

The Proms Listening Service

Radio 3's Tom Service proposes onward sonic explorations inspired by the music of tonight's Prom



J. S. BACH

The Well-Tempered Clavier, Book 2

'Well-tempered' but not 'equal-tempered': the way we've been hearing the piano, and the vast majority of the music that's made today by humans and machines in the West, is all wrong. Because our tuning system of 'equal temperament' – making the sonic distance between each semitone on the piano as much as mathematically possible the same – is a system that would have had Bach, Mozart, Haydn, Schubert and quite possibly Brahms and Mahler up in arms at the discordant cacophony the instrument was producing.

Overstated? Quite possibly. But what has become the international standard of the way acoustic keyboard instruments are tuned – and the way that the vast majority of music made in a studio or on a computer with sequencing software is created – is a historical aberration rather than the perfected result of centuries of musical evolution. Because in flattening out the way our music and our instruments are tuned in 'equal temperament', we've lost precisely the expressive point that Bach's two books of 24 Preludes and Fugues are making, which is the affective, textural and physical difference between one key and another. The 'clavier' they were written for was 'well-tempered' precisely because it allowed Bach to compose *with* the differences between the keys, not because it ironed them out.

For Bach, it's not just that a piece in D sharp minor is based on a different note to a piece in A minor: the distinction between those keys on the instruments that he knew was a physical difference of vibration, in which the intervals between each degree of the scale were different in each key. Why? Because the tuning systems in Bach's time were a compromise between allowing some keys to sound as unsullied and as 'natural' as possible while others would sound darker, stranger, full of weirder harmonies. (Any tuning system must be a compromise because of the pesky Pythagorean comma, which basically means that if you take the ratios that give you the best-tuned fifth and keep repeating them, on and on up the keyboard, your octaves will go out of tune: it's the canker in the universal tuning apple that produces the friction between keys, the curse and

magic of so much music.) In the different expressive regions that Bach conjures from the 24 major and minor keys, we still hear a poetic difference on a modern piano between the guileless openness of the C major Prelude and the tortured dissonances of the B flat minor Prelude. But we don't hear the physical, vibrational differences between them in the same way Bach did unless we hear performances on an instruments tuned in an early 18th-century tuning system.

It's no surprise that composers in the equal-tempered era have reacted against it and created their own tuning systems. **Harry Partch's** 43-note scale results in music of magical, transformative power: listen to his *Delusion of the Fury*, composed for instruments designed by Partch himself, to immerse yourself in this intoxicating realm of vibrations. **La Monte Young** rejected equal temperament for what he calls his *Well-Tuned Piano*, an ongoing cycle that lasts around five hours in a performance you can find online. **Gérard Grisey's** music is an exploration of the harmonic series, the naturally occurring halo of overtones released when you play any single pitch. Grisey's evening-long cycle *Les espaces acoustiques* is the most vivid and shattering revelation of the elemental power of the harmonic series, in music for forces ranging from solo viola to full orchestra.