

APPENDIX I – HARMONIC PROPORTION

PREAMBLE

The articles which follow are edited versions of a series which originally appeared in four consecutive issues of *Common Stock* (The Journal of the Lowland and Border Pipers' Society, Vol. 18 Nos. 1 & 2, Vol. 19 Nos. 1 & 2, June 2003-Dec 2004), though in a different order. The ideas they outline do not necessarily contradict other explanations of structure and pattern in traditional pipe and fiddle tunes, but give a different viewpoint, perhaps even providing a framework into which the others might fit. Other expositions of which I am aware are by David Johnson, John Ward, Roderick Cannon, Pete Stewart and Barnaby Brown, and there may be more. I am or have at some point been in contact with all of these, as some of them are or have been with each other.

David Johnson, in discussing fiddle tunes of the early 18th century, distinguishes three characteristic styles. In his own words, they are:

(a) tunes based on five notes; (b) tunes based on two chords; (c) tunes based on Italian chord progressions.

He gives a brief but illuminating description of each, noting that they are not mutually exclusive. The three types all have some relevance to piping, but it is the second which will mainly concern us here, and which is the main concern of John M Ward in his essay *The Lancashire Hornpipe* (in *Essays in Musicology: a tribute to Alvin Johnson*, ed. Lewis Lockwood & Edward Roesner, USA, 1990). While Ward's essay is remarkable for its breadth of scholarship and wealth of quotations evoking a rustic lifestyle (real or imagined), the author regrettably misunderstands the metre of his first musical example, Johnson's *Old Lancashire hornpipe*, and has a disturbing tendency to treat his subject matter with disdain (e.g. "Certain hornpipe tunes—if patterns so rudimentary deserve the name" etc.). He tabulates six patterns, extracted from Marsden's *Collection* of 1705, which are also the simplest forms of the principal patterns discussed below, but his patterns do not actually match Marsden's tunes, which are both harmonically more varied and structurally more complex than allowed for by his classifications. Nevertheless his quotation from Chappell is salutary reading for any who do not appreciate the relevance of harmonic pattern:

The old musicians used to think of their harmonies while they were making their tunes, *as all real musicians do now*. Common fiddlers and pipers perhaps thought more of these bases than of their tunes, trusting to their facility in making division or variation for the latter. [Italics mine]

Roderick Cannon, whose pioneering essays *The Bagpipe in Northern England* (in *Folk Music Journal* Vol. 2, No. 2, 1971) and, of greater relevance to our discussion, *English Bagpipe Music* (*ibid.*, No. 3, 1972) have had a profound influence on the English bagpipe revival, also has some useful things to say specifically in relation to Dixon in his piece *A Short Preface to Dixon* (in *Out of the Flames*, The Lowland and Border Pipers' Society, 2004), where he uses our own 'XY' terminology as outlined in the first edition of *The Master Piper*. Using the same terminology Pete Stewart (in *The Triple Hornpipe*, in *Three Extraordinary Collections*, Pencaitland, 2007, and online) compresses the six patterns derived by Ward from Marsden into three, though does not say that they can be further reduced to two simple ratios. I have also discussed these ideas with Barnaby Brown whose own method of tune classification, applying as it does to the Highland *ceòl beag* repertoire, has parallels with, but is not the same as, my own.

I have in the main refrained from tabulating patterns or naming them after tunes, with the exceptions of *Elsie Marley* and *Stool of Repentance*, preferring to use tunes to illustrate or exemplify patterns rather than patterns to 'explain' tunes. It is an unavoidable limitation that what

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does follow by way of explanation is addressed to the mind, whereas a complete understanding must also involve the feelings and the senses. Early sources of music are just as prone to typographical errors or slips of the pen as modern ones, and when one comes across one of these in an otherwise sound text the recognition may be experienced as physically or even emotionally jarring: the music includes a self-correcting code but it is ourselves who must have or acquire the internal apparatus which can read the code *as if by instinct*. When we do have the instinct its absence is obvious, and all the more so in those who persist in defending an error.

