Star Square and Circle: aspects of compositional process in Peter Maxwell Davies's Ave Maris Stella

Richard McGregor

Davies's Ave Maris Stella has been seen a key work since its first performance in 1975. It is, perhaps, Davies's most written-about work and much of the knowledge about it is derived from David Roberts's seminal article for the magazine Contact in 1978, which he later expanded into a section of his thesis, presented in 1985, on Davies's compositional techniques. Roberts was the first to systematically unpick the compositional workings consequent upon Davies's use of magic squares although in fact it was Paul Griffiths's book on the composer published in 1982 which made the analytical detail more widely available.

Roberts's interpretation was exactly that since then he did not have access to the pre-compositional material, and as he himself says 'this is my own deduction and may well differ from the composer's interpretation'. With the advantage of having access to the pre-compositional material I can say that it was remarkable how close to the approach Roberts came, but, as he implies, there are some ways of treating the square which Davies employed that Roberts did not capture exactly, although these have more to do with perceptions of pitch organisation than the actual resultant musical detail, as I hope to show. For the record, the sketches are divided between those which are held at the British Library, and about 80+ sides of sketches and first draft for the opening movements held by Marie Curry in Letchworth, who, until I turned up at her door, had, she says, never been asked for access.

Ave Maris Stella is a satellite, to use Peter Owen's term, of Symphony aka Symphony no.1 though it should be noted that Davies's use of the generic term for the larger work was entirely in keeping with his use of other generic titles such as Fantasia and Sinfonia for works written in the 60s. Both the Symphony and the chamber work use the Ave Maris Stella plainsong from the Liber Usualis but the chamber work uses only this plainsong and the 9x9 square of the Moon derived from it. Although never hiding the fact of magic square usage Davies has never wanted to drawn in public on the actual compositional processes involved in their deployment.

Before starting on the analysis proper it would be useful to revisit some of Davies's comments on the work from an interview with Paul Griffiths in the aforementioned book. Griffiths asks Davies to say something about the (quote) 'deeper changes of style and technique' (end quote) evident in Ave Maris Stella through the use of the magic square. Davies responds that the magic square offers (quote) 'limiting possibilities of transformation very precisely'(end quote). This is a reference to the plethora of charts which Davies had had to create in order to achieve sets whereby one musical idea could be transformed into another. This process was demonstrated by Stephen Arnold, a one-time pupil of Davies's at Cirencester in his article on the Second Taverner Fantasia in the 1975 volume British Music Now. However, Davies goes on to say that:

> The nine by nine square gives very very simple results which you can learn and work with - like triads - and very simple rhythmic values too

Davies has further developed this idea of 'learning one's material inside out' in many of his subsequent pre-concert talks on large scale works, such as the fourth Symphony and most recently the Fourth string quartet. .

For Davies the magic square processes 'codify' (his word) the transformation processes and (quote) 'makes a thread which works right through the piece' (end quote) and he himself describes the work as 'pivotal': where everything became 'much simpler'.

Davies further describes Ave Maris Stella as (quote) 'a piece where you very quickly know the geography and what stage of the process you're in' (end quote). The geography of the work is relatively straightforward in that, like the magic square, there are 9 sections and the tracing of patterns through the square for the detail of the pitch content of each movement is mirrored in the formal connections between and across movements, which I will deal with in detail in due course.

The process of (quote) 'limiting possibilities of transformation' (end quote) involved the composer in the articulation of geometric patterns within the square. Davies more picturesquely calls these (quote) 'dance patterns whose steps pass through mazes and consequently as note patterns' (end quote). However to understand the effect this has on the melodic, harmonic and rhythmic processes in the music we must first understand the translation of musical and rhythmic values onto the numerical square (in THIS work since there are other variants which Davies employed subsequently).

My view on the magic square generation process for Ave Maris Stella is similar to one of the two proposed by Roberts in different places but since there is no detailed sketch material for this stage available it is an interpretation, like his. However first the origin of the 9 note pitch collection which forms the basis of the square of the Moon: Roberts has proposed that the notes are derived from an alto flute line in the second movement of the first symphony:

[EXAMPLE] ex Roberts ppt1

Indeed this series of 27 pitches (in three groups of 9, which I have indicated by vertical lines, is subjected to transpositions and sieving (the abstracting of selected pitches):

[SHOW PHOTOGRAPH] ppt 2

It is likely that this is a sheet of working from the symphony but the fact that the sheet is now bundled with Ave Maris suggests that Roberts was correct to ally the pitch content of the chamber work with this. Roberts proposal is for this derivation.

[EXAMPLE] ppt 3

This is not exactly as Roberts presents it. I have divided up the plainchant corresponding to the distinct verses and have retained the original shape of the chant so that the pitch connections can be more readily seen. In addition, I have brought back into the example the fourth note C (which

is why it is in brackets) which gives the 9 pitches of the Ave Maris set.

The transpositions T4 and T8 are not inconsistent with Davies's practice in earlier work and the compensating 3 and 3 T8s balancing the 3 and 3 T4s is typical of Davies's working in the 60s whereby if one element changes, another element has a mirroring change in the opposite direction as compensation.

