

The pursuit of perfection

Paul Robertson, leader of the Medici String Quartet, and
Ashridge Consulting's Hugh Pidgeon contemplate the true nature
of the musical experience and how can we learn from it.



Paul Robertson is a lecturer and broadcaster, and is the leader of the Medici String Quartet.

Paul Robertson: One of our earliest musical collaborations involved the Medici String Quartet in an extended autobiographical enquiry culminating in a performance work entitled *The Gift* that we took to the 2001 World Economic Forum at Davos. Born out of a series of interviews between Hugh and each member of the quartet, its subject was wildness and discipline – the ancient tension between creativity and order that is inherent in the structure of the music we play, in the relationships between us as musicians, and familiar to anyone managing the complex patterning of interactions that make up an organisation.

We began to notice how often the most abiding of human archetypes were characterised by paradox. In situations of major organisational change and stress (even distress) it is very natural to sidestep paradox and retreat into established behaviours that have served us well in the past. Genuinely novel situations always finally demand the previously inconceivable – innovative responses that we don't bring with us into the situation but are born *of* it.

Even then we are susceptible to easy formulae. We move over-quickly to resolve tensions that are inherently irreconcilable. My belief, with Hugh, is that music has the potential to illuminate the more intractable of

these human predicaments without seeking to resolve them. Interweaving emotion, feeling and relationship as it does, it offers another language, a new source of insight. As Felix Mendelssohn put it: "Music is too precise to express in words."

Hugh Pidgeon: Most of us are confronted sooner or later by situations we simply cannot calculate nor calibrate. At moments like these, we have little choice but to work at the very edge of what we do *not* know – seeking insight and revelation in the process of the enquiry itself. In the face of this immense creative challenge, we come up against what the former president of the US-based Hanover Insurance Company, Bill O'Brien, once called our most 'emotional habits of mind'.

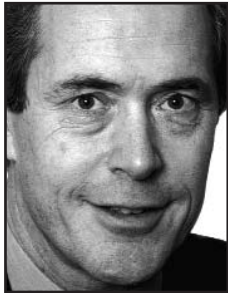
The habits of mind are easy to name and have generated their own formulae. Here are some of them. The present is unsatisfactory (and mostly a problem). The future is a place to get to. Getting there involves a journey. But chief among them in business terms is the neat distillation of managerial responsibility into the setting of goals and the identification of targets.

I remember working for what was then SmithKline Beecham at the time they engaged the world record land-speed holder Richard Noble for a marketing initiative entitled

Email: paulandchika

[@tiascali.co.uk](mailto:paulandchika@tiascali.co.uk)

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Hugh Pidgeon is an associate
of Ashridge Consulting.

Email: hugh.pidgeon

[@ashridge.org.uk](https://twitter.com/ashridge.org.uk)

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Breaking the Barrier. This made a change from the more usual competitive metaphors, but like them, the initiative in the end involved the attainment of a target as defining of its purpose.

The episode I remember most from Richard Noble's account of breaking the record was his description of the team standing there in the desert elated with their success and with glasses of champagne in their hands, falling silent as they looked round at this tight knit team that had overcome apparently insuperable odds and realising that they no longer had any reason for staying a team. There would need to be a new goal if they were to stay together and they had already achieved the ultimate in their field.

That is the trouble, it seems to me, with going for gold. It turns in on itself and becomes a treadmill, an endlessly re-created series of stretch goals, whose value dissolves in their attainment.

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Lying at the heart of most goal setting is the notion of perfection. The pursuit of perfection has rooted itself unnoticed at the heart of much of the management thinking we inherited from the 20th century. It has become inextricably linked with the elevation of precision as the measure of its attainment. Uncertainty is taken as a matter of regret and error a consequence of miscalculation. Indeed, the pursuit of perfection is assumed to involve the *elimination* of error.

Robertson: The pursuit of perfection does not assume perfection is achievable. At the very heart of music, which the ancient Greeks took to be the embodiment of natural order in the universe, there is an irreconcilable flaw that lies between the ideal aspiration and its realisation.

