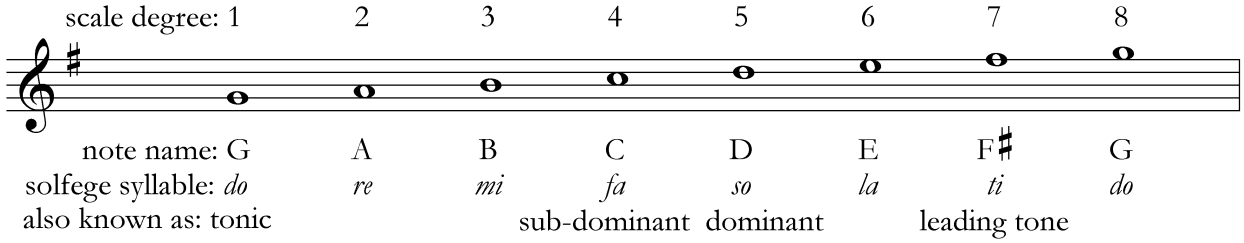
The Secret of Melody: Scale Degree Characteristics and Modes

by Dick Hensold © 2002

All melodic tension, melodic structure, harmony, modality, form, and playing by ear depend on one thing: that **each note of the scale has a subtly different character**. This subtle character is made of different elements that are hard to describe with words; I might also say that each note of the scale has its own personality, color, emotion, or drive, but "character" seems to describe it best. Some people find it difficult to learn to hear these characteristics, but our pipes make it easier to get a handle on this. On bagpipes, the character of each note of the scale (or *scale degree*) is heightened by the presence of the drone, which transforms each independent scale degree into a harmonic interval. In fact, I didn't learn to play by ear until after I had played pipes for awhile. Now the skill readily transfers itself to other instruments.

The traditional way of teaching this skill is through solfege syllables (*do, re, mi, fa, so, la, ti*), which accomplish the same thing, but in a more intuitive way. In other words, giving each scale degree a name, such as "*do*", allows the musician to subconsciously associate a character with it.* Please keep in mind that this article is primarily about skills in *hearing* music, and not a treatise on music theory. There are listening exercises specified throughout the article, and it will be easy to get lost among the abstract ideas if you don't do them! If you want to pick up this ear-skill, please do the exercises as recommended. Following contemporary practice, I will refer to each scale degree by its number, and as a shorthand for Northumbrian pipers, I will refer to notes as in the usual pipe keys. The character of some of the scale degrees varies from mode to mode, and this is a good way to understand and hear modal differences. I will first explain the characters of the degrees of the common G major scale, and then we will be ready to extend this to the different modes. The scale degrees appear below with their corresponding note names and solfege syllables:



Characters of the scale degrees of the common major scale:

1 - G - *do* Home, stability, a reference point. This degree is generally pretty easy to recognize. (Drones are usually set here.)

2 - A - *re* Open, asks a question, ready to move on. A typical note to end the first phrase of a melody. Does not have too obvious a quality.

3 - B – *mi* Warmth, color, activity. This note has a very strong resonance with the drones, so bagpipe music makes liberal use of this note. The character of 3 is easy to recognize.

4 - C - *fa* Darkest note of the scale, a strong, deep, peaceful feeling. An easy scale degree to recognize.

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* There are of course different systems of solfege, and what I'm talking about compares most closely with the moveable *do* system.

5 - D - *so* The floating note. Transparent, does not have much sense of stability, or sense of drive either. Tends to disappear in a chord, as it does in a G-d-g drone setup. A little hard to recognize.

6 - E - *la* A mysterious note, has some of the same darkness as the 4th degree, but with a much more elusive quality. Often a very piquant note in pentatonic melodies. This degree has the most subtle quality.

7 - F◁ - *ti* This note drives to resolve upward to the tonic (1), and is characterized by activity, energy, motion. Its strong and obvious character is recognized in its common name, "leading tone".

Notice how the vowels in the solfege syllables relate scale degrees with similar characters: the two most active scale degrees have an "*i*"(pronounced ee), and the two darkest degrees have an "*a*"(pronounced ah). *Do* and *so* are related as well, but although I can't quite explain how, notice that these two notes are combined in most of our drone setups.

