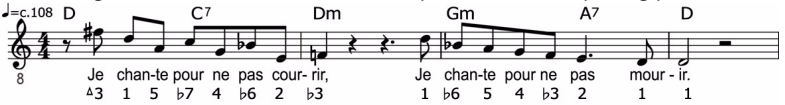
4. Non-heptatonic modes

If modes containing seven different scale degrees are heptatonic, eight-note modes are *octatonic*, six-note modes *hexatonic*, those with five *pentatonic*, while four- and three-note modes are *tetratonic* and *tritonic*. Now, even though the most popular pentatonic modes are sometimes called 'gapped' because they contain two scale steps larger than those of the 'church' modes of Chapter 3 —*doh ré mi sol la* and *la doh ré mi sol*, for example— they are no more incomplete or empty than the octatonic start to example 70 can be considered cluttered or crowded.[1]

Ex. 70. Vigneault/Rochon (1973): Je chante pour (octatonic opening phrase)



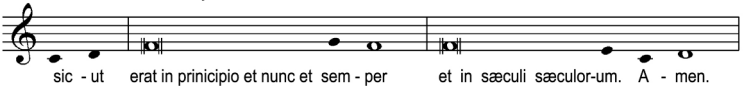
The point is that the most widespread convention for numbering scale degrees (in Europe, the Arab world, India, Java, China, etc.) is, as we've seen, heptatonic. So, when expressions like 'thirdless hexatonic' occur in this chapter it does not imply that the mode is in any sense deficient: it's just a matter of using a quasi-global convention to designate a particular trait of the mode.

Tritonic and tetratonic

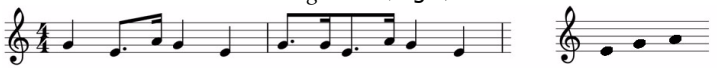
Tritonic and tetratonic tunes are common in many parts of the world, not least in traditional music from Micronesia and Polynesia, as well as among the Māori, the Inuit, the Saami and Native Americans of the great plains.[2] Tetratonic modes are also found in Christian psalm and response chanting (ex. 71), while the sound of children chanting tritonic taunts can still be heard in playgrounds in many parts of the world (ex. 72).

1. In D that one bar (f♯ d c b♭ a g e f♮) contains 1̂ 2̂ ♭3̂ ▵3̂ 4̂ 5̂ ♭6̂ ♭7̂. See Rochon (1992) for an account of how that octatonic single bar came about.
2. Native American music, see Merriam (2011: 325) and Nettl *et al*. (2001: §2 (ii)); Māori and Polynesian: McLean (1996: 296, ff. and 1976: 144-148); Sami music: Eerola (2000); Inuit music: Johnston (1976).

Ex. 71. Psalm tone 2 (quasi-tetratonic: c d [e] f g*)*[3]

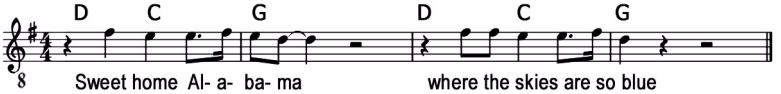


*Ex. 72. Children's tritonic taunting chant (*e g a*)*[4]

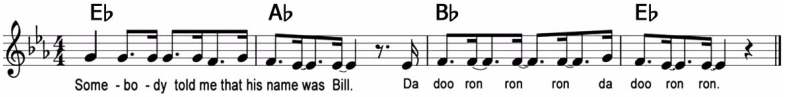


And it's not as if tritonic and tetratonic tunes are exclusive to children or to pre-industrial times and places. For example, the lead vocals of both *Sweet Home Alabama* (ex. 73) and *Da Doo Ron Ron* (ex. 74) are entirely tritonic.

Ex. 73. Lynyrd Skynyrd: Sweet Home Alabama (1974); d e f♯/1 2 ♯3



Ex. 74. The Crystals: Da Doo Ron Ron (1963); e♭ f g / 1 2 3

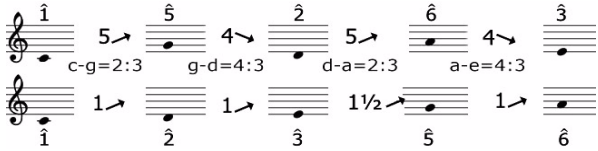


Nevertheless, the fact that the melodic lines of these two tunes draw on a three-note vocabulary does not mean the actual pieces are in a tritonic mode. Performed with instruments and backing vocals, both tunes are heptatonic. *Sweet Home Alabama* is mixolydian (1̂ 2̂ 3̂ 4̂ 5̂ 6̂ ♭7̂) in D (d e f♯ g a b c♮) with its three-chord mixolydian loop ↪D-C-G↩ (I-♭VII-IV) and *Da Doo Ron Ron* unequivocally ionian (1̂ 2̂ 3̂ 4̂ 5̂ 6̂ 7̂) in E♭ (e♭ f g a♭ b♭ c d) with its ionian chord loop ↪E♭-A♭-B♭-E♭↩ (I-IV-V-I). Each tune has a clear tonic letting us identify 1̂, 2̂ and 3̂ as scale degrees in the tritonic vocal line. It is on the other hand impossible to talk about tonics in examples 71 and 72 because their performance is monophonic and has no obvious tonic (why would it need one?) from which other scale degrees can be unambiguously derived.

3. The note e is alone in being unaccented and occurring only once.
4. Three verbal variants of this familiar *ña ña-ñi ña ña* taunt (♩ ♫ ♩ ♩) in English are: [1] 'I'm the king of the castle and you're the dirty rascal.' [2] 'Cry, baby Bunting; daddy's gone a-hunting.' [3] 'Cowardy, cowardy, custard; you don't eat your mustard.' Try also [4] 'Die, greedy banker! You're a stupid wanker.'

Pentatonic

Fig. 22. Anhemitonic[5] pentatonic mode frequency ratios



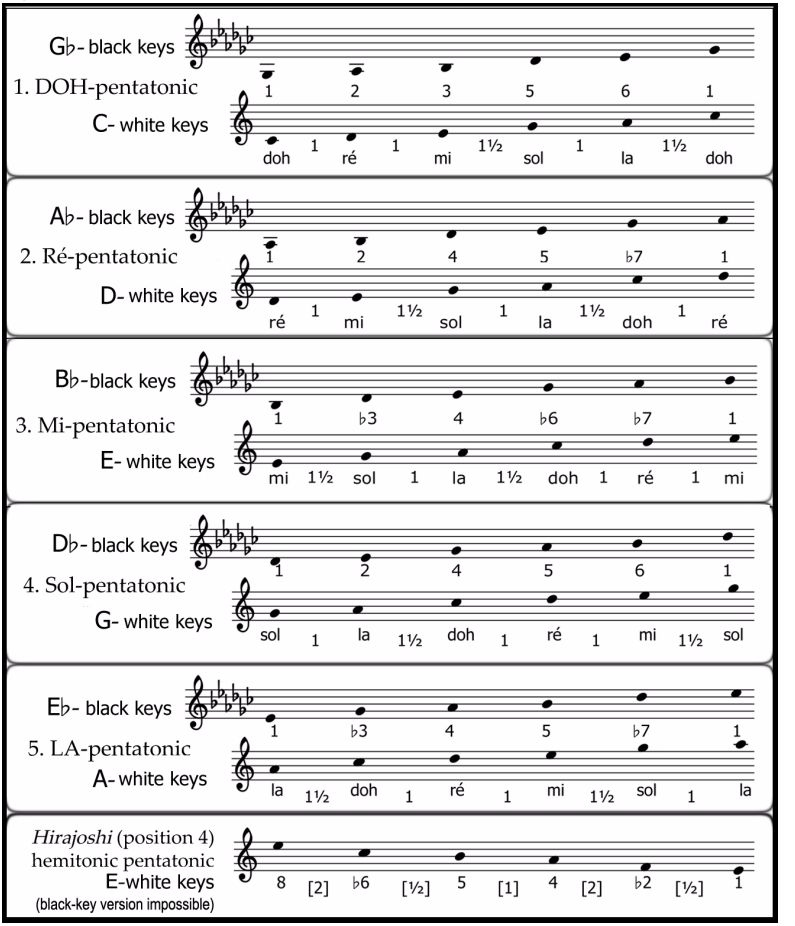
The most widely used modes outside the euroclassical sphere must surely be pentatonic. One reason for the ubiquity of anhemitonic pentatonicism may be, as suggested in Figure 22, that all five notes are acoustically linked by simple pitch ratios. In *doh*-pentatonic C, for example, the frequency ratio between c and g (a fifth) is 2:3, that between g and d (a fourth) 4:3, between d and a 2:3, and 4:3 between a and e. Rearranged in ascending order of pitch in the second row of Figure 22, the 'white-key' versions in Figure 23 (p. 154) show that those same five notes constitute modes like the *doh*- or 'major' pentatonic (c d e g a —no. 1 in Figure 23) and the *la*- or 'minor' pentatonic mode (a c d e g —no. 5).

Modes 1-5 in Figure 23 (p. 154) are *anhemitonic* because they contain *no semitones*. Their scalar steps comprise three whole tones (one between *doh* and *ré*, *ré* and *mi*, *sol* and *la*), and two steps of one and a half (1½ between *mi* and *sol*, *la* and *doh*). The Japanese mode *Hirajoshi* at the bottom of Figure 23, however, is *hemi*tonic because it contains semitones (♭6̂-5̂ and ♭2̂-1̂). Like any other hemitonic mode, it cannot be played using only the black notes on a piano keyboard whereas all five *anhemitonic* modes *can*. The account that follows deals with the three most commonly heard of the five anhemitonic modes, at least in the urban West, two of which are also conceptually familiar. Those two are the *DOH*-mode or 'major pentatonic' (Fig. 23, nº 1) and the *LA*-mode or 'minor pentatonic' (Fig. 23, no. 6). The third, the *RÉ*-PENTATONIC mode (Fig. 23, nº 2), despite its presence in traditional musics in the British Isles and North America, appears to be a less familiar entity.