“If we don’t have the instinct no amount of intellectual argument will help.” (AGEB)

I – A SENSE OF PROPORTION

“examples are no good to anyone who has not produced some of their own” (AGEB)
“the textbook can be useful when we’ve got our hands dirtied” (RF)

The term Harmonic Proportion, already used in art and architecture, is applied here to a group of ideas or principles which have gradually coalesced from a study of Border pipe tunes. Its use in this context was arrived at independently, and is of particular relevance to tunes which are usually described as double tonic. It is not a watertight ‘system’ which can be universally applied, but it does have a certain consistency, as well as definite practical uses: understanding the principles can help in identifying or reconstructing erratically written versions of traditional tunes (slapdash ‘editing’ abounds in modern collections), as well as in composing new tunes. What one composes according to the principles will sound traditional, though whether it will also sound good depends on other factors.

We begin in time and space with Piper James Ritchie in 18th century Peebles:

the town-piper, dressed in a red uniform and cocked hat, as befitted a civic official ... escorting a marriage-party, he marched with becoming importance in front, playing with might and main a tune called *Welcome hame, my Dearie*.

— *Memoir of William and Robert Chambers*, Edinburgh, 1883

Even with William Dixon among us once more it is still an exciting business tracking down tunes associated with known Border pipers. There are two strong contenders for Piper Ritchie’s tune, and both are triple-time hornpipes, a tune-type strongly associated with Border piping. The first is called variously *Carnegie’s Jig*; *A Horn Pyp*; *Du’s Bun Lang Awa An A’m Tocht Lang Ta See Dee*; *Jack’s Gone A-Shearing*; *Jockie’s Gone A Sheering*; *Nine Nights Away Welcome Hame My Dearie*; *Welcome Home My Deary*.

Our own 8-strain set (*Jack’s Gone A-Shearing*) was published in *The Border Bagpipe Book*, but here we stay with the historical record with a fine 2-strain version from William Vickers’ manuscript (strain 3, which goes beyond the pipe range, is omitted).

[NB: Music examples are transposed when necessary to read for ‘A’ chanter; note values are doubled or halved in some cases for ease of comparison.]

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Ex. 1 – *Welcome Hame, My Dearie [I]* (Strains 1 & 2 of *Jack’s Gone A-Shearing*, GNTB No. 115)

The image shows two staves of musical notation for Ex. 1. The first staff represents Strain 1 and the second staff represents Strain 2. Both are in 3/2 time and have a key signature of one sharp (F#).
 Strain 1: Four bars of music. Chord symbols are A (bar 1), G (bar 2), A (bar 3), and A (bar 4).
 Strain 2: Four bars of music. Chord symbols are A (bar 1), Bm (bar 2), A (bar 3), and A (bar 4).

Notice the chord symbols under the tune. Understanding harmonic proportion relies on having a working knowledge and understanding of chords and *how they relate to melodies*, a sense of the ‘vertical’ as well as the ‘horizontal’ aspect of a melodic line. Despite the occasional resistance one meets from pipers when mentioning chords, the evidence from the ‘traditional’ tunes is that the pipers and fiddlers who wrote them understood their chords, whether they gave them the same names as we do, or any at all. The move from one chord to the other is clearly experienced when half of the attention is placed on the drones and half on the tune – the tune goes ‘in’ and ‘out’ of concord, or harmony, with the drones.

This tune is built on two adjacent chords, A major and G major (the ‘extra’ B minors in strain 2 are discussed below). This is particularly obvious when comparing bars 2 and 4 of each strain – they are the same shape, but one scale degree apart, and closely follow the descending arpeggio of the chord written underneath.

Here we digress slightly to illustrate some important points. Many of William Dixon’s tunes feature an arpeggio strain where the chord sequence is more obviously defined than in the rest of the tune. Here are two from different tunes:

Ex. 2 – Strain 5 of *Mock The Soldier’s Lady* (W Dixon ms, 1733)

The image shows a single staff of musical notation for Ex. 2. It is in 3/2 time and has a key signature of one sharp (F#). The strain consists of four bars of music. Chord symbols are A (bar 1), Bm (bar 2), A (bar 3), and A (bar 4). There is a trill (tr) over the final note of the fourth bar.