Everyone will hear these qualities a little differently; I'm just trying to point the way. Try tuning your drones up very carefully to G-d-g and play the scale above slowly, and then a slow tune. Listen for the different characters *you* hear. You won't learn to recognize all the degrees at once, which is why I indicated which ones tended to be easier or harder to discern. Your ability to play by ear, in fact, will be quite functional even if you can only pick out 5 of the degrees, because even that much will allow you to find the structure of the tune.

We will now discuss modes, but first some terminology. The most confusing part of explaining this subject to anyone is that many terms in music theory have multiple definitions, and many people who talk about music theory use several terms interchangably to describe the same thing. In this article, I try to use my terms in their strictest sense, define those terms, and warn you when things can get confusing. A scale, for instance, is a general term meaning a group of notes arranged in stepwise order that is used to describe the basic musical material that a tune is made of. Modes and tonalities, therefore, are both different kinds of scales. "Key" and "tonality" both mean the same thing for the purpose of this article. Note that there is a little confusion over the terms "major" and "minor", since these terms apply *both* to individual scale degrees and also to entire scales.

Now, I want to explain in the simplest terms possible how this relates to **major** and **minor, tonal** and **modal**. The difference between one scale and another is that some of the scale degrees can be either major or minor, depending on the type of scale. (A minor scale degree is a half-step lower in pitch than its major counterpart.) Specifically, a **mode** is a scale with a minor 7th scale degree, and a **tonality**, or **key**, is a scale with a major 7th scale degree. A **minor** key or mode has a minor 3rd scale degree, and a **major** key or mode has a major 3rd scale degree. (See also the table "Cheat Sheet For Keys and Modes" at the end of this article.) There are other ways of describing keys and modes, such as mapping out half-steps and whole-steps, or in terms of the "white-note" scale, but since these descriptions do not translate as readily into ear-skills, they are not dealt with here. This present system (understanding different scales, keys and modes in terms of scale degree characteristics and major and minor scale degrees) can be understood entirely by ear.

I said above that some of the scale degrees can be either major or minor - in fact there are only 3 degrees of the scale that vary between major and minor, depending on key or mode: the 3rd, 6th, and 7th.* Whereas the characters of minor 3rds, 6ths, and 7ths will obviously be completely different from their major

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* OK, so technically there are more than that, but we're talking about the traditional repertoire, and I'm keeping it simple. This is really all you need to know.

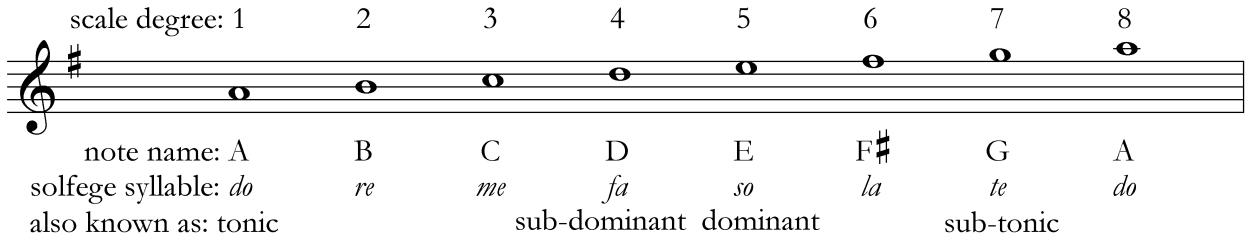
counterparts, *the characters of all the other degrees of the scale are constant in any key or mode.* The relative strength of those characters may vary from mode to mode, but this is a fine point. These three notes are all major in the major scale shown above. Since the characters of the 4 scale degrees which do not vary are constant, I will not repeat them here, but just give the characters of the three minor degrees:

minor 3rd - *me* Most people describe this as a sad note, but it also has an active quality, making it somewhat anxious or angry.

minor 6th - *le* Strong, dramatic, opaque. If the major 6th hides in the background, the minor 6th steals the show.

