

OCTONIC SCALES - JAMIE CROFTS (2011)



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A personal aesthetic of 8 note scales and how I went about exploring them as part of the process of writing my compositions Octonic Fields.

I was taking a close look at the octatonic scale. I had used it in my compositions The Deviant (also Sonata 2010) and Chromatic Fields 71 to 80 (2011).

The octatonic scale, made up of alternating semitones and tones has unique properties due in part to its symmetry which, for me, place it beautifully between the diatonic scale and the full chromatic palette.

The octatonic scale consists of four intervals of a semitone (minor 2nd) and four intervals of a tone (major 2nd). Numbering these intervals 1 and 2 you get the patterns 12121212 or 21212121.

What then occurred to me was that it was possible to create a scale using these four semitones and four tones (four 1s and four 2s) in other permutations. I then began to explore all of the permutations of these eight elements.

Of course other scales dividing the octave into 8 are possible but they include intervals greater than the tone (major 2nd) and this project was about finding variations on the original octatonic scale.

Once I had my list of possible scales I first removed all which were identical by rotation:
e.g. (11211222 is the same as 11222112)

I then removed all which were simply a major scale with one added "chromatic" note:
e.g. (22121121 which is a major scale with an added minor 6th)

These simply didn't suit my purposes. This list was prepared for me to use in my set of compositions Octonic Fields and they didn't occupy the sound world I wanted. I have included them on page 2 of the accompanying score for reference. And I'm not ruling out the possibility of using them at some point in the future.

What remained were six scales, three symmetrical and three asymmetrical. The three symmetrical scales include the one known as the octatonic scale.

3 Symmetrical scales:

11112222
11221122
12121212 (octatonic)

3 Asymmetrical scales:

11211222
11212122
11221212

Although these are very simple structures I like the noise they make! The accompanying score shows that some scales are inversions of others. 5 and 6 are inversions of each other. I also found that the inversions of the first 4 scales are the same as their rotations. This is clearer on the following two pages.

When composing my Octonic Fields I found that I could rotate these scales freely (beginning on any of the numbers) creating a very different sound. With my first Octonic Fields, once I'd determined my note order, I chose a "key note" of either the top or bottom note of the scale, and doubled it at the octave to emphasise its role. Now (I'm currently working on Octonic Field 7) I'm starting to vary the placing of this octave doubling to make the sense of a "tonic" more ambiguous.

I rejected the following five scales as I read them to be “a major scale with an added chromatic”. They didn’t suit my needs for composing my Octonic Fields.

The left hand bars show a C major scale with each of the five chromatic notes added. The right hand bars show the same scales in the same form as the six on the previous page. The ∅ indicates the tonic of the major scale.

Scales 1 and 2 are inversions of each other and 3 and 5 are identical. (Also 3 and 5 contain two different major scales, Eb and Ab). As a duplicate, I can remove 5 from the list leaving only four more to add to the completed set.



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11121222 ∅

11122212 ∅

* 11122122 ∅

11212212 ∅

* 11122122 ∅

* These two scales are identical but the means of determining them was different. They each contain two different major scales - the only difference is the place of the “added note”