Ex. 3 – Strain 5 of *The Apprentice Lads Of Alnwick* (W Dixon ms, 1733)

The image shows a single staff of musical notation for Ex. 3. It is in 3/2 time and has a key signature of one sharp (F#). The strain consists of four bars of music. Chord symbols are A (bar 1), A (bar 2), A (bar 3), and Bm (bar 4).

In both of these the tonic, or rather the ‘modal centre’, is A, concordant with the drones. Instead of G (the subtonic), the non-drone chord here is B minor (the supertonic). The non-drone chord may also be called the ‘functional dominant’.

Notice that the chords are in a different sequence, but there are the same number of A bars and B minor bars in each tune. What is constant is the *proportion*, 3:1, just as in our first tune. There is an important distinction between this type of music and many other types of Western music, which work on the principle of harmonic *direction* – starting at, and working to return to, a tonal centre. Here, we are not going anywhere – we have the drones all the time, and we move in and out with them. We may or may not end ‘with’ them, but just because we have drones does not mean that our

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music is harmonically static in the way that, for example, Indian music is.

We return to Piper Ritchie and his other possible wedding tune. It is called *Welcome Home My Deary* in one source only, John Rook’s manuscript (Cumbria, 1840). His version is nearly identical, though superior, to *Lang Stay’d Away* in the *Northumbrian Minstrelsy*, and it is very possible that the two titles originally ran together as *Lang Stay’d Away, Welcome Home My Deary*, similar to *Nine Nights Away Welcome Hame My Dearie* in our previous list. This next list is much longer and drawn from many sources; it is an open question whether all the tunes with these titles are versions of each other, or close relatives, or a mixture, so we will simply give the list:

Bob And Joan (or *Bob And John* or *Bobbing Joan*); *Cam Ye O’er Frae France?*; *The Cellar Door Key*; *The French Milliner*; *Jack Lintel’s Jig*; *The Key Of The Cellar*; *Lang Stay’d Away*; *Love And Whiskey*; *Marchioness Of Tweeddale’s Delight*; *Miss Murray’s Reel*; *The New Way To Morpeth*; *Pawkie Adam Glen*; *Welcome Home My Deary*.

Ex. 4 – *Welcome Hame My Dearie* [II] (*Welcome Home My Deary*, JR p. 111)

The musical score consists of three staves of music in 3/2 time, with a key signature of one sharp (F#). The melody is written in treble clef. The first staff has chords Bm, Bm, A, Bm, A. The second staff has chords D, Bm, A, D, A. The third staff has chords Bm, A, Bm, Bm, A, Bm, A, Bm, A. Trills (tr) are indicated above the notes in bars 1, 2, 4, and 6 of each staff.

There are several ideas to explore with the chords here. I have given the simplest possible harmony in order to show how the tune is actually built, rather than how clever the accompaniment can be (for which, listen to *Reivers of the Heart*, track 1). We will take it one strain at a time.

Strain 1. Here are the same chords as in *The Apprentice Lads of Alnwick*, but reversed. Ignoring the discrepancy in bar 2 for a moment, we still have the 3:1 ratio. The ‘modal centre’ here is B minor rather than A major, so that the A chord, the drone chord, is now the ‘functional dominant’. Now to the discrepancy: the third beat of bar 2 is built on the A chord. With tunes in 3/2 (and 9/4 or 9/8) time we do not divide the bar in ‘half’ in the middle, but two-thirds of the way through (a mathematical inexactitude which works consistently in practice). So, taking the first half of the strain, we now have the 3:1 ratio repeated on a smaller scale.

Strain 2. Here we have D major instead of B minor, but not all the time. The ‘fluid tonic’ may be an unusual idea to grasp, but if you know your arpeggios you know that these two chords have two out of three notes in common, so they are not as far away from each other as might first appear. Many, perhaps the majority, of minor-mode Border pipe tunes feature this fluidity.

