TEMPO 78 (309) 90–100 © The Author(s), 2024. Published by Cambridge University Press
doi:10.1017/S0040298224000093

NEW MUSIC AND SUSTAINABILITY

Christopher Fox

Abstract: This article proposes a series of connections between the consumption of resources, the creation of new music and ideas about sustainability. A number of examples is discussed, from the nineteenth to the twentieth centuries, that illustrate the ways in which conspicuous, and often ethically questionable, consumption has been a signifier for innovation in new music. The article concludes by introducing three of the author's recent works, *The calm of mountains*, *This has happened before* and *Hieroglyph*, as models of a compositional practice that attempts to enact and embody ideas of sustainability.

On 10 October 1968 the New York Philharmonic Orchestra gave the premiere of Luciano Berio's *Sinfonia*. In the third movement the tenor, as part of the spoken commentary that he provides throughout the movement, announced that 'tomorrow we'll read that Beethoven's Fourth Concerto made tulips grow in my garden and altered the flow of the ocean currents. We must believe it's true.'[1] Fifty-five years later our priorities have changed. In the climate crisis that has been created by humanity's activities we worry that we may have 'altered the flow of the ocean currents' to the extent that tulips will no longer grow in anyone's garden. How do we preserve the flow of those currents so that tulips don't die of frost, or too much rain, or too much sun? New music, indeed all new art, has always been preoccupied with innovation – with new ideas, new materials, new ways of organising and presenting our perceptions of the world – but perhaps today our challenge as artists and scientists is to innovate in a way that is sustainable.

Later I will discuss the ways in which some of my own recent works have attempted to enact a response to this challenge, but first I want to examine the term 'new music', since this is the category of activity in which I work. What do we mean when we describe music as 'new'? Is there a difference, for example, between music that is literally new, because it has only recently been created, and music that is new because it is progressive? This latter sense is enshrined in Theodor W. Adorno's *Philosophy of New Music* (first published in 1949), in which he suggests that the most important new

[1] For a discussion of the role of text in *Sinfonia* see Michael Hicks, 'Text, Music, and Meaning in the Third Movement of Luciano Berio's Sinfonia', *Perspectives of New Music*, 20, no. 1/2 (Autumn, 1981 – Summer, 1982), pp. 199–224.

https://doi.org/10.1017/S0040298224000093 Published online by Cambridge University Press

Figure 1:
Gustave Doré, 'Ludgate Hill – a block in the street', from Blanchard Jerrold and Gustave Doré, *London: A Pilgrimage* (Grant & Company: London, 1872).

music has 'historic priority'.[2] I want to consider how this concept of newness might be applied in an era in which the most useful societal and technological innovations are those that enable us to move beyond climate crisis and towards a sustainable future. Is it possible to conceive a new music that in some way embraces sustainability, whether that be through its form or its realisation? What might be the criteria by which we assess the success of such a project?

New music's consumption of resources may offer a useful starting point. Industrialisation in nineteenth-century Europe was made possible by an unscrupulous, profligate use of resources, whether those resources were people, materials or energy, creating spectacular industrial environments such as those depicted by Gustave Doré on Ludgate Hill in London in 1872 (see Figure 1), and this was paralleled in the music of nineteenth-century Europe by a conspicuous consumption that was also a strategy for drawing attention to new work. Hector Berlioz, for example, engaged so many additional musicians for the first performance of his *Symphonie Fantastique* in May 1830 that the eventual orchestra consisted of 130 players, far too many to fit on the stage of the Théâtre des Nouveautés in Paris,

[2] Theodor W. Adorno, *Philosophy of New Music*, tr. Robert Hullot-Kentor (Minneapolis: University of Minnesota Press, 2020), p. 8.

https://doi.org/10.1017/S0040298224000093 Published online by Cambridge University Press

Figure 2:
Anton Elfinger (based on an 1846 caricature by Jean-Jacques Grandville), 'Ein Concert in 1846!', *Allgemeine Theaterzeitung*, 4 April 1848.

and the premiere had to be postponed.[3] Figure 2 is a satirical depiction of Berlioz conducting; first published in Germany in 1846 and captioned 'A concert in 1846!', its chaotically dense imagery is a transposition of Doré's streetscene into the concert hall.