5. Anhemitonic = without semitone steps. N.B. some 'natural' instruments have more notes to the octave in higher and fewer in lower octaves (Hirt n.d., p. 13).

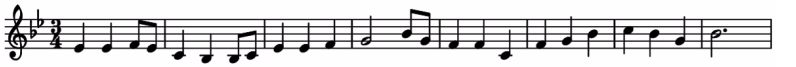
Anhemitonic pentatonic

Fig. 23. Five anhemitonic pentatonic modes (plus one hemitonic)



Doh-pentatonic

Ex. 75. 'Sloane' (Irish trad.), b. 1-8 (DOH-pentatonic in E♭*)*



Ex. 76. The East Is Red (东方红 *- Chinese trad.), b. 1-4 (DOH-pentatonic in* E*)*

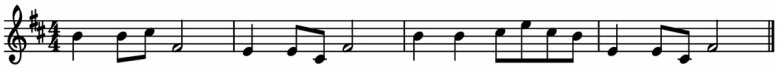
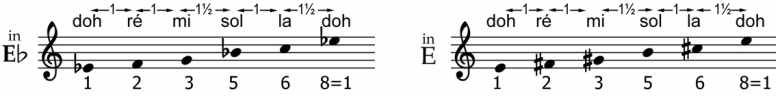
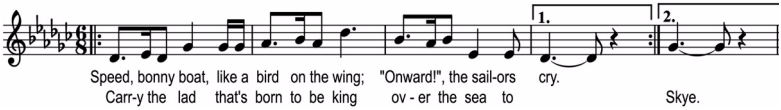


*Fig. 24. Doh-pentatonic modes for examples 75 (*E♭*) and 76 (*E*)*

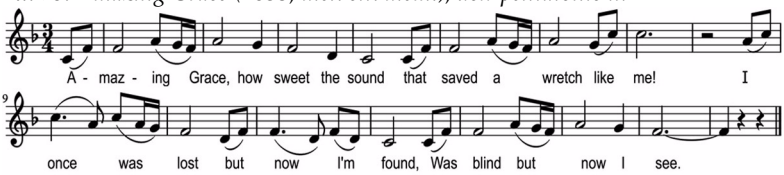


In E♭ (ex. 75) the doh-pentatonic notes are e♭ f g b♭ c [e♭] and, in E (Fig. 76), e f♯ g♯ b c♯ [e]. In addition to countless well-known tunes like *Auld Lang Syne, Swing Low, Sweet Chariot* and *Sukiyaki*, two other popular doh-pentatonic melodies are cited here: *The Skye Boat Song* (ex. 77) and *Amazing Grace* (ex. 78).

Ex. 77. Skye Boat Song (Scot. trad., cit. mem.); doh-pentatonic in G♭ *(black keys)*



Ex. 78. Amazing Grace (1835; mel. cit. mem.); doh-pentatonic in F



Both doh- and la-pentatonic melodies are common in music from such far-flung parts of the world as West Africa, the Andes, East Asia (including China, Japan and Indonesia), Hungary and the British Isles.[6]

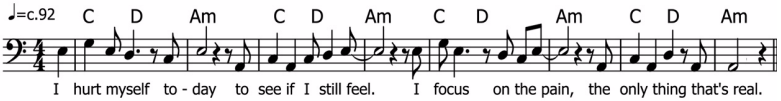
La-pentatonic

LA-PENTATONIC melody is common in traditional music from the British Isles and the Appalachians (ex. 80), as well as in blues-based popular styles (ex. 79, 81).

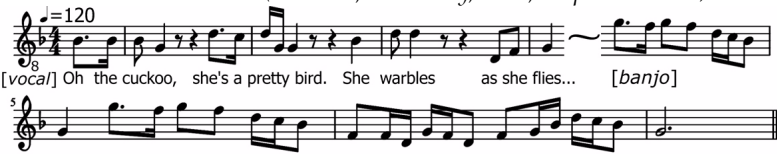
6. *Doh*-pentatonic is also common among Native Americans and the Sami. *Sukiyaki* is an anglocentric nonsense name for the song 上を向いて歩こう = 'I look up as I walk' (Sakomoto, 1961).

'Minor pentatonic scales show up everywhere in rock music… [S]ongs by Pink Floyd, Rolling Stones, Led Zeppelin, AC/DC, Aerosmith, Van Halen,… Nirvana… feature [them] again and again.'[7]

Ex. 79. Johnny Cash: Hurt *(2009; LA-pentatonic* A*).*



Ex. 80. 'The Coo-Coo Bird' (US trad., via Ashley, 1929; LA-pentatonic G*)*[8]



Ex. 81. 'Boom Boom' (Animals, 1964b, covering Hooker, 1963; la-pentatonic E*)*

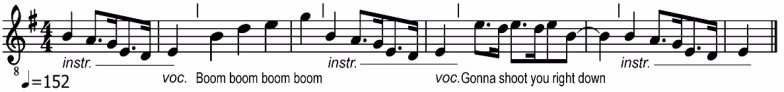


Fig. 25. La-pentatonic modes in G *and* E

Examples 79-81 are all ***LA*-PENTATONIC**. Section 5 in Figure 23 (p. 154) shows that the five notes of the *la*-pentatonic mode —*la doh ré mi sol [la]*, spaced at intervals of 1½, 1, 1, 1½ and 1 tones respectively— are equivalent to heptatonic scale degrees 1̂ ♭3̂ 4̂ 5̂ ♭7̂ (1̂). In A (ex. 79), that pattern produces the notes a c d e g. In G (ex. 80) it produces g b♭ c d f (g) and in E (ex. 81) e g a b d (e) (Fig. 25).

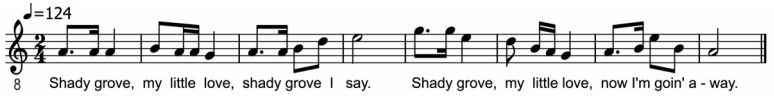
Ré-pentatonic

Section 2 in Table 23 (p. 154) shows that the five notes of the ***RÉ*-PENTATONIC** mode —*ré mi sol la doh*— are equivalent to heptatonic scale degrees 1̂ 2̂ 4̂ 5̂ ♭7̂. In D that *ré*-pentatonic pattern of 1 + 1½ +

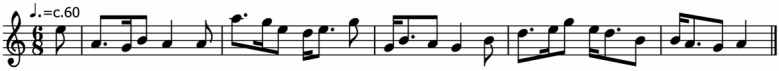
7. The quote is from Joe Walker (2013) on the 'Deft Digits Guitar Lessons' site. A web search for "minor pentatonic" (2013-12-31) produced 685,000 hits, most of which were tutorials for rock guitarists being sold la-pentatonic improvisation lessons. See p. 161, ff. for the la-pentatonic blues mode.
8. See transcription by D K Garner sites.duke.edu/banjology/transcriptions/coo-coo-a-study/the-coo-coo-bird-by-clarence-ashley/ [140322].

1 + 1½ + 1 steps produces the notes d e g a c. In A (ex. 82-83) that same scale degree pattern —1̂ 2̂ 4̂ 5̂ ♭7̂— results in a b d e g, while in C♯ (ex. 84) it gives c♯ d♯ f♯ g♯ b and, in C (ex. 85), c d f g b♭.

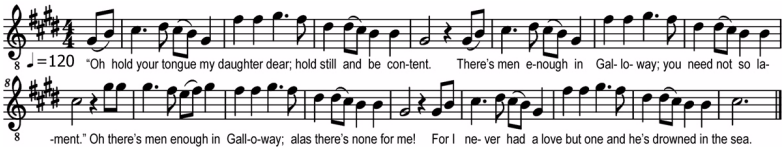
Ex. 82. Shady Grove *(US trad. via Clarence Ashley, ré-pentatonic* A*)*



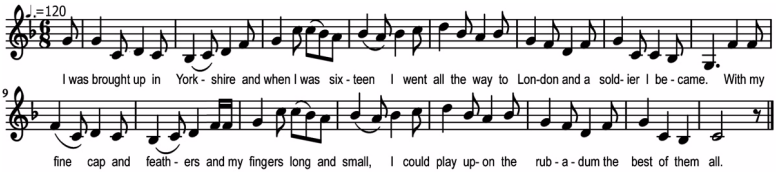
Ex. 83. The Braes of Lochiel *(Scot. trad., bars 1-5; ré-pentatonic* A*)*



Ex. 84. 'Lowlands Of Holland *(UK. trad./Steeleye Span, 1970; ≈ ré-pentatonic* C♯*)*



Ex. 85. 'Female Drummer *(Eng. trad. via Steeleye Span, 1971; ≈ ré-pentatonic* C*)*



Ré-pentatonic tunes seem more unfamiliar than *doh*- and *la*-modes to most of my students, many of whom hear, for example, *The Female Drummer* (ex. 85) in a 'minor' mode (usually dorian) despite there being nothing minor (or major) about it because it contains no third at all, neither minor (e♭) nor major (e♮). Nor is the mode in any way unresolved or incomplete, even though many musicians insist on referring to it as 'suspended'.[9]

Diligent readers will have observed that examples 82-83 are entirely *ré*-pentatonic but that, strictly speaking, examples 84 and 85 are not. That's because there's an e (♭3 in C♯) in bar 9 of example 84

9. For example: [1] 'Suspended pentatonic tutorial' YT IAR7P0rVWMA; [2] 'Egyptian-suspended' in Wikipedia article 'Pentatonic scales'; [3] Advice from *The Jazz Theory Book* (Levine, 1995) that the 'suspended pentatonic' is good for playing over $Gm^{7}{}_{/C}$ apassion4jazz.net/jazz-chords-scales.html. [All visits 140214].

and an a♮ (♯6 in C) in bars 3-5 and 11-13 of example 85. So, if neither ♭3 nor ♯6 are part of the *ré*-pentatonic mode, why are examples 84 and 85 so labelled? It's because those extra notes mark a temporary counterpoise[10] to an overriding *ré*-pentatonic tonality. Since that interpretation sounds a bit spurious, I had better explain.