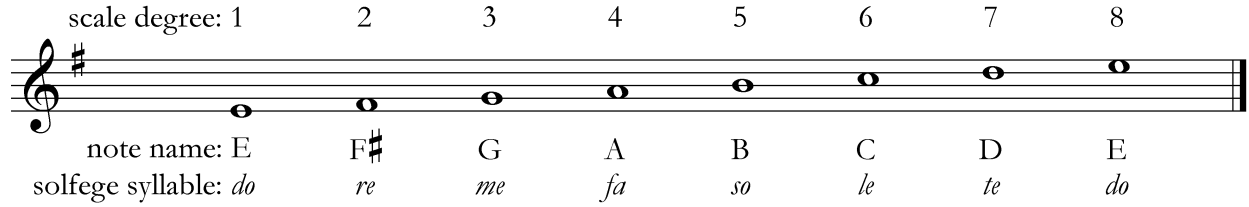
minor 7th - *te* The strong darkness of this note is sometimes confused with the 4th, but this note has more harmonic implications than the 4th usually does. The min 7th makes a piece sound very "Celtic". For a fuller description of the harmonic implications of modes, see "The double-tonic harmonic structure" below.

The two modes most commonly used by Northumbrian smallpipers are A Dorian and E Aeolian. A



dorian, shown below, uses the minor 3rd and minor 7th - everything else is the same:
Now, retune your drones to A-e-a, play the scale above, and listen again to the characters of the scale degrees. The 1st, 2nd, 4th, 5th, and 6th should have much the same character as before, even though the notes are different. Now listen to the minor 3rd and minor 7th, C and G. The drone (as well as their new position in the scale) changes their characters completely from what they were in G major.

Next is E Aeolian, which uses minor 3rd, 6th, and 7th scale degrees. It is sometimes known as E minor, but this is not entirely correct (See explanation of tonal minor below):



The most familiar Aeolian tune in the Northumbrian repertoire is probably "Bonny at Morn" (NP 2nd TB, pg 2), and the third note of the tune is a good example of the dark strength of the minor 6th scale degree. There are, however, problems with playing in any mode of E on Northumbrian smallpipes. The B's on our pipes are tuned pure to the G drone, but when we set the drones on E-b (as we would normally do for E Aeolian) the Bs are too flat as the 5th scale degree. A better key center for this tune is A, but this requires an F▷ to get the min. 6th scale degree. A similar problem is found in the popular tune "Roslyn Castle"(from *The Choicest Bagpipe Music from the Scottish Borders and Lowlands* by Gordon Mooney, or in "The

Wild Hills o' Wannies"; from Vol VII of the *Piper's Companion* by Derek Hobbs), which is in E **tonal** minor. Note that this tune has D's and C's, major 7ths and minor 6ths. It is not a modal tune, but a tonal minor tune, and can also be referred to as "in the key of E minor" to differentiate it from "E Aeolian". Tonal minor kind of breaks all the rules of this nice system we have. Both the 6th and 7th scale degrees in tonal minor tunes can be *either or both* major and minor. Aeolian tunes always have minor 7th scale degrees and are therefore modal.

