/g/a/|

b/e/e/e/ ef|g/a/b/a/ g>e|d/g/e/d/ B/A/G|A/B/A/G/ EF|G2 G2:|

X:16

T:I'm A' Doun For Lack O' Johnnie

B:The Songs of Scotland Without Words, J T Surenne

Z:Nigel Gatherer

M:4/4

L:1/8  
K:G %Hexatonic ( -4) Lydian/Ionian  
D2|G3 F E2 FG|A3 F D2 EF|G3 F E3 D|D G3- G2 :|  
D2|G2 d2 d2 GA|B2 A2 A2 D2|G2 Bd e3 d|B2 d4 D2|  
G2 d2 d2 GA|B2 A2 A2 EF|G3 F E3 D|D G3- G2|]

Ionian/Mixolydian (-7)

X:17  
T:Dark Island  
C:Ian Maclachlan  
S:Various records  
Z:Nigel Gatherer  
M:3/4  
L:1/8

K:G %Hexatonic ( -7) Ionian/Mixolydian  
E|A3 E A2|G3 A G2|E3 D C2|D4 GA|  
B3 A G2|B d3 D2|B3 d B2|A4 DE|  
A3 E A2|G3 A G2|E3 D C2|D4 GA|  
B3 DdB|A3 DBA|G6|G4|]  
Bc|d3 D D2|B3 A G2|E C3 E2|D4 GA|  
B3 A G2|B d3 D2|B3 d B2|A4 DE|  
A3 E A2|G3 A G2|E3 D C2|D4 GA|  
B3 DdB|A3 DBA|G6|G4|]

X:18  
T:Ben Lomond  
B:Complete Repository, Part Third (c1810-20)  
Z:Nigel Gatherer  
M:4/4  
L:1/8

K:D %Hexatonic ( -7) Ionian/Mixolydian  
%B|A>FAB AFAB|B>ABd e/e/e e2|d<ff>d e>Bd>A|B<dA>F D/D/D D:|  
f/g/|a>fd>f a>fdf|e>def e/e/e ef/g/|a>fdf a>baf|e>def d/d/d d/f/g|  
a>fd>f a>fdf|e>def e/e/e e2|d<ff>d e>Bd>A|B<dA>F D/D/D D|]

X:19  
T:Tennessee Waltz  
S:Friends  
R:waltz  
Z:Nigel Gatherer  
M:3/4  
L:1/8

K:A %Hexatonic ( -7) Ionian/Mixolydian  
A>B|c e3 A>B|c e3 ab|c'4 c'b|a f4 a|a e4 e|f2 e2 c2|B4 B>c|  
B4 A>B|c e3 A>B|c e3 ab|c'4 c'b|a f4 a|a e3 c2|d2 c2 B2|A6|A4|]  
a>b|c4 c'c'|b4 c'b|a3 f a2|f e4 c|e4 e>e|f2 e2 c2|B4 B>c|B4 A>B|  
c e3 A>B|c e3 ab|c'4 c'b|a f4 a|a e3 c2|d2 c2 B2|A6|A6|]

X:20  
T:Burn O' Craigie, The  
S:Old Blind Dogs, 'Tall Tails'  
Z:Nigel Gatherer  
M:4/4  
L:1/8  
K:A %Hexatonic (-7) Ionian/Mixolydian  
F2|E2 E>F E>FA>c|B>AB>c B>AF<A|E2 E>F E>FA>c|B>AB<c A2:|  
(3ABc|d2 d>f e<cc>A|B>AB>c B>AF<E|d2 d>f e<cc>A|B>AB<c A2 (3ABc|  
d2 d>f e<cc>A|B>AB>c B>AF<A|c<ee>f a>fe>c|B>AB>c A2|]

Mixolydian/Dorian (-3)