Like every other student of the time, I was introduced to our own gold standard: the work of Jascha Heifitz. For those not in the violin world, it is difficult to convey the iconic significance of Heifitz. For my generation (and many before and since) Heifitz's playing was not merely great but the absolute standard by which all other instrumentalists, no matter how exceptional, were found wanting.

Heifitz established his wholly exceptional credentials while in his early teens and, most unusually, kept them throughout his performing career. His phenomenal technique was perfectly integrated within an always incisive and distinctive musical personality. With all of this, he also sustained a truly awesome reputation for perfection.

A friend of mine was playing in the orchestra that accompanied Heifitz' seminal recording of Bruch's *Scottish Fantasy*. This is, even now, a recording that would for many players represent an absolute ideal of instrumental supremacy. Mid-way through musical history in the making, Heifitz played a wrong note. Astonished and confused, the

orchestra came to a halt. Expensive studio time ticked away while Heifitz, in complete silence, utterly composed, with everyone's eyes on him, walked to the side of the hall, and very quietly and slowly began practising the offending passage. After a while, still totally unruffled, he returned to the solo spot, and the recording continued its spectacular course.

Pidgeon: I remember when Paul first told me this story. As I understand it, Heifitz was dealing with a lapse of attention on his part rather than seeking to correct an error. From a management perspective, the recovery of attention is an altogether different exercise from the elimination of error. One involves what you attend to, the other how you attend. But I was to learn there was more to it than that.

Inescapable imprecision

Robertson: While I was still a student at the Royal Academy of Music, we were shown a film of Heifitz in which there was a section that had been filmed in slow motion. It was a true revelation to me. The film revealed that Heifitz was *continually* responding to error. He was adjusting and changing the pitch of each note, continually responding to what those of us listening would have been unaware of as tiny inaccuracies in his own playing. The intense focused attention that made his playing so exceptional was entirely directed towards sustaining a flexible, easy, and subtly reactive, *imprecision*.

The revelation was that the harmonic structure of music itself is inherently inexact. I discovered Heifitz was working with a quality of attention that was accepting of a flaw intrinsic to the music itself – a flaw that appears inescapably whenever we play, and most particularly whenever we play within an ensemble.

This was something I knew about from my own experience, even then. With three others, I had formed the Medici String Quartet while we were still students at the Academy, and our early days together were fraught with difficulty. The tempos, balance, phrasing, structure and sound were hopelessly wrong – that was going to be a matter of practice – but so apparently was our ability to play in tune with each other. This seemed particularly galling and incomprehensible to us. Hours of slow practice together made only a superficial improvement. We began to question each other's ability. And we began to be clever, turning the tables on each other to 'prove' the accuracy of our own playing.

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The gap

I feel almost embarrassed now to acknowledge the real ignorance of both human behaviour and the physics of sound we displayed at that time. In fact, we were discovering for ourselves what the Ancient Greeks fully appreciated thousands of years ago and both Indian and Chinese thinkers even before that.

There is a flaw or gap between the tuning of pitch by octaves (each time dividing the string in half and doubling the frequency) as opposed to the

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cycle of fifths: ie taking the string and dividing it in the ratio of 3:2. So if the note sounded was 'C', the first division on a ratio of 3:2 would give you the note of 'G'. Continue the divisions in fifths up the scale twelve times mathematically (each time dividing the string and multiplying the frequency in the ratio 3:2) should bring you to the same point seven octaves up as dividing the string in half seven times. In the process you will have covered all of the chromatic intervals in the Western scale of twelve notes and indeed heard all the overtones that are already contained in the originating note.

But mathematically it doesn't add up. This irreconcilable incongruity is easy to demonstrate and excruciating to listen to. It is a little harder to evoke in writing, though it can be expressed mathematically. If you take your initiating frequency as one, ascending by octaves seven times (halving the string each time) will give you the frequency of 128. Ascend by the cycle of fifths twelve times (using the 3:2 ratio), and you arrive at the frequency of 129.74634. This is what all of us now know as the Pythagorean gap. What should be the same note isn't.