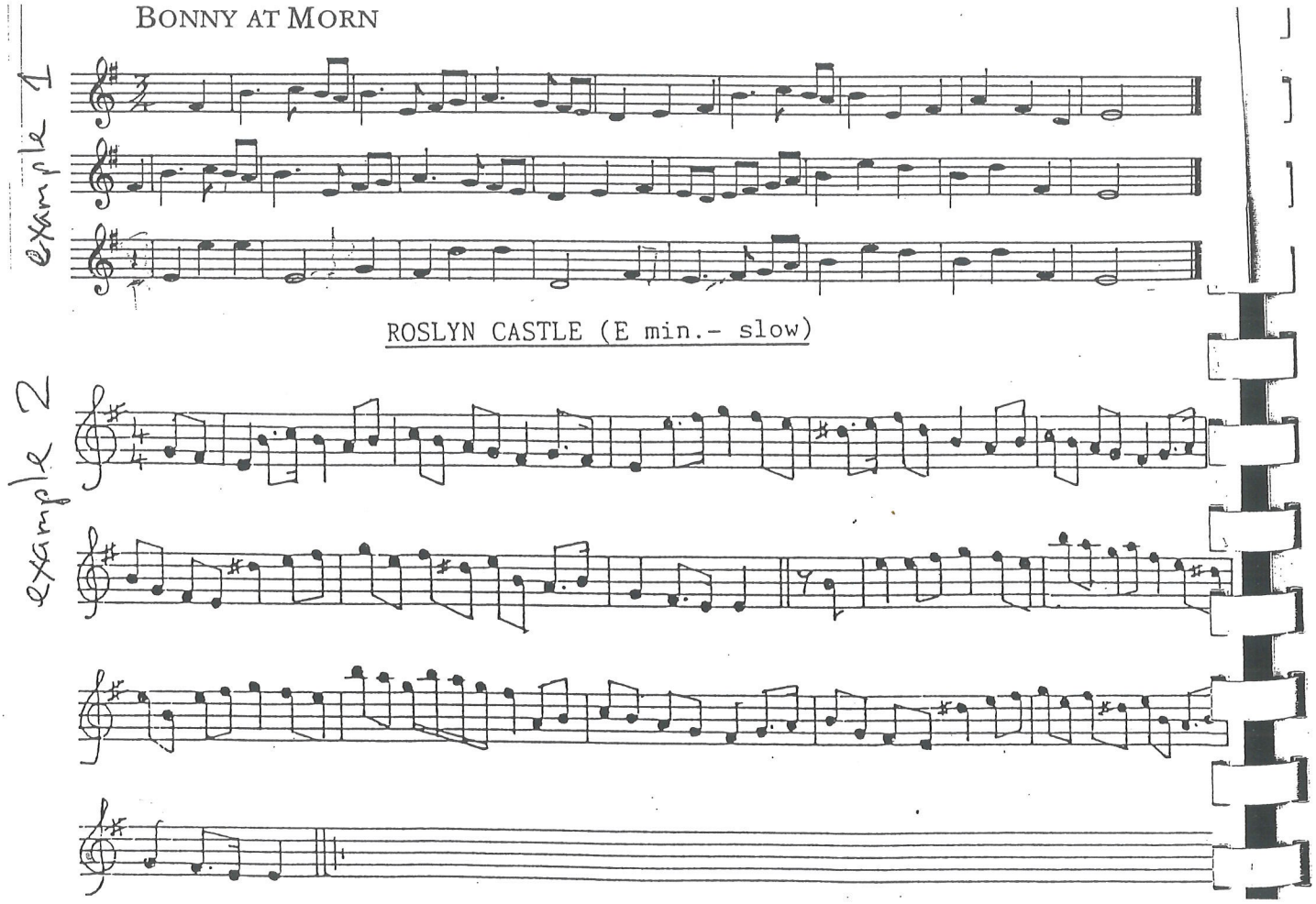
The Double-tonic Harmonic Structure

I didn't want to get too involved with harmony in this article, but in our repertoire, the subject of modes is inextricably connected with the **double-tonic** harmonic structure. Many old Northumbrian, Scottish, and Irish tunes are double-tonic, that is, built on two adjacent, alternating chords. In the following examples, the roman numerals show what scale degrees the chords are built on; capital letters indicate major chords, that is, chords with a major 3rd, and lower-case letters indicate minor chords, that is, chords with a minor 3rd. "Sir John Fenwick's the Flower Amang Them All"(found in the *Northumbrian Piper's [first] Tune Book*, pg 13); and "Keelman Ower the Land" (*Northumbrian Piper's 2nd Tune Book*, pg 49) are major double-tonic tunes in which the 2 principal chords are built on the 1st and 2nd scale degrees (I and ii, G and am). "Cuckold Come Out of the Amrey" (NP1stTB, pg 25) and "The Wild Hills of Wannies" (NP2ndTB, pg 64) are dorian double-tonic tunes in which the 2 principal chords are built on the 1st and minor 7th scale degrees (i and VII, am and G). "Elsey Marley" (NP1st TB, pg 21, and be sure to play the F naturals! If you have a 7-key chanter this can be transposed to D and it will work fine.) is a mixolydian double-tonic tune built on the 1st and minor 7th degrees (I and VII, G and F). Mixolydian is the most common mode for Highland pipe tunes. When playing any of these tunes, try to hear the alternation between the two main chords.