X:21  
T:The Duke of Buccleugh's Tune  
B:Apollo's Banquet, 1990, via...  
B:The Popular Songs and Melodies of Scotland  
Z:Nigel Gatherer  
M:2/4  
L:1/8  
K:A Dor % Hexatonic (-3) Mixolydian/Dorian  
G<EG<E|A>GAB|G<EG>A|B2 d z|  
GE/F/ GE|A>GAB|G<EG>A|B2 d z|]

X:22  
T:Eleanor Plunkett  
C:Turlough O'Carolan  
S:Various recordings  
M:3/4  
L:1/4  
K:A Dor % Hexatonic (-3) Mixolydian/Dorian  
G/A|B B A/G|G G a/g|e e e/d|B B A/G|\  
E A A/B|A2:|g/a|b a/g/e/d|e2 e/f|  
g g b|a b/a/g/f|g a/g/f/e|d B d|\  
e g G|B B A/G|E A A/B|A2:|

X:23  
T:Underhill  
B:Da Mirrie Dancers, 1970  
O:Shetland  
Z:Nigel Gatherer  
M:4/4  
L:1/8  
K:A Dor % Hexatonic (-3) Mixolydian/Dorian  
ge|dBBA GABG|A<ABG ABde|dBBA GABG|AGAB G2:|  
g2|faea fe d2|faea faea|faea fedB|AGAB G2:|

X:24  
T:Hamish the Carpenter

T:Old Time Wedding Reel #2  
D:Boys of the Lough, Welcoming Paddy Home (1986)  
Z:Nigel Gatherer  
M:4/4  
L:1/8  
K:A Dor % Hexatonic ( -3) Mixolydian/Dorian  
A2 GE GAgf | e2 dB de g2 | A2 GE GAgf | egdB AAAB |  
A2 GE GAgf | e2 dB de g2 | (3efg dB GABd | (3efg dB G2 G2 |]  
eaab a2 ge | gaba ge d2 | eaab a2 ge | dBgB BA A2 :|

Dorian/Aeolian (-6)

X:25  
T:Fang the Fiddlers  
C:J R Findlater  
S:Manuscript collection  
Z:Nigel Gatherer  
L:1/8  
M:C|  
R:Reel  
K:Am %Hexatonic ( -6) Dorian/Aeolian  
A/A/A eA cAAc|B/B/B gd BGGB|A/A/A eA cAAc|dGdB A2 [1 a2:|[2 a|  
c|Aaag aeea|gag dBGB|Aaag aeea|gegB A2 a:|

X:26  
T:Fraser's Jig  
R:Jig  
O:Canada  
M:6/8  
C:Dan Hughie MacEachern  
A:Cape Breton  
Z:Trish O'Neil  
K:G Dor % Hexatonic ( -3) Mixolydian/Dorian  
GAG d3| dcd g3| f2 c dfd | cAF AGF| \  
GAG d3| ded g2 a| f2 d cAF| G3 G3:|  
g3 def| gfg d2 e| f2 c dfd| cAF F3| \  
g3 def| gfg d2 e| f2 d cAF| G3 G3|  
g3 def| gfg d2 e| f2 c dfd| cAF F3|\  
GAG dcd| gfg a2 g| f2 d cAF| G3 G3|]

X:27  
T:Clinch Mountain Backstep  
S:Bluehrass and Old Time Mandolin  
Z:Nigel Gatherer  
M:4/4  
L:1/8  
K:Am %Hexatonic ( -6) Dorian/Aeolian  
aa|aa g2 e2 eg|edcc A2 aa|aagg e2 d2|e2 ee eea|  
aggg eeeg|edcc A2 GA|AAAA cAGB|A2ee ee:|

E2|GAAA AAcc|ccAA GG E2|\

M:6/4

L:1/8

GAAA AAcc cc d2|\

M:4/4

L:1/8

e2 ee ee aa|

aa g2 e2 eg|edcc A2 GA|AAAA cAGB|A2 ee ee:|

X:28

T:Captain Campbell

S:Gillian Boucher, Edinburgh session 27/6/01

Z:Nigel Gatherer

M:4/4

L:1/8

K:A Dor %Hexatonic ( -6) Dorian/Aeolian

E<AA>B c>AB<G|D<GG>A B>d c/B/A/G/|E<AA>B c>Bc<e|d<Bg>B A2 A2:|

A<aa>g e>dc<e|d>eg>e d/c/B/A/ G<B|A<aa>g e>dc<e|d<Bg>B A2 A2|

A<aa>g e>dc<e|d>eg>e d/c/B/A/ G<B|c<Ad>B e>dc<e|d<Bg>B A2 A2|]