The single e♮ in bar 9 of *The Lowlands Of Holland* (ex. 84) marks a momentary change from C♯ *ré*-pentatonic to either C♯ *la*-pentatonic or E *doh*-pentatonic. It occurs near the start of the third of four 4-bar periods, a typical half-way point for going tonally 'elsewhere' before 'returning home': it's the 'B' in a standard AABA strophic pattern whose three 'A' periods stay consistently in C♯ *ré*-pentatonic. In *The Female Drummer* (ex. 85) the highlighting of a tonal 'elsewhere' works differently. Here the a♮ (♭$\hat{6}$ in C) serves to underline the importance of the tune's counterpoise on b♭ (♭$\hat{7}$). It could be argued that the a♮'s function is that of a momentary leading note to the b♭.[11] That interpretation does not work on the extracts shown as examples 95-102, all of which are unequivocally ré-*hexatonic* and discussed on pages 172-173.

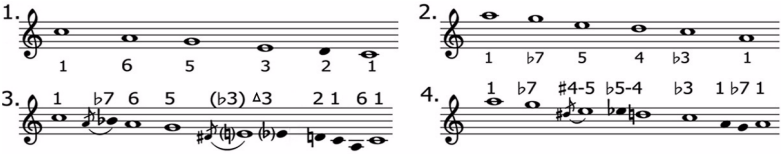
Songs like *The Female Drummer* and *The Lowlands Of Holland* are, as we just saw, basically pentatonic with a momentary hexatonic 'extra'. Blues tonality, so influential on everyday music in the twentieth century, is similar on that count but in a very different way.

Blues pentatonic

Viewed in highly schematic terms, blues melody is based on the anhemitonic doh- and la-pentatonic modes (Fig. 26, nºs 1 and 2, p. 159). The lower line in Figure 26 (nºs 3 and 4) shows the sort of tonal material you're likely to actually hear. Not only are the modes presented in descending order in accordance with the blues-typical tumbling strain (see p. 183, ff.); they also show some common alternatives to strictly pentatonic pitches in terms of substitution, inflection and harmonic or melodic context.[12]

10. *Counterpoise*: see Glossary and pp. 161-164.
11. The a♮ is always followed by b♭ in this tune. Only one of the three a♮s is on a strong beat (bars 5 and 12). The other two (bars 3-4, 11-12) are both unaccented upbeats to b♭. See also Fig. 29, p. 167 and p. 172, ff.

Fig. 26. Blues pentatonic modes: [1] doh-pentatonic; [2] la-pentatonic; [3] blues/gospel major pentatonic; [4] blues minor pentatonic.



Doh-pentatonic blues

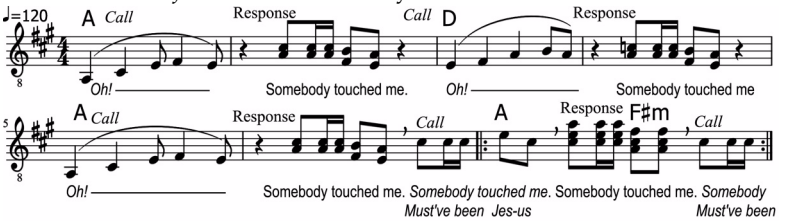
The BLUES-GOSPEL MAJOR PENTATONIC mode is so called because it resembles the standard DOH-PENTATONIC mode with its ▵$\hat{3}$ and ▵$\hat{6}$. The qualifier 'gospel' simply alludes to its frequent use in gospel-related styles, as shown on page 160 in examples 86 (Alex Bradford) and 87 (Smokey Robinson),[13] while the 'blues' epithet is obvious from the twelve bars of Bessie Smith in example 88. In this mode, the two scale degrees most commonly subjected to variation are $\hat{6}$ and $\hat{3}$. $\hat{6}$ can be replaced by ♭$\hat{7}$ if the underlying harmony so demands, for example **b♭** instead of **a♮** over C^7.[14] Even more common is a blue note on $\hat{3}$, either as ♮$\hat{3}$ or as a slide from ♭$\hat{3}$ towards ▵$\hat{3}$ (notated as an ascending **d♯-e** in Figure 26 and as a passing **e♭** in descent). A straight ♭$\hat{3}$ with no slide or bend (**e♭** in C) replaces ▵$\hat{3}$ when the harmonies shift to a chord on IV (F^7 if the blues is in C). Finally, the [$\hat{2}$]-$\hat{1}$-$\hat{6}$-$\hat{1}$ at the end of example 3 in Figure 26 shows the notes often used around the tonic in this mode. Two examples serve to illustrate how this mode is used in gospel-related styles.

Example 86, taken from a 1955 recording by gospel vocalist Alex Bradford, is entirely doh-pentatonic in A (**a b c♯ e f♯** = $\hat{1}$ $\hat{2}$ $\hat{3}$ $\hat{5}$ $\hat{6}$), except for the alteration of **c♯** to **c♮** (♭$\hat{3}$ replaces ▵$\hat{3}$) over the D^7 (IV)

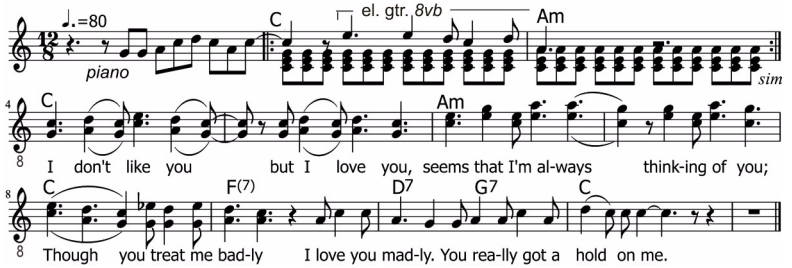
12. For a detailed presentation of blues-mode pitches and the frequency with which they were used in 44 'downhome' blues recordings, see Titon (1977: 155), as reproduced and explained in Lilja (2009: 158).
13. The abandonment of blues by African Americans during the Civil Rights and Black Power movements of the 1960s in favour of gospel and soul is socio-politically well documented in *Right On! From Blues to Soul in Black America* (Haralambos, 1974). Its tonal aspect, from la-pentatonic blues modes with flat fifths to a more doh-pentatonic sound is less well-known.
14. $\hat{6}$ can occasionally be replaced by $\hat{7}$ if the chords move on to a V but it's more 'gospel' for melodic lines to stick to doh-pentatonic over V.

chord in bar 4. Doh-pentatonic in A is ideally suited to the improvised melodic outbursts heard during the shuttle between the chords A and F♯m (I↔vi) that occupies over half of the track's running time because major (doh) pentatonic in A contains the same notes as minor (la) pentatonic in F♯. The same sort of tonal shuttle, both melodic and harmonic, is heard in other up-tempo gospel numbers like *Shout* (Isley Brothers, 1959; Lulu, 1964).

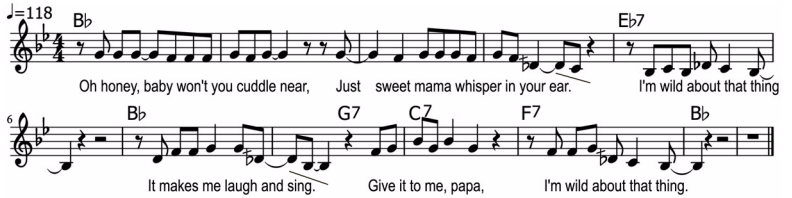
Ex. 86. Alex Bradford (1955): Somebody Touched Me



Ex. 87. Smokey Robinson & The Miracles (1963) You Really Got A Hold On Me



Ex. 88. Bessie Smith (1929) I'm Wild About That Thing



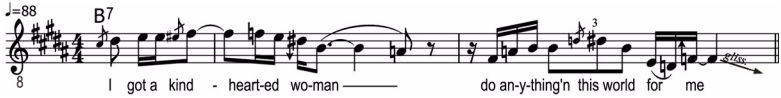
In example 88, Bessie Smith, in a twelve-bar B♭ blues-gospel pentatonic eulogy to part of her lover's anatomy ('Give it to me, papa; I'm wild about that thing'), illustrates how the mode's tonal alteration principles work. Doh-pentatonic $\hat{3}$ is replaced by blues-gospel $\flat\hat{3}$ (d♭ as blue note) in bars 4, 7 and 10 but by a 'straight' $\flat\hat{3}$ (d♭) over the E♭ (IV) chord in bar 5, just like the c♮ over D7 in example

86. Another famous doh-pentatonic blues example (e f♯ a b c♯ in A) is the John Lomax recording of Arkansas State Prison inmates singing *The Rock Island Line* (Pace, 1934).