Strain 3. Here we are back to B minor, but in bars 1 and 3 we have a beat of A major where we didn’t have it before. This can easily be dismissed as a passing chord, but if we look more closely we see that, having divided our 3/2 bar ‘in half’ two-thirds of the way through, the A comes halfway through the first half-bar, so that within the one bar – if we accept the non-symmetrical division – we have the 3:1 ratio again, this time on a smaller scale still. This also accounts for the B minors in strain 2 of our first tune mentioned above, where B minor is another ‘non-drone’ chord sharing two

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notes with G major. Apparent internal inconsistencies in both Dixon's *Berwick Bully* and Clough's *Berwick Billy* may be similarly understood as a deeper level of consistency. Repetition of the same ratio on a smaller and smaller scale resembles the fractal patterns underlying many natural phenomena. For some, this is evidence of an ordering Intelligence.

Such ideas may seem far-fetched, but they make the oft-repeated phrase 'double tonic' at once simpler and richer than an arbitrary distribution of two chords. 3:1 is not the only harmonic ratio in Border pipe tunes – and not all Border pipe tunes work on harmonic ratios at all – but to give an impression of its importance, 3:1 may be discerned in 30 out of William Dixon's 40 tunes. Which is, astonishingly, a ratio of 3:1.

Back to Piper Ritchie and which tune he played. The original source of the first tune has a strain which goes beyond the (9-note) pipe range, as is the case with one or more strains in *every* other version found – with a single exception, the present author's own setting. This shows that it is definitely a fiddle tune and has been a pipe tune since 1993, but not that it was not a pipe tune before that: it is at the very least a pipe-influenced tune and, in its favour, it is more often associated with the *Welcome Hame* title than the second tune. In favour of the second tune, it does appear in pipe-related sources (Highland, Border, Irish, Northumbrian) and pipe-friendly settings, and given that Rook's manuscript, although a mixed bag, does contain Border pipe tunes (notably the closest concordance to Dixon's *Dorrington Lads*) and was made within the wider Border region, it is by far the more likely candidate.

II – THE BORDER BLUES

In Part I we looked at simple and compound ratios of 3:1 as a harmonic basis for pipe tunes. We need to have a grasp of harmony – chords – to make sense of the ideas presented here, so if our only musical knowledge is based on the sound of the notes of the chanter against the drones then we will need to pay attention to the way these notes make up chords, and how these chords move in and out of concord with the drones. It may help if we can borrow a friendly accompanist.

We plunge right in with a well-known pipe tune, *Elsie Marley*. The tune is named after a famous landlady of Picktree, County Durham, and is used for the song of the same name. Still well known to Northumbrian pipers, it was widely published in Scotland and England in the 18th century. Our version is based on, but not identical to, Robert Topliff's (MTW p. 34), but there are many others, differing a little in detail but agreeing in outline. *Seeking The Galloway* is from William Vickers' manuscript, the only known source of the tune. A Galloway is a local breed of pony, now extinct, though the tune is still played and has been recorded and published by Gordon Mooney.

Chord symbols are only placed with strain 1 of *Elsie Marley* because the rest of the tune and all of *Seeking The Galloway* share exactly the same 8-bar sequence. This would be unremarkable if these were the only two tunes based on the sequence, but there are many in the Border repertoire which are based on exactly the same sequence or a close variant of it, which is the reason for our *Border Blues* sub-title: the 12-bar blues is the basis for much of blues, most early rock 'n' roll, and some jazz, whether or not it is 'blue' in mood. It is a repeated sequence of chords underpinning 12 bars of music, with many recognised variants and substitutions, simple and complex, of the basic I, IV and V chords. The *Elsie Marley* sequence has a similar function: because it 'works' – the main point – it is used over and over for pipe tunes. Let's look at it in more depth.

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Ex. 5 – *Elsie Marley* (editor’s version)

Ex. 6 – *Seeking The Galloway* (GNTB No. 172)

The 3:1 ratio is easy to see in the first four bars – 3 of A and 1 of G. It is less obvious in the 8 bars as a whole, but if we take the first chord of each 2-bar group, 3 out of the 4 are A – and one isn’t. The last two bars are interesting: as a whole, they are built on a permutation of the related non-drone chords G, B minor and D but the drone chord, A, takes up half a bar, a quarter of the two bars, so that the 3:1 ratio is discernible at three levels (B minor rather than D, which also works, is given here because the original has high *b* rather than high *a* at this point). As well as the mathematical levels we may wrestle with at least three levels of meaning:

Firstly, it is a *sequence* in time – it begins and ends.