Aeolian/Phrygian (-2)

X:29

T:Star of the County Down, The

S:So long ago I can't remember

Z:Nigel Gatherer

M:4/4

L:1/8

K:Em %Hexatonic ( -2) Aeolian/Phrygian

B,D|E2 E2 E2 DE|G2 G2 A2 GA|B2 AG ED B,2|D6 B,D|

E2 E2 E2 DE|G2 G2 A2 GA|B2 AG E2 E2|E6|]

Bc|d2 B2 B2 AG|A2 A2 A2 GA|B2 AG ED B,2|D6 B,D|

E2 E2 E2 DE|G2 G2 A2 GA|B2 AG E2 E2|E6:|

Pentatonic tunes

<sup>1</sup> 1 Lydian/Ionian/Mixolydian (-4,7)

X:30

T:I Fee'd a Lad at Michaelmas

T:O Can You Labour Lea

B:Johnson's Scots Musical Museum, via...

B:The Popular Songs and Melodies of Scotland

Z:Nigel Gatherer

M:2/4

L:1/8

K:G %Pentatonic ( -4 -7) Lydian/Ionian/Mixolydian [<sup>1</sup>1]

G>GGB|A>GAB|G<GGB|e3 g|

G>GGB|A>GAB|G<EE>D|G3|]

X:31

T:The Miller's Wedding

T:The Miller's Daughter

B:Cumming's Collection, 1780, via...

B:The Popular Songs and Melodies of Scotland

Z:Nigel Gatherer

M:2/4

L:1/8

K:G %Pentatonic ( -4 -7) Lydian/Ionian/Mixolydian [<sup>1</sup>1]

D|G<GG>E|A>GAB|D<DE>D|G3 B|

G<GG>E|A>GAB|D<DE>D|G3 z|]

X:32

T:Mormond Braes

Z:Nigel Gatherer

M:2/4

L:1/8

K:C %Pentatonic ( -4 -7) Lydian/Ionian/Mixolydian [<sup>1</sup>1]

C|EE E>D|EC C>G|cc cG|A2 G.G|

cc ce|GG EG/G/|AG cE|D2 C|]

C|EE E>D|EC C>G|cc cG|A2 Gz|

cc c>e|GG EG/G/|AG cE|D2 C|]

X:33

T:Brave Lewie Roy

B:Kerr's Third Collection of Merry Melodies (c1875)

M:2/4

L:1/8

K:C %Pentatonic ( -4 -7) Lydian/Ionian/Mixolydian [<sup>1</sup>1]

c2 A>G|G2 e>d|c2 A>G|GA c2|d2 de|g2 eg|a2 ge|de g2|

c2 A>G|G2 e>d|c2 A>G|GA c2|d2 de|g2 eg|a2 ge|d2 c2|]

X:34

T:Heather Hill

C:Dan R. MacDonald

O:Cape Breton

M:4/4

L:1/8

R:reel

K:G %Pentatonic ( -4 -7) Lydian/Ionian/Mixolydian [<sup>1</sup>1]

D2 |: G2 {d}BA BGGB | dedB BGGB | dedB degd | egdB A2 {d}BA |

G2 {d}BA BGGB | dedB BGGB | dedB degd |1 egdB G2 {d}BA :|2 egdB G2 G2 ||

gage gdde | gage degd | eaab ageg | abag gede |

gage gdde | gage degd | eaab agea | gedB G2 G2 :|

<sup>1</sup> 2 Ionian/Mixolydian/Dorian (-3,7)

<sup>1</sup>2 tunes are rarer than hen's teeth. This may seem like a rather ordinary little tune, but it's unique as far as I know.