As mentioned earlier I do not follow Roberts exactly as to the derivation of the magic square of the Moon. The choice of this square is perhaps not surprising given the use of the Ave Maris plainchant. The nine note pitch class set is first transposed onto its successive notes:

[EXAMPLE] ppt4
then subjected to rotation round its central pivot so that the set square produced pivots round its central line:

[EXAMPLE] ppt 4

This has the effect of placing C# – where that note exists in the transposed set – at the beginning or end of the line in which it occurs. Commentators on the work have observed the importance of C# as a defining 'tonic' to use Davies's terminology. In fact Griffiths says (quote):

> though it would be quite wrong to describe Ave Maris Stella as simply being 'in C#',
> it is not too misleading top regard it as being 'in flight from C#'

Those with sharp eyes will have noticed that the middle line of this rotated square is also the NE to SW diagonal and if I now show you the magic square derived from this you will see that these same pitches still form the diagonal, but this time from NW to SE.

So much then for the application of the pitches to the square: it is time to see how this is translated into the compositional process.

The nine sections of the work are broadly palindromic in shape where section 8 mirrors section 1, 7 mirrors 2, and section 6 mirrors 4, but as Griffiths has pointed out, section 6 also reflects 3 in having (quote) 'slow steady developments'. One has to be careful about the application of the word 'development' to Davies's music since one might the describe the whole work as being in a constant state of development as a result of the pitch manipulations and transformations. Griffiths's interpretation is supported by the fact that there is a focus on marimba in section 3 and section 6 and, as I will show, the use of a spiral reading from the magic square.

Almost every section has a controlling line and in some movements, of which the first is a good example, this acts as the 'tenor' round which everything revolves ('tenor' – the 'holding part' in the medieval sense of course and not as we might understand it today).

In **Section 1** (Andante) this simply charts a path line by line through the magic square:

[EXAMPLE] ppt 5

the durations determined by the numerical sequence of the rhythm square.

By the way if any of you are inspired to go and seek out Roberts thesis hereafter you need to be aware that for some reason he has stated the magic square in its retrograde form, that is, turned through 180 degrees. The version in his earlier Contact article is correct. Perhaps he was testing out his examiners??

The marimba, an instrument which those familiar with Davies's music, will instantly recognise as one of his hallmarks, has a central role in this work. It is used in the first movement to abstract pitches mostly from the controlling cello line and sustain them as chords, although as you will see from the very first line that it is the flute line rather than the cello that is doubled. This suggests that the essential counterpoint between cello and flute was written first and the accompanying texture after. This approach can be seen quite clearly again later in, for example, the sketches for the third symphony at the British Library. The flute has an unmeasured line which takes pitches from the magic square rows, and these are further decorated by arabesques derived from other matrix rows as will be evident from fig C onwards. The viola and piano parts have mensural canons in relation to the cello part (in the ratios of 5:3 and 4:1 respectively). The labelling on the score is mine, derived from material in the sketches. The circles or boxes indicate line origin from the square. Numbers on their own are durations.
We'll listen to the opening 2 minutes or so.

[Use page 1- 3 as EXAMPLE] ppt 6

The cello line at E is interesting because in the original version it was given to clarinet but Davies took it out to so as to make the control line in Section II, which it states, more timbrally different. In the original version the piano line from about F onwards was much more regular. The piano at this point takes the magic square lines from 9 back to 1 thus giving the section a something of a palindromic shape although varied, reflecting the overall shape of the large scale formal structure of sections I to VIII .

As mentioned, **Section II** features the clarinet as controlling line and this is derived from reading the diagonals in sequence SW – NE. This also has the effect of assigning one duration unit per line in the numerical sequence of the top row, namely 162738495. The section starts at the same tempo as Section I but the whole section is a gradual accelerando into the tempo of the third section:

[Max half lozenge shape , Roberts pathway and Lozenge number shape scan] ppt 7

The surrounding parts use ordered and unordered pitch sequences from the matrix, both linear and from the diagonal reading with rhythms that are also comparatively free – hence the accelerandi and decelerandi [SCORE as below] found in the flute and piano parts particularly. This extract from the middle of the section demonstrates the pitch derivations (where a circle represents a horizontal pitch group and a lozenge the diagonals). These labels are from the actual sketch. Although the choice of accompanying sets looks somewhat arbitrary, it is clear that Davies pre-worked chord sequences and parts of the piano bass line. We can see the latter if we compare the bars before figure L with the chart and preliminary workings from the composer's

sketch material:

[SCORE page 8-9] and copy of half lozenge Max in situ]. ppt 8

Section III (Allegro) utilises a spiral route through the matrix shared between marimba and clarinet emanating outwards from the centre and based on the quaver as durational base value.