Secondly, taken as a whole, it is a *pattern*, a more complex version of the 3:1 ratio explored in Part I – it informs.

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The third level of meaning is elusive; it has something of the character of a principle or *law*, though more in the sense of *regulation* than of commandment – ‘this is possible’, or ‘this is a way that works’ – it enables.

However you view it the sequence, pattern or law can be extracted, learnt, absorbed, and used as a basis for variations on tunes which are built on it, or as a template for new tunes.

I first became aware of the importance of the *Elsie Marley* pattern in 1987 when comparing *Newmarket Races* (or *Horse And Away To Newmarket* or *Fenwick O’ Bywell*) with *Johnny, Cock Thy Beaver*, because the titles were linked by Margaret Gilmore in her *Concordances to Playford’s The Division Violin*. Comparison of available versions showed that the two tunes were indeed related, but not the same, in that they have the same chord sequence but it begins at a different place in each (2 or 6 bars out depending on viewpoint). One strain of each will demonstrate:

Ex. 7 – Strain 1 of *Johne Cock Thy Beaver* (PDV p. 36)

Ex. 8 – Strain 1 of *Newmarket Races* (PT No. 48)

Things get complicated because as well as starting at a different place in the sequence, the melody of *Newmarket* starts on *f#* rather than *e* and suggests a different chord, D, for the first half-bar. This can be regarded as a decorative substitute chord rather than a structural chord, as most of the remaining strains do not use it, but as stated above, this is not a totally watertight system, and this is one of the ‘permitted deviations’; in this context the D chord has the dual possibility of substituting for the drone chord A (of which it contains the root) and of being one of the non-drone chords. Despite this small ambiguity, there is enough in common between the tunes – and between some of their variation strains not shown here – to link them, suggesting very strongly that one is derived from the other. The link is also supported by tune title evidence in other sources.

Note that the non-drone chord here is B minor rather than G, but that the proportions are the same as in *Elsie Marley*. I have called the structure of the *Beaver* tune ‘*Elsie Marley* displaced’ simply because I was already familiar with *Elsie Marley* when it became apparent, not because *Elsie Marley* is the earlier or more original pattern (the evidence tends to suggest the reverse). There are many other examples of the same tune branching off into different versions, but the surprising thing about this one is that there is yet another branch, called *Watty’s Away* by Dixon, but *Cock Up Your*

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Beaver by Bewick, which is in the three-finger key (D rather than A):

Ex. 9 – Strain 1 of *Watty's Away* (W Dixon ms, 1733)

It harmonises neatly with just two chords, clearly showing the 3:1 ratio on three levels. In strain 6 of Dixon, and all strains of Bewick, there is some fluctuation between D and B minor as the ‘home’ chord. This fluid tonic is also a feature of some other *Elsie*-structured tunes, such as *Fairly Shot On Her*, and is exploited to even greater effect in early versions of *Tail Toddle*.

The *Elsie Marley* structure is a refinement (the second fractal) of the 3:1 ratio. It is found (including variants and displacements) in 13 out of William Dixon’s 40 tunes (nearly a third) as well as in many tunes in the collections of Riddell, Peacock, Bewick and elsewhere. The examples here are all jigs but it is also used to make reels, 9/8 jigs, and airs. It is not an exclusively Border phenomenon (there are Highland and Irish examples) but it is crucial to an understanding of the structural sophistication of Border piping.

III – FURTHER REFINEMENTS

We continue with the 3:1 ratio, this time looking at three musical ideas which have been used in some pipe tunes to turn a very simple idea into something much more elaborate.