X:35



T: Handsome Molly

M: 4/4

L: 1/8

K: Dmix %Pentatonic (-3 -7) Ionian/Mixolydian/Dorian [12]

D2 | D2D2E2G2 | G4G2E2 | D2D D E2G2 | A6 G2|

w: I wish I was in Lon- don, or some oth- er sea- port town, I'd

A2A2B d2d | A4B2A2 | G2G2D2E2 | D8 ||

w: set my foot on a steam- boat, I'd sail the o- cean round.

W:

W: Wish I was in London,

W: Or some other seaport town;

W: I'd set my foot in a steamboat,

W: I'd sail the ocean 'round.

W:

W: While sailing around the ocean,

W: While sailing around the sea,

W: I'd think of handsome Molly

W: Wherever she might be.

W:

W: She rode to church a-Sunday,

W: She passed me on by;

W: I saw her mind was changing

W: By the roving of her eye.

W:

W: Don't you remember, Molly,

W: When you gave me your right hand?

W: You said if you ever marry

W: That I'd be the man.

W:

W: Now you've broke your promise,

W: Go home with who you please,

W: While my poor heart is aching

W: You're lying at your ease.

W:

W: Hair was black as a raven,

W: Her eyes was black as coal,

W: Her cheeks was like lilies

W: Out in the morning gown.

<sup>1</sup> 3 Mixolydian/Dorian/Aeolian (-3,6)

X: 36

T: Gallways Lament

S: Andrew Adam's Music Book (ms) 1710

Z: Nigel Gatherer

M: 3/4

L: 1/8

K: G Dor %Pentatonic (-3 -6) Mixolydian/Dorian/Aeolian [13]

d2|g2 g2 a2|g3 f d2|f2 gagf|f3 gaf|d2 g2 ga|g4 f2|d2 ca ca|G4:|

X: 37

T: Johnnie Jigamy

T: The Waking of the Fauld

S:Greig-Duncan Collection Vol.7

Z:Nigel Gatherer

M:4/4

L:1/8

K:A Dor %Pentatonic ( -3 -6) Mixolydian/Dorian/Aeolian [<sup>1</sup>3]

A<AA>B A>B e2|d>eg>B A<G E2|G<GG>A G>A B2|D>EG>A B<A A2:|

A<aa>g b>a a2|g>ab>g a>g e2|g>ag>e d>e g2|G<GG>A B>A A2:|

X:38

T:Jamie Rae

D:Colin Campbell, Highland Style (1973)

Z:Nigel Gatherer

M:6/8

L:1/8

K:A Dor %Pentatonic ( -3 -6) Mixolydian/Dorian/Aeolian [<sup>1</sup>3]

g|A>AA a3|geg a3|G>GG g2 e|dBd BGB|A>AA a3|geg a3|

g2 e dBd|e2 A A2::e|A>AA e2 A|d2 A A2 B|G>GG g2 e|

dBd BGB|A>AA e2 A|dBA g2 a|g2 e dBd| e2 A A2 :|

X:39

T:Flowers of Spring, The

T:Tom Billy's

R:jig

M:6/8

K:Edor % Pentatonic ( -3 -6) Mixolydian/Dorian/Aeolian [<sup>1</sup>3]

~E3 EFA|BAF D2F|AFE DED|DFA BAd|~E3 EFA|BAF D2F|AFF dFF|1 EFE E2D:|2 EFE E3||

|:Bee ede|~f3 edB|BdB DFA|~B3 dBA|Bee ede|~f3 edB|BdB AFD|1 EFE E3:|2EFE E2D||

<sup>1</sup> 4 Dorian/Aeolian/Phrygian (-2,6)

This is a rarely used scale. Here are two tunes from Hungary, and one from the USA.

