Saturday 22 April 2023 3.00pm

## WIGMORE HALL

**JACK Quartet** 

Christopher Otto violin Austin Wulliman violin John Pickford Richards viola Jay Campbell cello

Catherine Lamb (b.1982)

divisio spiralis (2019)



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Catherine Lamb, in her own note on this work, which she wrote for the JACK Quartet in 2019, starts out from an early memory. 'Since I was a child,' she writes, 'I have possessed a kind of synesthesia with regard to numbers. Rather than phenomena of light and colour, this has generally involved forms, shapes, and structures. When I first began to count, I imagined a long thread extending upwards and, when looking up, at some point I began to see a curve forming in the line until eventually the line transformed into an infinite spiral, with my foot planted at the number one.'

Here is an artist-visionary, then, with her feet decisively on the ground. By way of the real – numbers, ratios, and the frequencies and intervals the ratios embody – a transcendence is achieved, a line reaching infinitely upwards, travelling clean, without dogma or metaphysics.

In most western music, as performed today, matters of frequency, of pitch, are organised according to 12note equal temperament, which gives us the 88 notes of a standard piano. A great deal of that music barely outsteps the 50 in the middle of this span. But divisions can be much finer than by the semitone, infinitesimally fine, and tuning can take into account a whole jungle of wild and wonderful intervals, beyond the tamed preserve of those with which we are familiar. Like most musicians exploring this largely untouched territory, Lamb goes by way of just intonation, whose basis is simple frequency ratios, rather than the adjustments that equal temperament requires: 3:2 for the fifth, for example, where the equal-tempered fifth has to be a tiny bit smaller. Of course, there is no limit to the number of such ratios, but the difference between a 3:2 fifth and one whose ratio is, say, 80:53 is too small for the ear to perceive and therefore for the musician to gauge. Lamb stays this side of practicality, though she does embrace intervals close to the limits of aural discrimination, around an eighth-tone.

Starting out in imagination from an ultra-low E flat (way below the range of the cello), she builds a system in which every note is a harmonic of this, leaving aside the notionary fundamental and its first four harmonics as too low, to begin with the B flat to which the cello's C string is tuned (all 16 of the ensemble's strings are tuned differently from the norm), and extending upwards through five octaves. The resulting harmonic space she sees as 'numbers in repetition and interaction, generating/blooming outwards with each new prime and composite. Situating the four string instruments inside that space as distinct resonating chambers, I utilized this image as an inspiration for the total piece.'

The composition must, of course, inhabit and investigate this spiralling harmonic space through time, and so questions of form have to be addressed. Lamb asks herself where might be the entry and exit points in the recognition of some formal element – a melody, as it might be – and where might the listener

become lost, and succumb to being lost. 'Where', she asks further, 'lies the blurred zone between melodic movement in a forward direction and clearly interacting/expanding harmonic space?' In her score she distinguishes three kinds of tone by function: those that are active, implying linear, melodic movement onward; those that are active/passive, exploring more the harmonic space; and those that are passive, relating to others in play. To give an example from the very beginning of the work, the first violin starts with a medium-high B flat that is active, the line slipping down roughly a quarter-tone and returning to the same B flat, now passive as the viola, which had entered on the same note, executes the same downward dip and return. Melodies and harmonies throughout the whole first section keep within a narrow band, never venturing more than a third below the starting point or a slightly widened major second above - held, therefore, within a fourth.

There are 13 sections – long breaths – that at first very gradually widen the space. The octave is reached in the fourth such section, and the fifth section achieves a span of a twelfth at its close. After a sixth section ringing through similar spans, the seventh makes a sudden narrowing and begins a process of descent. This is not completely straightforward, though, for as lower tones are introduced they may spark life back into higher relatives, widening the span to the double octave and more. In the eleventh section everyone is settled into a region around middle C, at least until the first violin ventures way above, followed by the second to a lesser extent. After this the upper registers are out of bounds, except when light bowing occasionally in use throughout the piece - stimulates higher partials.

Within each section there will be zones where the frequencies are related by simpler ratios – zones, that is, of harmonicity, parallelling the consonance of former times (though we may feel we are in the presence of a music more ancient yet). Each section comes to a culmination in such a zone, which may even be as rudimentary as an open fifth (second section). Inharmonicity, with its complex ratios, provides the spur to move from one harmonicity towards another, by way of harmonic exploration and of the melodies proceeding at a faster pace. Tempo is to be judged by the performers, but the music implies steady, if always mobile concentration and a total duration of well over an hour.

'Tones', to quote Lamb's prefatory material, 'are unforced/relaxed, with vibrant cores, yet balanced together to define their interactions and total shapes. Melodic phrases are to highlight/unfold the harmonic space and the edges of the shapes, often embedded within the total sound. Expressivity lies in the clear and plain unfolding of the harmonic colourations.'

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