Understanding the double-tonic structure is important, because the mode only determines what notes can be present, and does not specify how they are used. When we hear a tune, we perceive the scale degrees, the mode, and the harmonic structure more or less simultaneously, and in order to understand and hear one concept, we need to be aware of the other two. Also, the harmonic alternation found in double-tonic tunes means that part of the tune harmonizes (or is "consonant") with the drone, and part of the tune is dissonant to the drone. This obviously has implications about where the drone is set. For example, "Cuckold" is traditionally played with the drones set on the tonic, A. But because of the alternating chord structure of the first section of the tune, a G drone works very well also - it merely makes different parts of the tune consonant and different parts dissonant. Some players, however, prefer a G drone on this tune because it harmonizes *better* with the second section of the tune, which is arguably not double-tonic, since it uses C and G chords. A G drone makes the two sections sound more distinct, and an A drone makes them sound more the same.

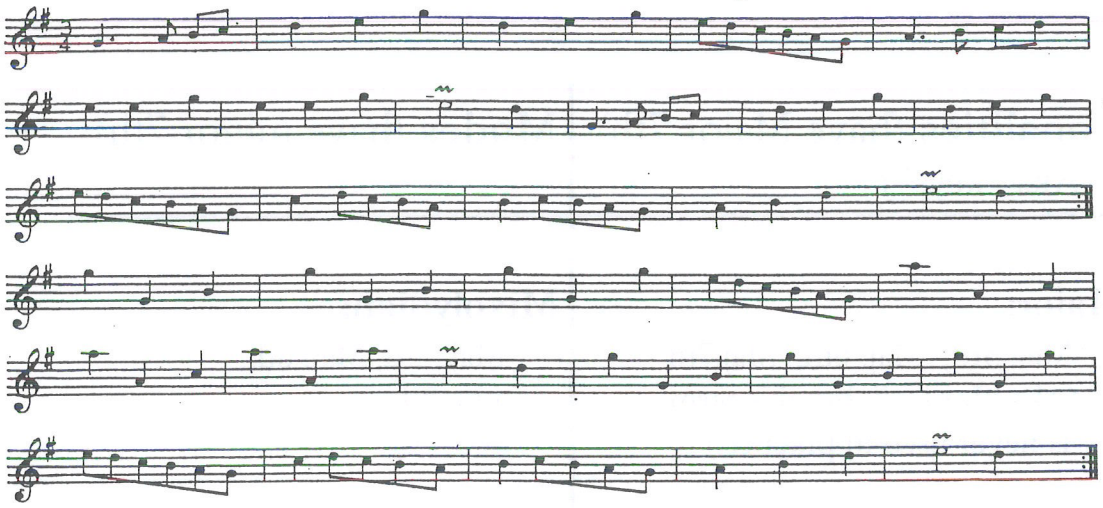
For many pipers, the whole point of this discussion is the question of where to set the drones, which is often not answered by simple rules. In Northumbrian practice, the drone is usually set on the 1st scale degree, or tonic, so the ability to recognize the tonic by ear is the quickest and most effective way to know where to set the drone. Here follows a handy reference chart to help you learn which modes are which. This table explains the scale structure of each mode and key in use in traditional music. The terms, *Phrygian, Lydian, Locrian,* and *Ionian* are sometimes used by theorists for the sake of completeness. They can be disregarded for the present, as can the traditional classical descriptions *melodic minor, ascending form*, and *melodic minor, descending form.* I hope I have made the structure of all the scales and modes in use as clear as possible. Remember, the point of all this is not theoretical knowledge, but ear-training - the ability to hear these subtle qualities which are the basis for all melodic expression.