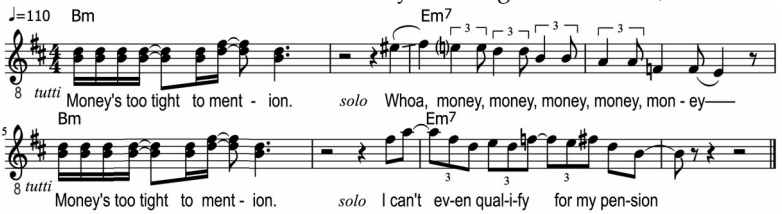
La-pentatonic blues

The most significant trait in the BLUES MINOR mode is its treatment of la-pentatonic $\hat{5}$. It can be stated 'straight', but it can also be 'slid up to' from $\sharp\hat{4}$ just below, as with the e♯-f♯ in bar 1 of example 89 and in bar 2 of example 90; or it can be inserted as, or altered wholesale to, $\flat\hat{5}$, usually followed by $\hat{4}$, as in those same two examples, most notably on the last 'money' in the Valentine Brothers track (ex. 90). In the blues minor mode, $\flat\hat{3}$ and $\flat\hat{7}$ are more rarely the object of slides or bends. They are usually articulated as 'straight' $\flat\hat{3}$s and $\flat\hat{7}$s, occasionally as $\natural\hat{3}$ and $\natural\hat{7}$.

Ex. 89. Robert Johnson (1936): Kind Hearted Woman Blues



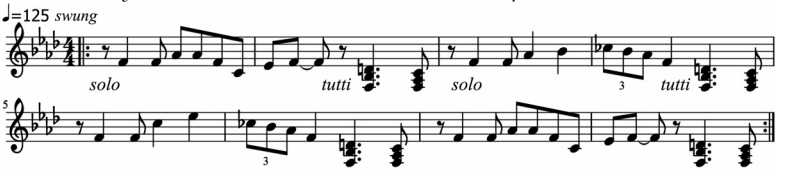
Ex. 90. Valentine Brothers (1982): Money's Too Tight To Mention, *2:15-2:33*



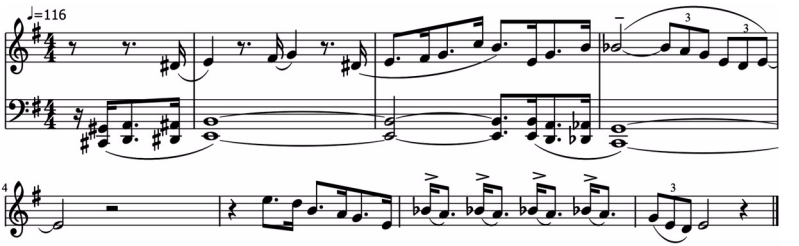
Among other famous recordings featuring these traits of the minor blues mode are Robert Johnson's *Crossroads* (1937, in B), Charlie Patton's *Stone Pony* (1934, in F) and Texas Alexander's *Peaceful Blues* (1929, in F♯), all of which contain $\flat\hat{3}$ or $\natural\hat{3}$, as well as $\flat\hat{5}$ and $\flat\hat{7}$ accompanied by major chords on the guitar.

The la-pentatonic blues mode's $\flat\hat{5}$ became a defining trait of bebop. It allowed musicians to do all sorts of clever things with harmony (p. 270, ff.) and became synonymous with jazz notions of cool. The descending $\flat\hat{5}$ (c♭ in F) is given this 'cool' treatment in the tritone triplet figure c♭-b♭-a♭-f ($\flat\hat{5}$-$\hat{4}$-$\flat\hat{3}$-$\hat{1}$) in bars 4 and 6 of example 91.[15]

Ex. 91. Bobby Timmons (1958): Moanin'; ♭5̂ *as bebop blues.*



Ex. 92. Henry Mancini (1963): The Pink Panther (repeated ♭5̂ *extract).*



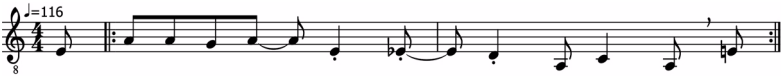
As a much used musical sign of 1950s streetwise sophistication, ♭5̂ became a sitting duck for satire. Just five years after Art Blakey's popular recording of *Moanin'* (ex. 91), Henri Mancini (ex. 92) set the comic incompetence of Inspector Clouzot —including his P.I. trenchcoat and other delusions of cool— to a barrage of flat fives (♭♭ is ♭5̂ in *The Pink Panther*'s E minor blues pentatonic mode). The ♭♭ is held relentlessly in bar 3 of the extract in example 92 and is hammered home four times in bar 6 before trickling down in triplets —like the ♭5̂-4̂-♭3̂-1̂ figure in *Moanin'*— to the final tonic.[16]

Despite the flat five's fall from grace as the tonal epitome of cool — 'jazz is not dead, it just smells funny', said Frank Zappa,[17]— the la-pentatonic blues mode and its ♭5̂ returned with a vengeance in early heavy metal, as heard in examples 93 and 94, as well as in tracks like *Rat Salad* (Black Sabbath, 1970b), *Highway Star* (Deep

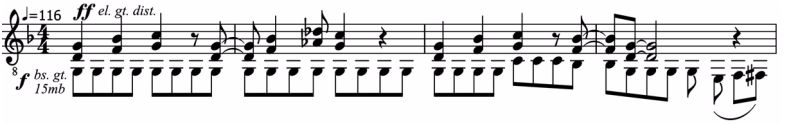
15. '[Dizzy] Gillespie is generally credited with introducing the flatted fifth into bebop as a major stylistic device, and it became a feature of every bopper's style" (Jack Chambers in *Milestones*, 1983: 30).
16. Similar ♭5̂-4̂-♭3̂-1̂ triplet 'trickle-downs' occur in *Work Song* (Nat Adderley, 1960). For a full account of flat-five connotations becoming stereotypical, including *Our Man Flint* (Goldsmith, 1966), *Hey, Big Spender* (Coleman & Fields, 1966) and a Philadelphia Cream Cheese ad, see 'Church of the flatted fifth and P.I. cool' in Tagg & Clarida (2003: 580-588).
17. In *Bebop Tango (Of the Old Jazzmen's Church)* (Zappa, 1974).

Purple, 1972b) and *Wrathchild* (Iron Maiden, 1981).[18] Such prominent use of the la-pentatonic blues mode's ♭$\hat{5}$ in early metal may well have reinforced the predilection among some exponents of the style for the tritone in general, rather than as part of the blues la-pentatonic mode.[19]

Ex. 93. Cream: Sunshine Of Your Smile *(1968): blues la-pentatonic riff in A*



Ex. 94. Deep Purple: Smoke On The Water *(1972a, 0:26-0:35): opening guitar riff with bass, blues la-pentatonic in G*[20]



Theoretical bridge from five to six

One last piece of theory is needed before taking on the hexatonic modes. It involves dividing the octave into two halves, one pentatonic, the other heptatonic. In Figure 27 (p. 164) the pentatonic trichords on *mi* and *sol* are greyed out because they're the same as those starting on *la* (scale steps 1½, 1, 1) and *ré* (1, 1½, 1). The THREE PENTATONIC TRICHORDS between $\hat{1}$ and $\hat{5}$ are therefore: [1] the DOH-PENTATONIC TRICHORD $\underline{\hat{1}\ \hat{2}\ \hat{3}}\ \hat{5}$ (scale steps 1, 1, 1½); [2] the RÉ-PENTATONIC TRICHORD $\underline{\hat{1}\ \hat{2}\ \hat{4}}\ \hat{5}$ (1, 1½, 1); [3] the LA-PENTATONIC TRICHORD $\underline{\hat{1}\ \flat\hat{3}\ \hat{4}}\ \hat{5}$ (scale steps 1½, 1, 1).

The other scalar half of the hexatonic modes discussed below consists of one of the THREE SYMMETRICAL HEPTATONIC TETRACHORDS shown first in Figure 28: [1] the DOH or ionian TETRACHORD $\underline{\hat{1}\ \hat{2}\ \hat{3}\ \hat{4}}$

18. See Lilja (2009: 158-161).
19. For example: [1] the brazen g²↗g³↘c♯³ at the start of *Black Sabbath* (Black Sabbath, 1970a); [2] any online heavy metal locrian guitar tutor, e.g. 'Slipknot Anthrax Lamb of God metal licks guitar lesson using locrian mode next level guitar' on YT MwTHXY6BMZk [140626]; [3] the Slayer Album *Diabolus in Musica* (1998). It is, however, important to remember, as Lilja (2009: 161) explains, that pentatonicism, with or without the tritone ($\sharp\hat{4}$ or ♭$\hat{5}$), is just one of several types of tonality used in heavy metal.
20. See also power chord section, pp. 280-284.

(tone step pattern 1, 1, ½); [2] the RÉ or dorian TETRACHORD $\underline{\hat{1}\ \hat{2}\ \flat\hat{3}\ \hat{4}}$ (1, ½, 1); [3] the MI or phrygian TETRACHORD $\underline{\hat{1}\ \flat\hat{2}\ \flat\hat{3}\ \hat{4}}$ (½, 1, 1). Since the other 'church' modes are asymmetrical, their names are less useful as tetrachord qualifiers than the three just mentioned.[21]

Fig. 27. The three anhemitonic PENTATONIC TRICHORDS: Doh, Ré and La.