This extraordinary phenomena (called *untempered pitch*) has been a prime constraint within musical language across the ages. Traditional music tends to stay within very carefully prescribed tonal boundaries (called *keys, modes* or *rags*) precisely to avoid the more extreme frictions and dissonance that occur when these essentially irreconcilable pitches meet.

In the classical Baroque tradition, the 'trill' and other ornamentation was first introduced precisely to cover over the awkwardness involved in modulating from one key to another. One modulation (again in the case of the key of C, to the key of G) produces a barely perceptible difference. The notes between the two are held in common in the scales of both keys. But with each successive modulation in a complex piece to a different key (adding more flats and sharps), the gap becomes more evident.

Interestingly, it is the closest interval (in this case, between C and C-sharp) that produces the most poignant discord. In the harmonic series the two notes only come together seven octaves up, when the gap is by then most in evidence.

Pidgeon: My work with Paul began to suggest a quite different understanding of imperfection. Current science tells us that the experience of pitch and sound – and ultimately of music itself – has a unique role to play in our neurological development and brain anatomy. So it is by more than analogy we might conclude that human beings too have flaws, but flaws as an intrinsic part of what it is to be human – wherein lies our creativity, as well as our fallibility, as well as our liability to make errors.

I recall a recent invitation made by Robert Kaplan and David Norton, originators of the *Balanced Scorecard*, to join a virtual seminar on the successful implementation of strategy. Their premise was that nine of out ten organisations fail to execute strategy successfully. You need to know, the invitation read, why this is and how to fix it. It now seems to me that the implication that 90 per cent of most organisations' best endeavour is fruitless seems an extraordinary premise on which to offer benefits to the 10 per cent; that maybe 90% is telling us that there is something else at work here than simply miscalculation or incompetence.

Being right

In the Kaplan and Norton invitation was also the seduction of certainty, of being right – and the lure of evident confidence that the goal was attainable. The pursuit of objectives, even of the goal of perfection, of itself has provided much necessary discipline to many an organisational enterprise. For many, too, it is the source of motivation, and of a

sense of achievement. It is not for nothing that the metaphor of the playing field so pervades the management lexicon. It is when being so sure about something is brought into combination with the belief in perfection that the potential for most mischief seems to be created.

There is an addiction involved. I think of the experience of an anorexic child, who lives in pursuit of an image of perfection. It is profoundly disturbing to be close to the obsession of their belief, despite the evidence of the mirror. But many organisations become equally obsessive in their pursuit of their ultimate goal, often in the face of available data. One only has to think of the disaster of the Challenger space mission, by way of illustration.

If we were now to reach a radical reappraisal of our own obsessive dedication to the pursuit of perfection, we find ourselves face to face with paradox – not least the paradoxical nature of the workplace and the human beings we find there. I have been greatly influenced by the writer Peter Block¹ from whom I first learned how often the most persistent problems that call for consultation have no clear answer. I began to notice how often two opposing viewpoints will each be found to be true. Peter's view was that this sort of tension is always present and that we make a serious mistake if we choose one or the other, or even try to find a middle ground. As he puts it, "the best outcomes emerge in the effort to understand the truth in both sides".

So when Paul speaks of the need to "yield your own perfection to the greater imperfection of the group" I hear that very differently now. If we were to accept our own imperfection, indeed appreciate its utter inevitability, what implications follow?

The music of J S Bach

Robertson: Clearly our response must depend on many factors: our beliefs, our hopes and aspirations are all socially and historically

located. But in my belief, it is at such moments that music offers us unique insights. Let me take the example of the life of J S Bach and the music he composed.

It was Bach who principally championed the scientific re-tuning of the piano as we now know it, by which the flaw of the ever vexing Pythagorean Gap could be effectively equally spread across the whole keyboard. His system inevitably led to an entirely rational tuning in which every note on the piano is just slightly but precisely and similarly out of tune with every other note. This is the equal tempering now universally used in the construction of contemporary keyboards.