Fifty years later Wagner's operas required the design and manufacture of new instruments and, eventually, the building of a new type of theatre, the Festspielhaus in Bayreuth, which opened to the public for the first time in 1876. More recently the conception of new music so demanding in its spatial requirements that it necessitates the creation of new buildings for its realisation was taken up by Edgard Varèse with his *Poème Electronique*, for which the Le Corbusier practice, led by Iannis Xenakis, created the Philips Pavilion at the 1958 EXPO in Brussels. Twelve years later, the 1970 EXPO in Osaka offered a particularly egregious example of this sort of spectacle: a spherical concert space, the Kugelauditorium (see Figure 3), designed by the architect Fritz Bornemann to present the music of Karlheinz Stockhausen. Stockhausen's original specification for the Kugelauditorium was based around a work called *Hinab-Hinauf* that would require sound diffusion in both the horizontal and vertical planes, enabling listeners to experience the music spiralling around them in every direction; but in the run-up to the EXPO Stockhausen abandoned the work and it was never realised.[4]

[3] Berlioz tells the story in his *Memoirs 1803–1865*; see pp. 84–85 of David Cairns' edition (London: Random House, 2002).

[4] The project is discussed in Karlheinz Stockhausen, 'Licht-Raum-Musik, *HINAB-HINAUF*', *Texte zur Musik 1963–70* (Kürten: Stockhausen-Verlag, 1991), pp. 155–63; see also Michael Fowler, 'The Ephemeral Architecture of Stockhausen's Pole für 2', *Organised Sound*, 15, no. 3 (2010), pp. 185–97, and Sean Williams, 'Osaka Expo '70: The Promise

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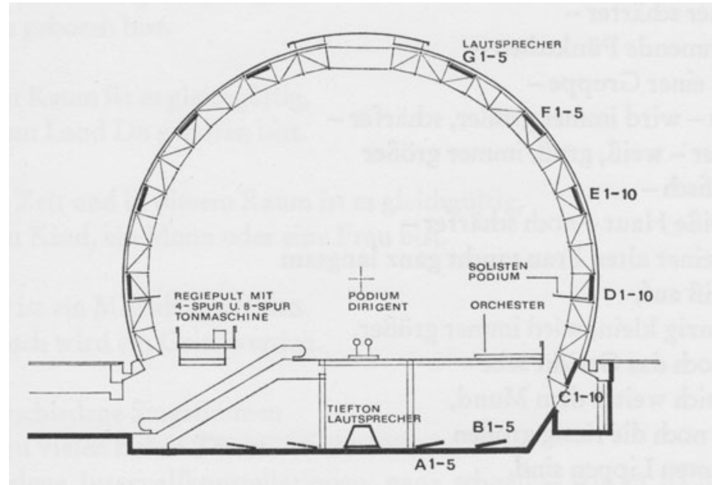

Figure 3:
Kugelauditorium, architect's drawing (Karlheinz Stockhausen, *Texte zur Musik 1963–70* (Kürten: Stockhausen-Verlag, 1991)).

Fundamental to the realisation of grandiose schemes such as the *Symphonie Fantastique*, the Festspielhaus in Bayreuth, the Philips Pavilion and the Kugelauditorium was money, and avant-garde artists, from Berlioz to Stockhausen, have often been careless about who was providing the funding that would enable them to innovate. In the early 1970s, for example, many composers were invited to present their work at the Shiraz Arts Festival, sponsored by the brutally repressive Iranian government of Reza Shah. Xenakis premiered his *Polytope de Persepolis* there in 1971 and the following year Cage and Stockhausen performed at the same festival; between 1967 and the Islamic Revolution in 1978 many artists, including the theatre director Peter Brook, the choreographer Merce Cunningham and the poet Ted Hughes, were complicit in this process.