X:40

T:Barna kislany, ha bemegy a templomba

B:Rozmaring: 91 Magyar NŽpdal, ZenemŸkiado VŸllalat, Budapest 1952

O:Horgos (Caongrad) 1942

C:Fšldi MihŸly

N:the glissando is represented by the usual wiggly line in the book

M:4/4

L:1/8

Q:1/4=100

K:D Dorian %Pentatonic ( -2 -6) Dorian/Aeolian/Phrygian [<sup>1</sup>4]

AAGG AFGA|GD3 D2z2 |

ddcc AGcc|FA3 A2z2 |

ddcc AGcc|A2A2 "^gliss"yD2z2 |

AAGG AFGA|GD3 D2z2|]

X:41

T:A bolhŸsi kertek alatt, Kata

S:KodŸly, Folk Music of Hungary, ex. 91

O:BolhŸs (Somogy County), 1922

M:none  
L:1/8  
Q:1/4=80 % -100  
K:G Dorian %Pentatonic ( -2 -6) Dorian/Aeolian/Phrygian [<sup>1</sup>4]  
GB Gc2|BG FG2|GG z2 |\n  
dg dg2|fd cd2|dd z2 |\n  
dg dg2|fd cd2|\n  
BB Gc2|BG FG2|GG z2|]

X:42  
T:Nottamun Town  
N:better known as the tune for "Masters of War" by Bob Dylan  
G:song  
B:Sharp & Karpeles, 80 English Folk Songs from the Southern Appalachians  
M:9/8  
L:1/8  
Q:3/8=80  
K:EMin  
% dorian/minor/phrygian pentatonic  
D E E G|E3- E E E B B A| B3- B B B B A B|\n  
e3- e B B d e d| B3- B B B B A B|\n  
e3- e B B d e d|[M:6/8] B3- B2 B |\n  
[M:9/8] B A B (dB) A G E D| E3- E2 []]

<sup>1</sup> 5 Aeolian/Phrygian/Locrian (-2,5)

This is another unused scale. It's very hard (maybe impossible) to write a tune which doesn't use the fifth at all.

## Irregular Scales

Of course the scales described above are not the only possibilities. You can make a hexatonic scale by dropping any of the notes (except the tonic) from any of the heptatonic scales, and make a pentatonic scale by dropping any two notes. Generally speaking, the ambiguous scales described above are the more interesting ones, but the evolutionary process which molds traditional melodies is no respecter of theory, and you will come across many scales which BarFly will classify as "irregular". Here are some examples.

X:43  
T:Breton tune  
N:octave shifts ad lib  
N:tempo unknown, seems to work at any speed  
Z:Jack Campin  
M:2/4  
L:1/16  
K:E Minor %Hexatonic ( -7) irregular  
E2B2 B2AB|c2B2 AGFG|A2A2 B2A2|GFEF G2F2|\n  
E2B2 B2AB|c2B2 AGFG|A2A2 B2A2|GFEF E4 :|\n  
E2E2 F2GF|E2E2 FEFG|A2A2 B2A2|GFEF G2F2|\n  
E2E2 F2GF|E2E2 FEFG|A2A2 B2A2|GFEF E4 :|\n

X:44  
T:Breton #1

R:Other  
O:France  
M:6/4  
A:Brittany  
Z:Trish O'Neil  
K:G %Hexatonic ( -6) irregular  
G2DG B2c2 A2AB | GB DG B2c2 A2AA ::  
B2BA B2d2 G4 | A2cB G2GB ABA2 | \  
B2BA B2d2 G4 | A2Ac BGAF G4 :|

X:45  
T:Drops of Brandy  
R:slip jig  
L:1/8  
M:9/8  
K:G %Pentatonic ( -6 -7) irregular (or poss. B Phr Pentatonic ( -4 -5) irregular)  
d2c BGB BGB|d2c BGB cBA|d2c BGB BGB|cBc A2B cBA :|  
GBd gdB gdB|GBd gdB cBA|GBd gdB gdB|cBc A2B cBA |  
GBd gdB gdB|GBd gdB cBA|GBd gba gdB|cBc A2B cBA ||

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