Firstly, a phenomenon which I call ‘subdominant substitution’, or more plainly put, using a melodic figure based on a D chord when one would expect an A chord (this is when the tune itself is in A). We can ‘get away’ with this because the D chord contains the note A and is therefore also concordant with the drones. Here is an example:

Ex. 10 – Strain 3 of *Jack Lattin* (W Dixon ms, 1733)

This is Dixon’s strain 3, but it is strain 2 in almost all other versions of the tune, both earlier and later. All of Dixon’s other strains can be harmonised with A for the whole of bars 2 and 5, though his strains 6 and 7 also have other possibilities. Anyway, if we regard the D chords in this strain as substitutions for A, then we again have the 3:1 ratio in its simplest form.

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Two further examples occur in tunes well known in Northumbrian tradition, both with Scottish antecedents, where the D chord is used to open some strains. The first is *Newmarket Races* (see above, Part II), and the second is *Felton Lonnen*, where bars 1, 3 and 5 of strain 1 can be harmonised D, A.

This pattern also underlies the strains which are variations of this one, strain 6 in Peacock’s and Clough’s versions, strain 9 in the *Northumbrian Pipers’ Tunebook* version, and strains 5 and 9 in the editor’s unpublished version.

Ex. 11 – Strain 1 of *Felton Lonnen* (editor’s version)

A second idea, mentioned in Part I, is the ‘fluid tonic’. This applies to tunes in D rather than A, which, in this particular harmonic world, are a kind of mirror image of tunes in A, in that the A chord, even though it is the drone chord, now serves as the functional dominant. Other chords which may substitute for D in these tunes are B minor and G, in the whole tune, or in some strains, or within individual strains, while E minor may substitute for A (see *Watty’s Away* in Part II). A particularly intriguing example of these substitution possibilities is *Tail Toddle*, where there was an early branching off between Scottish versions with strains opening on D and G chords and Northumbrian versions with strains opening on B minor and D chords. Dixon’s early *Lasses Make Your Tails Toddle* has strains opening on all three chords, but with the internal flexibility seen in early Scottish versions, while later Northumbrian versions, for the diatonically tuned Northumbrian smallpipes, open with B minor and D (transposing from the original A minor and C) and have less internal flexibility. (Later Northumbrian versions, e.g. Bewick’s and Clough’s, have variants of the *Little Wot Ye Wha’s Coming* title, paradoxically preserving the name of a Scottish song lyric which goes with the Scottish version of the tune, see SMM No. 572).

The widely occurring 2-strain Scottish version of *Tail Toddle* does little justice to the tune’s history or its possibilities, so to remedy that situation here is an excellent 8-strain version from *Flores Musicae* (also in John Rook’s ms, and broadly similar to David Young’s earlier set in his ‘*Duke of Perth*’ ms).

The chords placed under the first two strains are more or less those underlying subsequent pairs, though there is some flexibility, with occasional hints of B minor. To get back to the relatively simple *Elsie Marley* structure, reverse the drone and non-drone chords, and treat the D, G and B minor chords as mutual substitutions, likewise the A and E minor chords, also taking into account that the pattern is compressed into four bars here. Another way of perceiving the fluid tonic is as an ‘expanded tonic’: the G, D and B minor chords are not so much mutual substitutions as shifting facets or varying shades of an extended non-drone chord (a combination of the 7-, 5- and 3-finger ‘keys’ as opposed to the 6-finger ‘key’), anticipating more recent conceptions of harmony. It is of course possible to over-analyse a tune: the main point is that this *Tail Toddle* works as a very satisfying pipe tune, but it is illuminating to see how it is structurally extremely intelligent.

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Ex. 12 – *Tail Toddle* (FM pp. 52-3)

Structural intelligence is the third idea we will look at, in the context of two different versions of *Cut and Dry Dolly*, both of which are written here with double their original note values to match Dixon's No. 34. Strain 1 of John Bell's version, with chords, shows the simple 3:1 ratio:

Ex. 13 – Strain 1 of *Cut And Dry Dolly* (JB p. 35)

There is a huge but invisible leap to Robert Riddell's version, the tune's only known Scottish appearance apart from a later strathspey version in Joseph Lowe's *Collection*.

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Ex. 14 – Strain 1 of *Cut And Dry Dolly* (SGB p. 2)

While the tune as a whole has been expanded into an *Elsie Marley* pattern (3 levels of 3:1 – N.B. over 16 bars as written here), bars 7-8 and 15-16 also have an internal 3:1 ratio, making this perhaps the only example of a tune which contains 4 levels of the ratio.