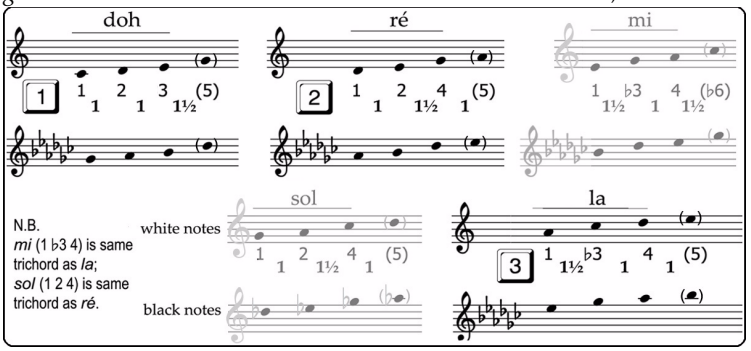
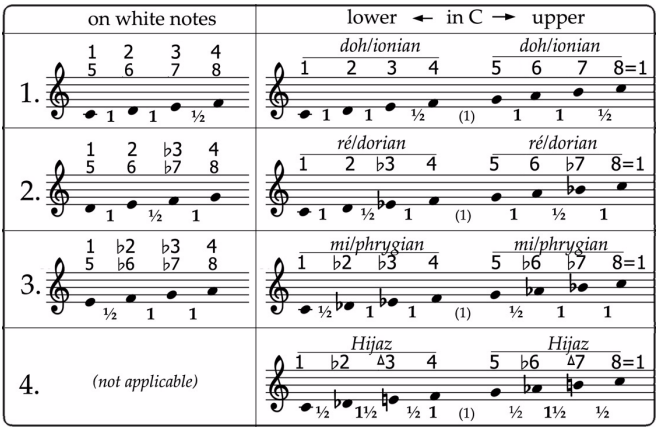


Fig. 28. 3+1 octave-symmetrical tetrachords



The Hijaz tetrachord is included in Figure 28 because, like the other three, it's symmetrical in the sense that it can be used in the same heptatonic mode as both upper and lower tetrachord (*Hijaz Kar*, Fig. 20, p. 116). It also constitutes the upper half of the harmonic minor mode ($\hat{5}\ \flat\hat{6}\ {}^{\natural}\hat{7}\ \hat{8} = \hat{1}\ \flat\hat{2}\ {}^{\natural}\hat{3}\ \hat{4}$) whose lower tetrachord is dorian ($\hat{1}\ \hat{2}\ \flat\hat{3}\ \hat{4}$). Among other *heptatonic modes built on two differ-*

21. Why aren't *aeolian, mixolydian* etc. used as tetrachord qualifiers? See p. 164.

ent tetrachords are the *mixolydian*, whose lower half is ionian $\hat{1}\ \hat{2}\ \hat{3}\ \hat{4}$ and its upper dorian ($\hat{5}\ \hat{6}\ \flat\hat{7}\ \hat{8} = \hat{1}\ \hat{2}\ \flat\hat{3}\ \hat{4}$), and the *aeolian* with its lower dorian and upper phrygian tetrachords ($\hat{1}\ \hat{2}\ \flat\hat{3}\ \hat{4}$ and $\hat{5}\ \flat\hat{6}\ \flat\hat{7}\ \hat{8} = \hat{1}\ \flat\hat{2}\ \flat\hat{3}\ \hat{4}$). The lydian and locrian, as well as *Niavent* (*Nawa Athar*), *Nikriz* and *Mustaar* are all *a*symmetrical because, by containing $\sharp\hat{4}$ or $\flat\hat{5}$, their lower tetrachord cannot be transposed a fifth to the upper half of the octave (Fig. 20, p. 116; Table 12, p. 135).

The explanations just offered let us understand that, for example: [1] the doh-hexatonic mode consists of a lower heptatonic ionian (doh) tetrachord ($\hat{1}\ \hat{2}\ \hat{3}\ \hat{4}$) and a pentatonic upper ré trichord ($\hat{1}\ \hat{2}\ \hat{4}$), a fifth higher as $\hat{5}\ \hat{6}\ \hat{8}$; [2] the quartal ('thirdless') la-hexatonic mode consists of a pentatonic lower ré-trichord ($\hat{1}\ \hat{2}\ \hat{4}$) and a heptatonic upper mi-tetrachord ($\hat{1}\ \flat\hat{2}\ \flat\hat{3}\ \hat{4}$), a fifth higher as $\hat{5}\ \flat\hat{6}\ \flat\hat{7}\ \hat{8}$.

Hexatonic modes

No names

Hexatonic modes are, as we shall shortly see, common in melody from the British Isles and North America. And yet, while pentatonic and heptatonic modes may be covered in music theory courses, hexatonic modes are conspicuous by their absence, with one exception —the 'whole-tone scale', probably included because of its use by accredited euroclassical composers like Debussy. More popular hexatonic modes, those containing a perfect fifth, like the 'seventhless' doh-mode, don't seem to make it into the academy. And so far I've been treating them as if they were either deficiently heptatonic (e.g. the 'seventhless' doh-mode), or pentatonic with one note too many (e.g. the 'extra' $^{\Delta}\hat{6}$ in the otherwise ré-pentatonic *Female Drummer*). Nor do hexatonic modes appear to have ready names like 'lydian' or 'la-pentatonic' allowing them to be easily identified or discussed without cumbersome periphrasis.

The aim of this section is therefore to bring some semblance of order into what seems hitherto to have been something of a conceptual no-man's land, to explain how common hexatonic modes are constructed, and to suggest simple ways in which those modes can be identified and named. To make this task less daunting I've chosen to focus on hexatonic modes playable on the white keys of a pi-

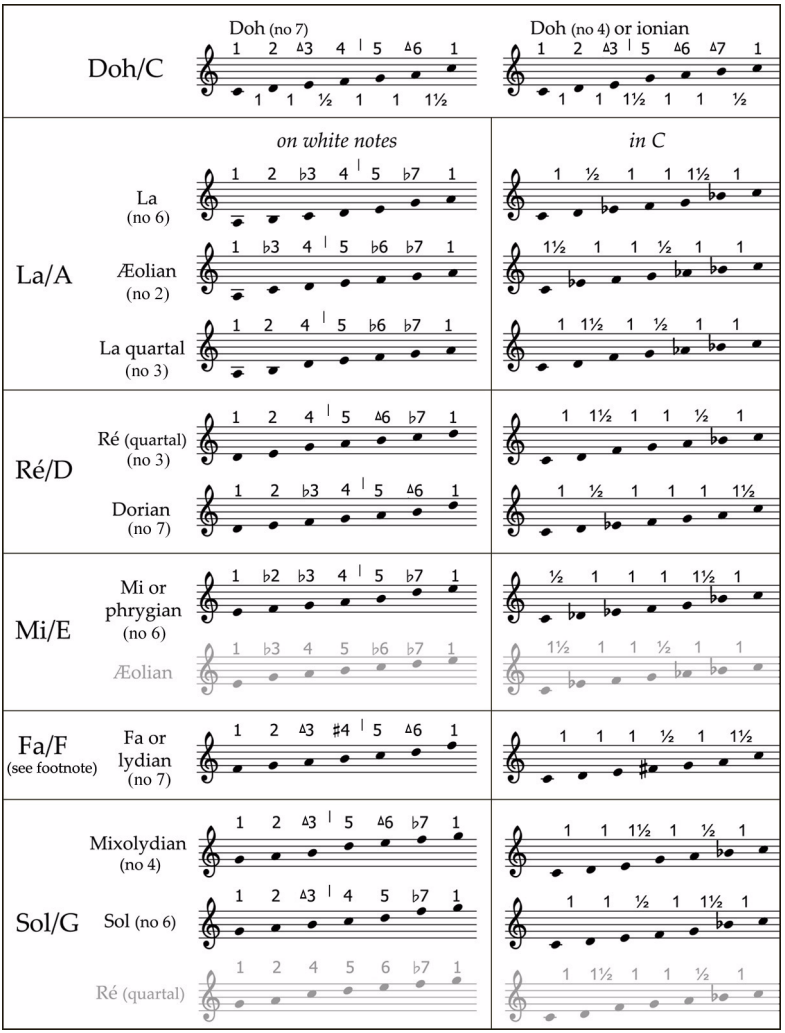
ano keyboard. I've identified those modes in two ways: by relative tonic note —*doh, ré, mi, fa, sol* and *la*— and by the nature of each mode's third scale degree (3̂). The three types of third are: [1] ♮3̂ — MAJOR HEXATONIC; [2] ♭3̂ —MINOR HEXATONIC; [3] no third at all — QUARTAL HEXATONIC. After the initial systematic table (Fig. 29, p. 167) and some theoretical explanations, examples are discussed in order of the three types of third just mentioned.

The hexatonic modes in Figure 29 (p. 167) share common features. Apart from consisting by definition of six different tones, each of them contains four scalar steps of a whole tone ('1' in the right-hand column), one of a semitone ('½'), and one of three semitones ('1½'). They also all consist of a pentatonic trichord and a heptatonic tetrachord (Figures 27-28, p. 164). The boundary between the two, just below the fifth in each mode, is marked in Figure 29 by a small vertical dash ('|') in the left column. For example, the much used DOH-HEXATONIC mode —*doh ré mi fa sol la (doh)*— contains no seventh. Its lower half consists of four notes or three steps: c d e f = 1̂ 2̂ 3̂ 4̂ = 2 tones plus 1 semitone —1, 1, ½, i.e. an ionian or doh tetrachord, while its top half is a ré-pentatonic trichord (g a c = 1̂ 2̂ 4̂, or one whole tone plus three semitones —1, 1½). Together that produces 1̂ 2̂ 3̂ 4̂ 5̂ 6̂ [1̂] for the whole mode (c d e f g a [c] in C). The equally ubiquitous LA-HEXATONIC mode, on the other hand, is 'sixthless' —a b c d e g [a] = 1̂ 2̂ ♭3̂ 4̂ 5̂ ♭7̂ [1̂] in A— and consists of a ré tetrachord (1̂ 2̂ ♭3̂ 4̂) in the lower half and a la-pentatonic trichord in the upper (1̂ ♭3̂ 4̂ as 5̂ ♭7̂ 8̂ [=1̂] for e g a in A).