The accompanying parts to this line are variously derived. The piano is primarily built upon 6 versions of the retrograde spiral with a number of additions and alterations as it proceeds. Firstly, the rhythm of each repeat is varied and sometimes individual bars are reordered – or 'shuffled' to use Roberts term. Secondly, grace notes are added, derived from an up and down reading of the matrix – what Davies has labelled elsewhere as Boustrophon, the Greek word relating to the movement of the team of oxen up and down the field during cultivation of the land, and thirdly with notes taken from different rows of the matrix. The viola enters at bar 22 with what is effectively a retrograde of the control line from the first section using a rhythmic contraction of 5 in the time of 4 and the flute has 'measured decorations' [as Roberts describes them] to the control line and viola part.

Section IV (Prestissimo) is perhaps the most complex section as far as the use of the matrix is concerned. There are five sub-sections each of which takes the controlling line, shared between clarinet, viola and cello, on a complex pathway through the matrix using semiquaver as the durational base value. However these pathways become simpler with each succeeding sub-section until they finish on the single pitch point of C, one of the focal tonics and dominants' of the work. These are from Roberts:

[Roberts diagrams] ppt 9

The control line spawns decorations around it except for the cello accelerandi and decelerandi which are derived from diagonals of the matrix and therefore give a sense of partial recapitulation of material from the second section.

Section V (Allegro) has a somewhat different character. Instead of one controlling line there are a series of nine overlapping duets alternating flute/clarinet with viola/cello. The two lines are related in quaver divisions durational proportionate to each other, the lower line always having the lesser duration. Thus, for example, the opening flute/ clarinet duet is in the proportion 2:1 and the ninth duet, with clarinet leading, is in the proportion 4:3 (though not exact). Each pair of lines is worked so as to finish together. The pitches are taken from successive paired statements of the matrix rows played twice through utilising forward or retrograde movement. Some pitch reorganisation is applied to the first three rows and the very last but otherwise the pitch sequences are unaltered. The appropriate duration sequence of each row is attached to the pitches for most of the section but disguised by pitch repetition. A clear example of this can be found between rehearsal letters E1 and F1.

[Example score page 26]

The accompanying piano part re-uses chordal material and the bass motif from Section II. The

chords are mostly abstracted from rows of the matrix as is most of the arabesque decoration. The marimba has unmeasured pitch sequences and arabesques often decorating the piano part but having connections with the flute in Section I.

[Possible Example] ppt 10

Section VI (lento recitando) is a marimba cadenza. As I indicated at the outset this is more or less a retrograde in pitch content of Section IV with subsections in the order 5 retrograde, 4, 3, 1, 2 – unlike the earlier section the score shows these sectional subdivisions with double barlines. Whereas Griffiths described the section as having 'slow steady developments', it would perhaps be more accurate to view it as a form of recapitulation made developmental, in that it develops material of section 3 while being a varied recapitulation of section 4. Of interest here is an annotation on the draft score – during the subsection I material the marimba has sempre pp upward rising repeating septuplet hemidemisemiquavers and Davies has labelled these 'wie aus der Ferne' ('like out of the distance').

Section VII (starts presto but with varying tempi) is related to Section II using the 17 subsections created by the diagonals. The controlling line transfers between instruments and is usually accompanied by one decorated melismatic line also derived from diagonals. The piano part contains some specific references to the bass motif from Section II.

Section VIII (*tempo del l'inizio*) is essentially a varied repeat of Section 1 but with significant alterations. The controlling line is now partitioned into 3 groups of three statements on flute, cello and clarinet (so lines 1 –3 on flute and so on). Another change is the creation of an overlap between the instrumental statements: so row 4 on cello overlaps row 3 on flute by 2 bars and row 6 on cello with row 7 on clarinet by 4 bars. The marimba picks out pitches from the control line as it did in the first section of the work, but following the pitch level of the instrument it accompanies. The new accompanying parts are derived from either the diagonals of the matrix (in viola and cello) up to bar 25 of the section, or latterly from forward or retrograde versions of the matrix rows using different durational subdivisions (such as 8:7,) but manipulated often to coincide with the end of the controlling line at each point.

The **final section IX** (lento molto): according to Davies 'all the previous music is planned so as to spiral upwards towards the climactic ninth section. This section is characterised by a pulsing quaver marimba part derived from the diagonals of the matrix. The durations of this appear to be quite freely chosen but the surrounding instruments have pitches and associated durations derived from horizontal and vertical readings from the matrix Again this has been effectively summarised by Roberts:

[Roberts Ex 9.9] ppt11

The piano from bar 12 has unmeasured statements of the matrix rows. The contrapuntal lines accumulate, but at p dynamic, to the point at which the flute states the plainchant melody virtually undecorated for the first time, the apotheosis of the work.

[penultimate page of score + audio] ppt 12

The work concludes (lentissimo) with a distillation of the matrix shared among the whole ensemble.

In Ave Maris Stella Davies has managed to balance generating process with sustained invention: the use of varied repetition gives both the impression of return while at the same time underpinning the developmental processes which permeate the work right through to the statement of the generating plainsong at the end. A feeling of closure is achieved but there is the sense in which the material has been examined from a number of viewpoints all of which have shed light on this generating idea before it is finally heard. It has long been realised that the importance of this work for Davies's future development cannot be underestimated. It marked a turning point in Davies's search for an underlying principle which would permit both a manageable controlling order and expressive intent to exist effectively side by side in a single work.