This may begin to sound like composing by numbers. It is not. Knowing and using these patterns is a different matter from having good musical ideas, but if you do have good musical ideas, knowledge of the patterns gives ways of making ideas into coherent tunes; not the only ways, certainly, but ways which work and which were part of the Border piper's craft as traditionally practised in the past.

IV – ONE TO ONE

Observing that many traditional Border pipe tunes are built on a small number of relatively simple chord sequences, we might also say that the tunes are melodies from which it is possible to extract chord sequences, but the fact that the same sequences are found in different tunes suggests that the pipers who made the tunes wove their melodic ideas onto patterns which they already knew to be viable.

3:1 patterns are the most common in Dixon and occur in many other sources. They provide the clearest expression of the idea of Harmonic Proportion as outlined in Part I. Other patterns and ratios are often less clear-cut and can sometimes be looked at in the more conventional terms of Harmonic Direction, where we move towards a closing point on the 'home' or tonic chord of a tune, though we may not always start from it.

Here we will look at pipe tunes where the primary ratio is even: 4:4, 2:2, or simply put, 1:1. In many cases the tune as a whole does not fit the ratio, but it is at least a strong feature of its first half. We begin with the *Stool Of Repentance* family.

Stool Of Repentance as known today is a descendant or close relative of an older tune which sometimes went by the same name, as in Dixon, but was also known as *The Wright's Rant* and *Border Reel*, even though it is in 6/8 or 6/4. We shall use Robert Bremner's version of *The Wright's*

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Rant as an illustration (strain 1 is very close to Dixon’s *Stool Of Repentance*). The accompanying chords are derived from Bremner’s own simple bass line.

Ex. 15 – *The Wright’s Rant* (RB p. 92)

Other tunes in which the first is half evenly divided between A major and B minor (tonic and supertonic) are *Noble Squire Dacre*, *Keelman Ower Land*, *Mary Scott* (or *Sir John Fenwick*), and *Sherriffmuir* (or *Wally As The Marquess Ran*). Fiddle composers also knew and used this pattern, as in *The Mason’s Apron* and *The Marquis Of Tullibardine*, both of which also exist in pipe adaptations. Where these tunes differ structurally is in the chords implied in their last quarter. The final chord is often A, but it is arrived at in different ways, and in some tunes (e.g. *Mary Scott*) not at all, so that if we do view these tunes as a harmonic family we should note these differences as well as the common traits.

The jig *My Wife’s A Wanton Wee Thing*, another fiddle tune adapted by pipers, is built on a similar pattern, but using the subtonic rather than the supertonic as the ‘away’ chord. The actual dominant chord is outlined in the penultimate bar of fiddle versions but most pipe versions override this feature.

Next, Dixon’s *The Black And The Grey*. There are many different pipe and fiddle settings of this, in some of which the upper chord is minor, but the structure is the same in all but a few confused versions. Dixon’s strain 2 is a good example because it is easy to pick out the underlying chord sequence.

Note that 6/4 is simply an older way of writing 6/8. We open with four bars over the chord of G. This is the subtonic if we perceive the tune as a whole to be in A. We then ‘move up’ to A, in concord with the drones, for four bars, and then repeat the whole sequence. Other chords are implied in bars 13-14, and there is a sense of direction with the tune closing on the ‘home’ chord. The rest of Dixon’s tune does some harmonically sophisticated things over this underlying structure, especially in strains 3 and 4.

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Ex. 16 – Strain 2 of *The Black And The Grey* (W Dixon ms, 1733)

Familiar tunes in the Highland repertoire which are built on the same structure as *The Black And The Grey* are the reels *Bob O' Fettercairn* and *Caber Feidh*. The latter is originally a fiddle tune, and the structure is clear and consistent in the older fiddle versions by David Young, Charles McLean, Robert Bremner and William Vickers. In all these the tune is built on the major chords of C and D. William Gunn misunderstood or ignored this structure when he made his pipe adaptation: the C and D chords become G and A chords when transposed for 9-note pipes, but Gunn left one strain only half-transposed, and even though it sticks out like a sore thumb with its C# diminished and D major harmony all subsequent Highland pipe versions have repeated his misunderstanding.