	Tonalities (have Major 7th) (Aka "keys")	**Modes** (have minor 7th)
Major (has Major 3rd)	**Major:** Maj. 3rd, Maj. 6th, Maj.7th (Aka "Ionian", but this term is never used in practice.)	**Mixolydian:** Maj. 3rd, Maj. 6th, min. 7th
Minor (has minor 3rd)	**Melodic Minor:** min. 3rd, either or both Maj. or min. 6th, either or both Maj. or min. 7th. **Harmonic Minor:** min. 3rd, min. 6th, Maj. 7th (Ignore this one)	**Dorian:** min. 3rd, Maj. 6th, min. 7th **Aeolian:** min. 3rd, min. 6th, min. 7th



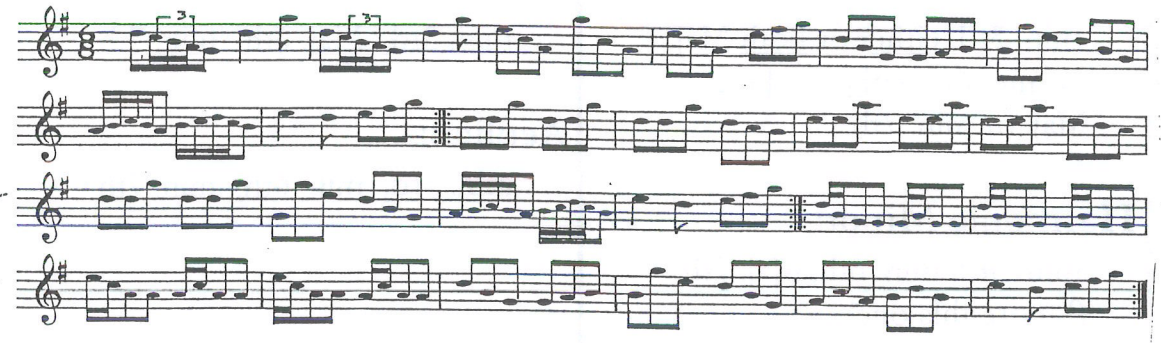
SIR JOHN FENWICK'S THE FLOWER AMANG THEM ALL

Example 3



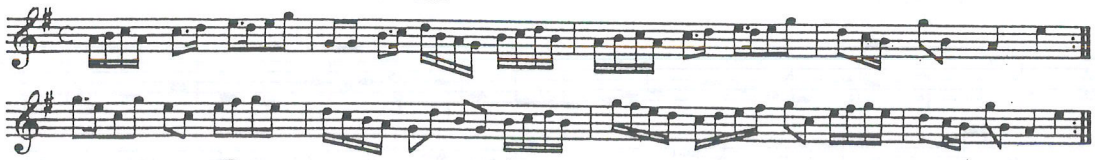
KEELMAN OWER THE LAND

Example 4



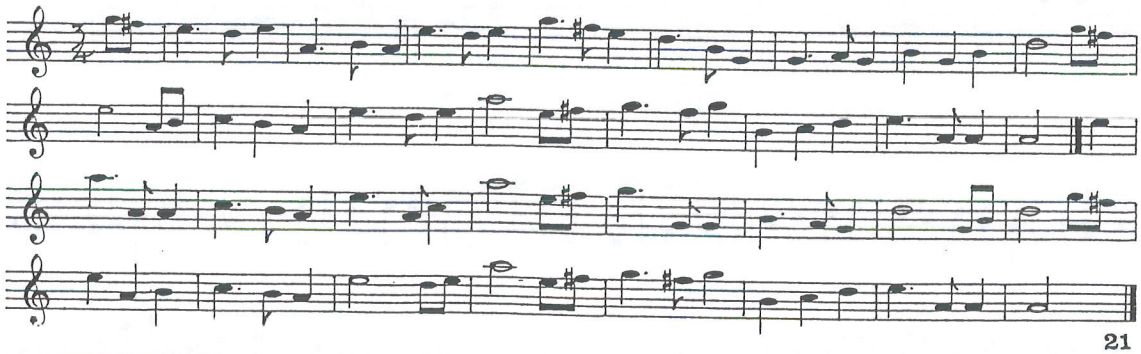
CUCKOLD COME OUT OF THE AMREY

ex. 5



WILD HILL'S O' WANNIES

ex. 6



ELSIE MARLEY

ex 7