Similar deconstruction of each mode in Figure 29 reveals a unique combination of tetrachord and trichord, except for the second *mi* mode and the final *sol* mode. These two are greyed out because, although they can be generated on the white notes of the piano with e and g as tonic, they produce the same scale degrees as other hexatonic modes: the 1̂ ♭3̂ 4̂ 5̂ ♭6̂ ♭7̂ [1̂] in E (e g a b c d) is the same as aeolian hexatonic in A (a b c d e g), while the 1̂ 2̂ 4̂ 5̂ 6̂ ♭7̂ in G (g a c d e f) is identical to ré-hexatonic in D (d e g a b c).[22]

22. To save space, other duplicates are not included in Figure 29, for example: seventhless doh-hexatonic can be produced on F and G as well as on C; doh ionian can also be produced on F.

Fig. 29. 'White-note' hexatonic modes containing a perfect fifth.[23]



The hexatonic modes in Figure 29 have been named according to the following principles.[24] If the tones of the white-note mode are

23. For explanations of Figure 29, see following text and footnote 24 (p. 168).

part of a heptatonic 'church' mode, and if its hexatonic scale degree profile is not duplicated elsewhere in the table, it is given the relevant 'church' mode's name. That's why the tertial mode in D is called DORIAN HEXATONIC: its combination of ♭3̂ ♮6̂ and ♭7̂ is uniquely dorian. It's also why the *sol* mode containing ♮3̂ ♮6̂ and ♭7̂ is MIXOLYDIAN HEXATONIC, and why the *mi* mode featuring ♭2̂ is exclusively phrygian; it's also the only *mi* mode and can therefore be called either MI HEXATONIC or PHRYGIAN HEXATONIC. In the same way, given that the fourthless doh mode containing ♮3̂ ♮6̂ and ♮7̂ is the only one listed to contain those ionian scale degrees,[25] it's called IONIAN HEXATONIC, while its widely used 'seventhless' cousin (1̂ 2̂ 3̂ 4̂ 5̂ 6̂) can be called simply DOH HEXATONIC.

If a hexatonic mode contains no third, it's qualifiable as quartal. Using the white keys of a piano, hexatonic quartal modes can be constructed on A/La (1̂ 2̂ 4̂ 5̂ ♭6̂ ♭7̂ —LA QUARTAL HEXATONIC), D/Ré (1̂ 2̂ 4̂ 5̂ 6̂ ♭7̂ —RÉ HEXATONIC) and G/Sol (1̂ 2̂ 4̂ 5̂ 6̂ ♭7̂, same degrees as D/Ré). Ré quartal is called simply RÉ HEXATONIC because its first four notes (1̂ 2̂ 4̂ 5̂) include the ré-pentatonic trichord 1̂ 2̂ 4̂.

Both the fourthless and the sixthless modes on G/Sol are uniquely mixolydian (1̂ 2̂ 3̂ 5̂ 6̂ ♭7̂ and 1̂ 2̂ 3̂ 4̂ 5̂ ♭7̂) but that adjective is reserved for the first of the two because it is even more specifically mixolydian than the G-mode without 6̂, which can be called simply SOL HEXATONIC.

To summarise: the hexatonic modes in Figure 29 (p. 167) can be categorised in several ways. Here I do so in terms of three types of thirds: [1] MAJOR HEXATONIC, i.e. those containing a major third — the *do, sol* and *fa* modes; [2] MINOR HEXATONIC, i.e. those containing a minor third —the *ré-tertial,* the ('sixthless') *la* mode, the *la-aeolian*

24. By 'hexatonic white-note modes' is meant those that can be played on the white notes of a piano keyboard if the tonic is set to the note stated in the left hand column of Figure 29, e.g. A for the *la*-hexatonic, the aeolian hexatonic, and *la*-quartal hexatonic modes. Locrian hexatonic modes (1̂ ♭3̂ 4̂ ♭5̂ ♭6̂ ♭7̂, 1̂ ♭2̂ ♭3̂ 4̂ ♭6̂ ♭7̂) are not included in Figure 29 because [1] they lack perfect fifth and [2] I can bring to mind no music in those modes.

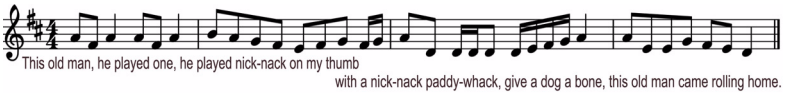
25. That mode can also be produced on F, but since a *fa* mode without ♯4̂ negates its most distinctive trait, it is not counted here (see also footnote 23, p. 167).

and the *mi* mode. [3] QUARTAL HEXATONIC, i.e. those with neither major nor minor third —the *ré-* and the *la-quartal* modes.

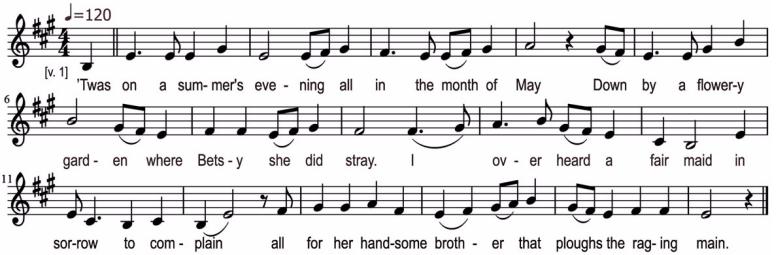
Major hexatonic

Examples 95-97 all include a *semitone* between scale degrees 3 (♭3̂) and 4 (4̂).[26] They aren't pentatonic because all heptatonic scale degrees except 7̂ are present in all three tunes.[27] Here we're dealing with the seventhless DOH-HEXATONIC mode, so called because 1̂, 2̂, 3̂, 4̂, 5̂ and 6̂, can, if C (doh) or G (sol) is tonic, be played on the white notes of a piano keyboard. This mode is common in traditional and popular music from the British Isles and the USA.[28]

Ex. 95. 'This Old Man' (Eng. trad., cit. mem.) doh-hexatonic;
1̂ 2̂ 3̂ 4̂ 5̂ 6̂ = d e f♯ g a b in D*) .*

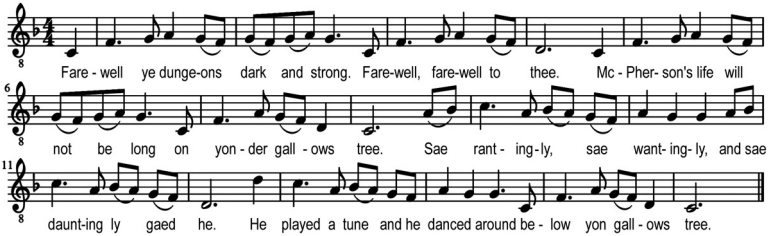


Ex. 96. The Claudy Banks *(Eng. trad., via The Albion Country Band, 1970); doh-hexatonic* 1̂ 2̂ 3̂ 4̂ 5̂ 6̂ = e f♯ g♯ a b c♯ *in* E*)*



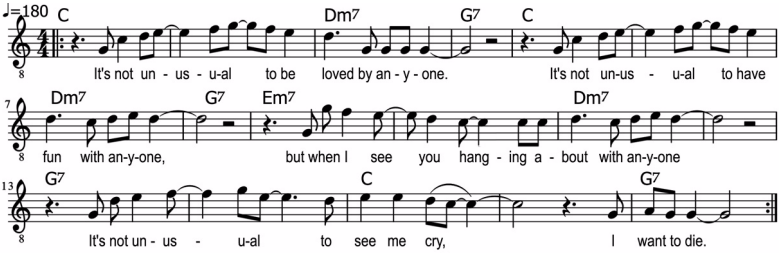
26. f♯-g in ex. 95 (in D), g♯-a in ex. 96 (in E), a-b♭ in ex. 97 (in F).
27. Neither c♮ not c♯ is included in example 95, neither d♯ nor d♮ in example 96, but scale degrees 1, 2, 3, 4, 5 and 6 are all clearly present in both.
28. e.g. *Oh! Susanna* (Foster), *Loch Lomond* (Scot. trad.), *The False Knight* (Eng. trad. via Steeleye Span, 1970), *Fallin' Out* (Jennings, 1987), *The Fields Have Turned Brown* (Stanley, 1950), *Last Train From Poor Valley* (US trad./Blake, 1974).

Ex. 97. MacPherson's Farewell (Scot. trad., mel. cit. mem.); doh-hexatonic 1̂ 2̂ 3̂ 4̂ 5̂ 6̂ = f g a b♭ c d *in* F.



Finally, to underline the ubiquity of the seventhless major hexatonic or doh-hexatonic mode (it's not unusual!), here's Tom Jones.

Ex. 98. Tom Jones: It's Not Unusual *(1965); doh-hexatonic in* C *(no* b♮*)*

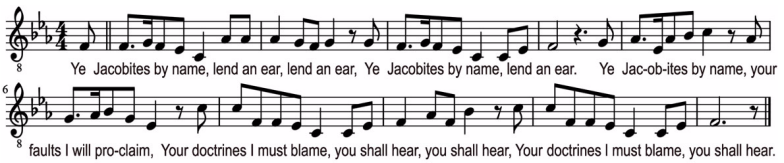


Minor or la-hexatonic

Minor hexatonic tunes are common in traditional music from the British Isles and the Appalachians. Examples 99-104 are all in the sixthless **LA-HEXATONIC** mode — 1̂ 2̂ ♭3̂ 4̂ 5̂ ♭7̂.

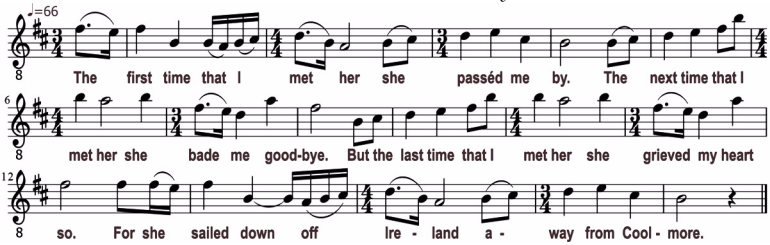
The tune usually sung to Robert Burns' political poem *Ye Jacobites By Name*, is la-hexatonic and cited as example 99.