It is worth mentioning that some Dixon tunes with strong double tonic elements can also be viewed in more conventional terms of Harmonic Direction rather than Harmonic Proportion because of an implied dominant-to-tonic (E-to-A) sequence at their strain endings. These are *The New Way To Bowden*, *There Was A Wedding In The West* and *Rattling Roving Willie*, and there is evidence that they all began as fiddle tunes with the dominant chord often more completely outlined. *Rattling Roving Willie* is particularly intriguing in that it is built on a 3:1 ratio (Harmonic Proportion), but has an implied dominant chord before the final tonic (Harmonic Direction).

POSTSCRIPT – LOST KNOWLEDGE

We recall Chappell's words quoted in our Preamble, and note that they could equally apply to 20th century jazz practice as well as many genres of popular music. Bass lines or harmonic patterns, explicit in *The Division Violin* and similar publications, were implicit in fiddling and piping, but for the majority of contemporary pipers the ideas we have outlined are lost knowledge. A few examples will demonstrate:

The example of *Caber Feidh* has already been mentioned. Other fiddle tunes where Highland pipe adaptations have a temporary modulation at odds with the original tune are *The Herring Wife* (in A except strain 3 which is in D), and the 6-strain set of *Jackie Tar*, where all strains *close* on A, but some *open* on E minor or D – although the tune occurs in different modes elsewhere, individual versions are consistent within themselves in opening and closing on the *same* chord.

APPENDIX I – HARMONIC PROPORTION

G S McLennan's march *King George V's Army* is built on the *Stool Of Repentance* pattern throughout except for strain 2, bar 4, where there is a premature return to the A chord. This suggests that although G S had internalised the pattern to the extent that he could compose a good original melody on it, he was not aware that he was doing so, as it would have been a simple matter to follow the pattern throughout (which he does for example in *Mrs A MacPherson Of Inveran*, establishing a pattern and maintaining it consistently over six strains).

Northumbrian piper Tom Clough (1881-1964) stood in a musical lineage stretching back to William Dixon. His own versions of traditional variation sets and the sets he composed himself, such as the brilliant variations on *Oh, Dear, What Can The Matter Be?*, show that he had internalised harmonic patterns – *and* was joyously uninhibited in his melodic invention – but he too was occasionally erratic: in strain 7 of his 10-strain set *The Tailors Are Aal Gyen Styen Blind*, the 2:2 pattern of bars 1-4 is interrupted where it would have been easy to maintain, while some parts of his *The Lea Rigges* variations have a tenuous relationship with the original tune or its implied harmony.

McLennan and Clough are both justifiably granted iconic status within their traditions, and their reputations will not suffer because they did not always do what they were not trying to do: our point is that they *would* have done it if they *were* trying to, but for them the necessity was not evident.

In both Highland and Northumbrian piping traditions great emphasis is placed on articulation, even though the methods employed and the results obtained are radically different. A study of William Dixon's tunes tells us nothing about articulation but reveals an implicit 'system' of tune construction on consistently maintained harmonic patterns which, interestingly, are not rigid but flexible within their own proportional aesthetic. Although present in the earlier Northumbrian and, to a lesser degree, Highland traditions, this system was never made explicit in those traditions and does not feature in any of their methods of instruction. It is lost knowledge.

This is all a matter of perception, of course, and it might be argued that if one cannot perceive harmonic pattern, then it is 'not there' and can be ignored, though it might also be argued that ignorance of the law is no defence. None of us sees all or hears all, and if one's primary focus is on pattern, then another's focus on articulation will seem disproportionate, and their ignorance of pattern will appear as 'working in the dark' – and vice versa. A third view is that both are missing the point because neither is hearing *the music*. The aspects of articulation and pattern are accommodated in a single vision when they are experienced as different degrees of focus. Both degrees, along with many others, become necessary when one is aware of them. No single aspect is 'the music', which is not the sum of the parts, but is within every part, and beyond the whole which enfolds, informs, embraces and enables all the parts.