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It was also precisely the rational solution that Bach knew to have been associated with human decadence and social breakdown. Chinese philosophers had much earlier proposed equal temperament, untuning intervals to allow for greater movement. They had seen the maths, they had seen how it would work, and they had also recognised what it would do. Symbolically, it meant allowing in something of significant universality – the ability to move without disruption in any direction – that was understood to profoundly disturb the philosophical underpinnings of an otherwise well ordered society.

So why did this most highly principled of men, a devout Lutheran, pursue this any

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further? I suspect that it was exactly *because* of Bach's profound religious faith, coupled with his immense mathematical intellect and love of the organ, that he felt compelled to move the musical world forward in this extraordinary way. If Bach shared the ancient vision of music as a Harmony of the Spheres and therefore also a direct influence upon the social order, his promotion of a tempered system would be a wonderful way of showing how each and every member of a (musical) community could take upon themselves a portion of that original sin, by then symbolised for him in the Pythagorean Gap.

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The irreconcilable place of paradox

If this is too abstract, consider Bach's personal circumstances at the time. Following an extended tour with his patron, Count Leopold of Coeten, and in 1720 just 32 years old, Johannes hastens home to see his beloved wife, Maria Barbara, and their seven children. Imagine his devastation when he discovers that in his absence Maria has died and is already some ten days buried.

His reaction was to turn his creative genius to continuing to develop his remarkable series of solo violin works. After nearly three hundred years, thanks to recent research by the German

musicologist Professor Helga Thoene, these magnificent and often perplexing works are yielding a multitude of previously hidden and deeper meanings, and acquire added poignancy and colour when set against the tragedy through which Bach was living. They express faith and hope in redemption and resurrection, and personal love and dedication to his wife and family, all woven into a musical, mathematical tapestry of creed, song, dance and magic. It is now clear that in the *Chaconne*, for example, Bach created the most sublime synthesis of death in life, mortality and resurrection, sacred and profane – inseparable one from the other, each born of the constraints of the other.

He shows us immense possibilities for creative freedom within a complex system embracing all areas of life, family and employment, and across public, spiritual and intellectual domains. A hidden and ever present death chorale underpins the whole of this work, but simultaneously a whole succession of resurrection chorales is also woven into the structure. Every bar is encoded with mathematical transformations of the Creed, Kyrie Eleison, Bach's name and all the members of the Bach family, who are also celebrated in this secret coded numerical sequence. Some of the codes are based on note names, others on note lengths, others again on pitch differences. Bar numbers, movement proportions, and even visual notational motifs, all play a part. The numbering of the bars represent the crucifixion and body of Christ, while motif figures (little musical themes) create graphic representations of the cross and other religious symbols.

I have often been asked whether Bach was conscious that he was applying these organising principles and even whether he would have wanted all of this to be revealed 300 years after the event. We might note Leibniz's fascinating comment that "music is the human mind using mathematics, unconscious of itself calculating". While this is a compelling thought, and one which acts as a philosophical precursor to much contemporary

brain science and computer modelling, it is impossible to conceive of such an immensely complex, and in many ways artificial, abstraction that we have been considering here as being other than entirely conscious.

Pidgeon: There is a certain anomaly in writing about something that is much more readily evident in the playing of it and can be appreciated in the playing even without these carefully researched revelations. My experience of hearing Paul play the *Chaconne* of which he writes here, is that the irreconcilable place of paradox, as we have called it, no longer seems an anomaly. The music becomes an exposition of our own humanity – of our own limitation and of all that is worth living for. ■

A more detailed account of the construction and hidden meanings in Bach's partitas is available in 'Bach: a Marriage of the Sacred and Profane' which with other related papers by Paul Robertson can be found on the website: www.musicmindspirit.com. The site also carries an interview with Paul and Hugh Pidgeon on their collaboration, taken from the magazine *People Management*.

SOURCES

1. Block, Peter. *The Heart of the Matter*, Chap 19: *Flawless Consulting (University Associates)* 2nd edition, 2001.