Ex. 99. Ye Jacobites By Name *(1791; Scot. trad. via The Corries, 1971); la-hexatonic* F: f g a♭ b♭ c e♭ *(no* d♮*, no* d♭*)*



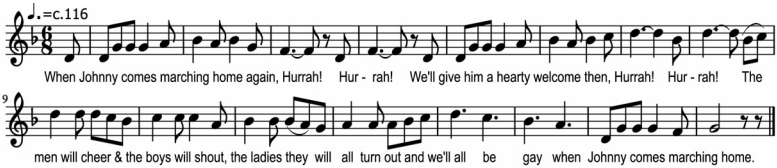
The Maid Of Coolmore (ex. 100), a slow traditional song of parting, is performed by The Bothy Band in la-hexatonic B. It contains b c♯ d e f♯ a but neither g♮ nor g♯.

Ex. 100. The Maid Of Coolmore *(Ir. trad. via Bothy Band, 1976); la-hexatonic* B



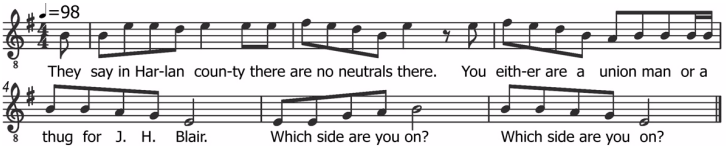
La-hexatonic tunes aren't only found in traditional songs from pre-industrial Scotland and Ireland. *When Johnny Comes Marching Home* (ex. 101) may date from the time of the US Civil War but it's still a well-known tune on the repertoire of countless marching bands. In la-hexatonic G, it contains no sixth, neither e♭ nor e♮.

Ex. 101. When Johnny Comes Marching Home *(US trad.); la-hexatonic* G: g a b♭ c d f.

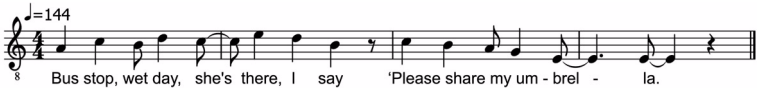


Which Side Are You On? (ex. 102), in la-hexatonic E, contains e f♯ g a b d but neither c♮ nor c♯. First recorded in the early 1930s, it's one of the USA's most popular union songs. And the hook line of The Hollies hit *Bus Stop* (ex. 103) is in la-hexatonic A. It contains a b c d e and g but neither f♮ nor f♯.

Ex. 102. Florence Reece: Which Side Are You On? *(1931); la-hexatonic* E

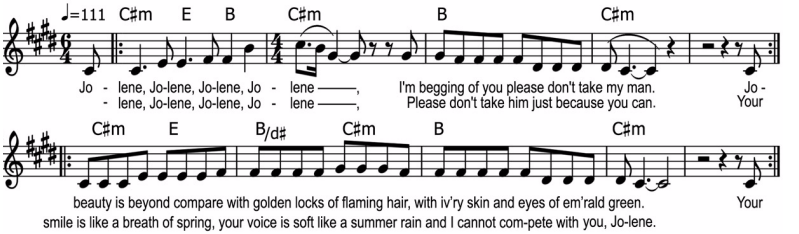


Ex. 103. Hollies: Bus Stop *(1966); la-hexatonic* A: a b c d e g, *no* f♮, *no* f♯.



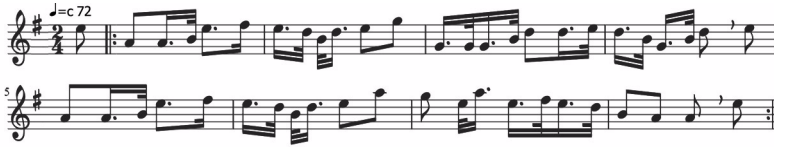
Finally, the Dolly Parton hit *Jolene* (1973; ex. 104, p. 172) is in la-hexatonic C♯ and contains c♯ d♯ e f♯ g♯ b but neither a♮ nor a♯.

Ex. 104. Dolly Parton: Jolene *(1973);* 1̂ 2̂ ♭3̂ 4̂ 5̂ ♭7̂ *la-hexatonic* C♯

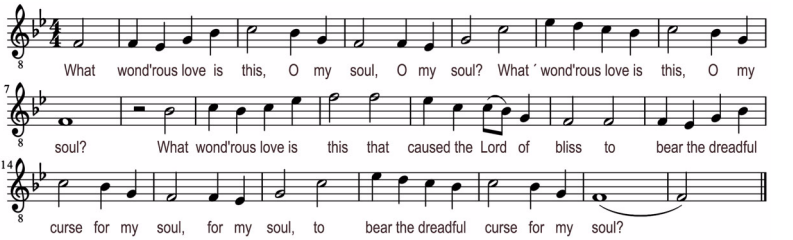


Quartal or ré hexatonic

Ex. 105. 'The Drunken Piper', bars 1-8, no grace notes (fr. Scots Guards Settings of Pipe Music, *Vol 1, 1954); in ré-hexatonic* A *(sounding* B♭*):* 1̂ 2̂ 4̂ 5̂ 6̂ ♭7̂ = a b d e f♯ g *in* A.



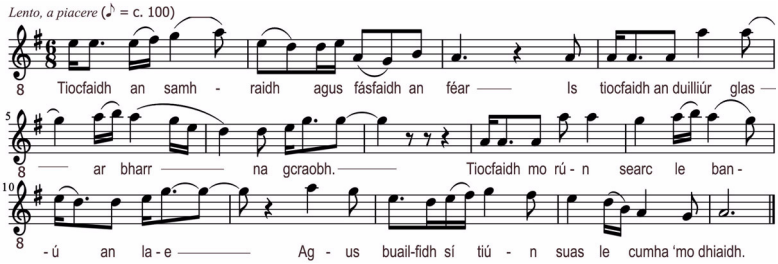
Ex. 106. 'Wondrous Love' (US trad., arr. Hauser, Southern Harmony *(1854) via* Popular Music in Jacksonian America *(1982); ré-hexatonic* F; 1̂ 2̂ 4̂ 5̂ 6̂ ♭7̂ = f g b♭ c d e♭ *in* F)



As argued earlier, *The Female Drummer* (ex. 85, p. 157) can be heard as basically *ré*-pentatonic (1̂ 2̂ 4̂ 5̂ ♭7̂) with an unaccented 6̂ added in at certain points. It can also be classed as ré-hexatonic like unequivocally ré-hexatonic examples 105-107, *The Drunken Piper*, *Wondrous Love*, and *Tiocfaidh an samhradh*. They all contain scale degrees 1̂ 2̂ 4̂ 5̂ 6̂ ♭7̂.[29]

29. *Tiocfaidh an samhradh* [ˈtʃʌki ən ˈsaʊrɪ] means 'summer is coming'. Most of *Brenda Stubbert's Reel* (Greaves, 2010; Cuthill, 2010) is ré-pentatonic. Thanks to Chris McDonald (Cape Breton) for this and several other references.

Ex. 107. Tiocfaidh an samhradh (Ir. trad. via Bhreatnach, 2007); ré-hexatonic A; î ĵ 4̂ 5̂ ĥ ♭7̂ = a b d e f♯ g *in* A



Although there's neither c♮ nor c♯ in *The Drunken Piper* (ex. 105 in ré-hexatonic in A), neither a♮ nor a♭ in *Wondrous Love* (ex. 106, in F), neither c♮ nor c♯ in *Tiocfaidh an samhradh* (ex. 107 in A), and neither e♮ nor e♭ in *The Female Drummer* (in C, ex. 85, p. 157), my music students, schooled in euroclassical and/or jazz theory, have habitually identified those thirdless tunes as dorian (as if î ĵ ♭3̂ 4̂ 5̂ ĥ ♭7̂). They rarely mistake the mode for mixolydian even though that mode also contains ĥ and ♭7̂. How come?

The thought process seems to be that if the tune is not in a major mode, it 'has' to be in the minor; and, if so, it 'has' to be dorian, because that's the only minor mode to contain ♮ĥ. It's as if the major-minor dualism of euroclassical music theory precluded any mode that doesn't fit into its scheme. Quartal ('thirdless') modes like *ré-* or *sol*-hexatonic may appear less familiar than their major or minor cousins but that's no reason for pretending they don't exist.

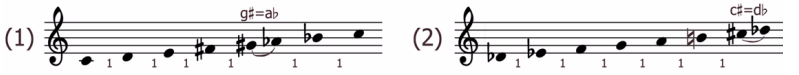
Non-tonical modes

The whole-tone scale

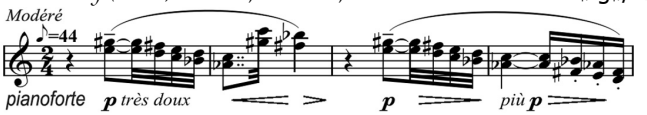
All the hexatonic modes discussed above are TONICAL,[30] but one NON-TONICAL hexatonic mode is also part of everyday tonality. The WHOLE-TONE SCALE is so called because its six scale degrees are all separated by a whole tone. Unlike the hexatonic modes presented so far, it contains no perfect fifth and can only be transposed to one other position, as shown in Figure 30.

30. TONICAL = having a tonic; see p. 52, ff., p. 63 and the Glossary.

Fig. 30. The two whole-tone scales



Ex. 108. Debussy (1910): Voiles, *bars 1-4; whole-tone scale* c d e f♯ g♯/a♭ b♭



One use of the whole-tone scale is to exploit its non-tonicality —it contains neither perfect fifth nor fourth— to suggest something indeterminate or unrooted, like the hazy, impressionistic upper-register fluttering of Debussy's *Voiles* (= 'Sails' or 'Veils', ex. 108).

The 'Dave Conservatoire' puts it this way:

> [The whole-tone scale] 'is often used to produce a dreamy, fantasy-like character to music and is used in film and television soundtracks to indicate moving from one dimension to another —a flashback or dream sequence, for example.'[31]

Indeed, *Star Trek* teleportations are set to an equally magical electronic whole-tone ripple and shimmer. But the indeterminate fantasy element of the whole-tone scale can, depending on instrumentation, register, dynamics, etc., also become less magical and more mysterious, even sinister, as in Herrmann's score for the chase scene in Hitchcock's *North by Northwest* (1959).

The other main everyday use of the whole-tone scale is in jazz where it acts as 'go-to' tonal vocabulary for melodic improvisation over chords containing an augmented triad. Jazz musicians can use the C whole-tone scale (nº 1 in Fig. 30) over a standard augmented chord based on any of the six notes in the scale (e.g. C^{7+} E^{9+} A♭^{7aug}) and the B whole-tone scale (no. 2 in Fig. 30) for the same chord types based of any of *its* six notes (e.g. E♭$^{7+}$, F^{9+}, G^{7aug}).[32]

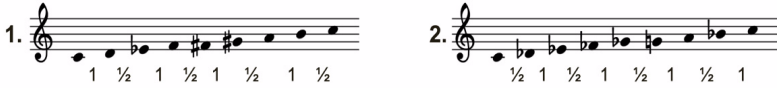
31. .daveconservatoire.org/lesson/wholetonescales [140216].

32. The 'Prometheus scale', $\hat{1}\ \hat{2}\ \hat{3}\ \sharp\hat{4}\ \hat{6}\ \flat\hat{7}$, is a much more esoteric non-tonical type of hexatonic mode and hardly qualifies as 'everyday tonality'. Augmented triads are presented in Chapter 7 (p. 222). C^{7+} and C^{9+} are chord numbers 9 and 18 in Table 16 (p. 232).

Octatonic

Like its whole-tone cousin, the octatonic scale only has two versions. Both run in alternate steps of whole and half tones.

Fig. 31. The two octatonic scales



The octatonic scale is also similar to the whole-tone scale in three other ways. First, since it lacks either the perfect fifth (no. 1 in Fig. 31) or perfect fourth (no. 2), it sounds quite non-tonical. Second, that element of tonal instability makes it suitable as another film music mystery mode, as in the Poledouris underscore for the passing spacecraft in *Starship Troopers* (1997) or in Herrmann's music for *The Day the Earth Stood Still* (1951).[33] Third, the octatonic scale is a favourite with jazz musicians needing to improvise over diminished chords to the extent that, in jazz theory, the mode is often called the 'diminished scale'. 'Master the diminished scale in two seconds', says one online jazz tutor while another posting plugs:

> 'THE defining treatise on the diminished scale. It explains everything you need to know about this versatile scale and how/where to use it in your solos.'[34]

Final thoughts on non-ionian modes

Mode names often reflect, as we have seen, hegemonic identification of tonal vocabulary in ethnic terms like 'Gypsy'. Even the 'church' modes were originally named after ancient Greek provinces and several maqam labels are geo-ethnic (e.g. *Iraqi, Kurd, Hijaz*).[35] From a contemporary Northern European or North American hearpoint, the phrygian mode is often, as we saw in

33. Examples provided by Murphy (2006) in 'The Major Tritone Progression in Recent Hollywood Science Fiction Films'.
34. The online tutor is at ⬇ hearandplay.com/main/diminished-scale-in-2-second. The treatise advertised is Walt Weiskopf's *Understanding the Diminished Scale — a guide for the modern jazz player*. Its online plug is at ⬇ jazzbooks.com/jazz/product/UDS [both 140216].
35. Hijaz/Hejaz) is an area in the west of today's Saudi Arabia (see Glossary).

Chapter 3, assumed to sound Hispanic or, if not, Balkan, Arab or Jewish (make your mind up!), while anhemitonic pentatonicism can be heard, just as confusingly, as Scottish, Irish, 'Celtic', 'Oriental', Chinese, Andean, etc. US film music frequently uses such hegemonic perception of tonal idiom to transmit cultural stereotypes of place and sometimes it actually works. In fact, modes can, if used discerningly, be just as efficient as instrumental timbre when it comes to establishing cultural location in audiovisual contexts. For example, while the sound of a koto might in itself conjure up something of 'traditional Japan' to non-Japanese listeners, ethnic connotations would be much clearer if it played something in the fourth position of the pentatonic *Hirajoshi* mode (Fig. 23, p. 154).

Given that mode and mood are etymologically related, it is no surprise to find that different modes are also perceived as connoting different moods. Such connotations are culturally specific and are illustrated in the modal commutations of the first line of *God Save The Queen* (ex. 130, p. 186). For example, the equation of minor modes with 'sad' and major with 'happy' may well have some validity within euroclassical tonality and related popular styles but it is largely inapplicable to the music of other cultures. Similarly, rock and pop music using aeolian harmony in a certain way has had a tendency to be associated with the ominous,[36] while mixolydian film and pop music veers more towards a mood of wide open spaces. Within African American music, descending minor pentatonic modes with 'blues' fifths are more likely to connect with either outdated jazz 'cool' or with blues, old times and oppression, while melismatic major pentatonic melody is more likely to link with the positive ecstasy of gospel music, or with hope for a brighter future in the fight for Civil Rights, or, more recently, with more somatic types of individualised abandon ('whoa-oh, baby, yeah!').[37]

36. See Björnberg (1989). See also Chapter 8, p.386,ff.
37. For latter-day melismatic doh-pentatonicism of a more erotic nature, see, for example *So Emotional* (Whitney Houston, 1987), or *We Belong Together* (Mariah Carey, 2005), or *Lovin' You* (Minnie Riperton, 1974).

During the hegemony of euroclassical major-minor tonality, music from the continent's fringe areas (Spain, Russia, Scandinavia, the Balkans and British Isles) was often characterised by the musicological establishment as 'modal', because, although much music produced in those areas conformed to the central, ionian norms of modality ('tonality'!),[38] much of it —typically rural popular music— did not: it conformed to modes regarded as archaic by the European bourgeoisie during the ascendancy of that class. Some of these modes, notably those containing a flat seventh and the two commonest anhemitonic pentatonic modes are regarded, rightly or wrongly, as typical of rural music from the British Isles. These modes blended with compatible tonal vocabularies of West African origin to contribute to the development of North American popular styles that challenged the hegemony of euroclassical major-minor tonality during the twentieth century on a global scale. Who knows what is happening to that global tonality as North America now ceases to be 'the future'?…[39]

Summary in 14 points

[1] Modes containing less than seven tones are no more empty than modes containing more than seven are necessarily cluttered.

[2] TRITONIC AND TETRATONIC melody is common in many parts of the world, including the urban West.

[3] PENTATONIC melody is found all over the world. ANHEMITONIC PENTATONICISM (what can be played on only the black notes of a piano keyboard) is particularly common.

[4] An anhemitonic PENTATONIC OCTAVE contains three whole tone steps and two steps of 1½ tones.

[5] The constituent tones in any anhemitonic pentatonic mode are related to each other by SIMPLE PITCH FREQUENCY RATIOS.

[6] Anhemitonic pentatonic modes can have DOH, RÉ, MI, SOL or LA as tonal centre. The DOH-PENTATONIC mode is also called MAJOR PENTATONIC because it's the only one to include $^{\Delta}\hat{3}$. The MI- and LA-MODEs are MINOR PENTATONIC because they include $\flat\hat{3}$. The RÉ- and SOL-

38. See the 'tonal v. modal' falsehood, pp. 54-57.

39. 'Bluesy pentatonic doesn't work over a sinister riff' (cf. ftnt. 76, p. 126).

MODEs are QUARTAL PENTATONIC because they contain $\hat{4}$ but neither $^{\Delta}\hat{3}$ nor $\flat\hat{3}$. MI-PENTATONIC is unusual because it has no $\hat{5}$.

[7] The most familiar pentatonic modes in the West are those based on DOH and LA. Blues pentatonicism is essentially based on those two modes. The DOH-PENTATONIC BLUES mode is common in pre-war jazz and in gospel-related styles. The LA-PENTATONIC BLUES mode is more common in guitar blues, in blues-based rock and 'cool' jazz.

[8] HEXATONIC MELODY is extremely common but no accepted terminology exists for the designation of tonical hexatonic modes.

[9] TONICAL HEXATONIC MODES used in the West consist of a heptatonic tetrachord and a pentatonic trichord. There are nine such modes that can be played on the white notes of a piano keyboard and that contain a perfect fifth. A hexatonic octave of this sort contains four whole-tone steps, one semitone step and one step of 1½ tones.

[10] Hexatonic modes in common use are the seventhless DOH-HEXATONIC, the sixthless LA-HEXATONIC and the thirdless RÉ-HEXATONIC.

[11] The WHOLE-TONE SCALE is also hexatonic but it is non-tonical because it contains neither perfect fifth nor perfect fourth.

[12] The OCTATONIC SCALE run in alternate steps of whole and half tones. It also has a non-tonical character because it contains either no perfect fourth or no perfect fifth.

[13] The whole-tone and octatonic scales can only be transposed to one other position. They are both often used as mystery cues in film and TV.

[14] The culturally specific use of modes to suggest geo-cultural identity is often confused and ethnocentric but it can still work on audiences who are not the object of that identification.