In the last decade the term 'artwashing' has gradually evolved to encompass this sort of sponsorship: a state or a corporation uses a tiny part of its surplus revenues to fund the arts, in the hope that this will distract attention from its more reprehensible activities. Artists, promoters and their audiences have, however, become increasingly aware of the ethical minefields within which arts events are situated. In Britain, for example, sustained pressure from climate activists over many years forced the Royal Opera House to end its sponsorship contract with the oil company BP at the end of December 2022;[5] in so doing the ROH followed the example of the National Gallery, the Royal Shakespeare Company and other major arts organisations. If, as a community of artists and scientists, our aim is to make new work that directs people to ideas about the world in which we live, then I think it is important to take care not only about what we make but also about the ethical implications of how and why it is funded.

As I suggested earlier, we also need to take care with our definition of 'new'. In the introduction to the *Philosophy of New Music* Adorno

and Reality of a Spherical Sound Stage', *Insonic*, 26–28 November 2015, Karlsruhe, available at https://core.ac.uk/reader/80699261 (accessed 12 April 2024).

[5] See, for example, 'Tomorrow: "Petroleo and Fueliet" – Extinction Rebellion Lambeth to Stage Disruptive Performance at BP Royal Opera House Big Screen', 10 June 2019, https://extinctionrebellion.uk/2019/06/10/4802/ (accessed 12 April 2024).

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warned against measuring the newness of music by the prevalence of particular stylistic traits, such as atonality or neo-classicism, although he was sometimes guilty of doing this himself. Like Adorno, we continue to use style as a signifier of newness; in new music of the present era these include the use of live audiovisual processing and an instrumentarium that embraces objects and devices more familiar in domestic and industrial settings. But how often are these stylistic features really new? Much of the innovation in new music involves no more than the relocation of characteristics from older music or music that lies beyond the borders of the Western classical tradition. I am more or less the same age as the fashion for the 'extended instrumental techniques' that began in the avant-garde music for wind instruments of the late 1950s. But many of these techniques – singing through the instrument at the same time as playing to create a sort of acoustic intermodulation, for example – were already familiar in jazz; in this version of new music the 'new' only means 'not known round here'.

What is clear is that Western cultures are obsessed with newness and that this newness is often intrinsically dependent on a wasteful use of resources. One more example illustrates the way in which everyday consumption connects with musical fashion. Our laptops, tablets and mobile phones regularly need updating and eventually the updates are only compatible with a new operating system; some time after that, the latest operating system is no longer compatible with the device's processor and so we must buy new machines. The same digital technologies have become a ubiquitous signifier of newness in the making of music, but musicians who involve these machines in the making of their music discover that updated software or hardware will no longer run the sound-processing program in the music they made ten years ago; they are confronted with the choice of remaking the music or simply abandoning any thought that it might be performed again. Digital obsolescence is as wasteful of resources as the coal- or oil-based industries of the past.

Conspicuous consumption has been at the heart of capitalist enterprise for so long that we should not be surprised to find it so tightly woven into the enterprise that is new music, and I would suggest that music today is, as Rousseau said of humanity, 'né libre, et partout il est dans les fers'.[6] In the capitalist era music has become commodified, categorised by genres to facilitate its marketing and consumption. Within these genres, marketing emphasises the individual stylistic traits of individual musicians, commodifying them as the musician whose work has a particular set of characteristics – perhaps a preoccupation with a certain sort of instrumentation, or harmonic vocabulary, or an aesthetic position that draws together the edges of different genres – because that makes their work easy to sell. Even an artist as individual as John Cage fell prey to this general rule. His music changed radically – the number pieces are as remarkably different from the 10,000 Things cycle as the prepared-piano music is from the live electronic work – and consequently resisted commodification so successfully that by the late 1950s it become necessary for him to invent a 'John Cage' persona that would enable him to survive within the new-music market.

[6] 'Born free but everywhere in chains'; Jean-Jacques Rousseau, *Du contrat social; ou, principes du droit politique* (Amsterdam: Marc Michel Rey, 1762), p. 1.

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I think that we should resist this tendency towards the commodification of music and. musicians, just as we should resist capitalism's tendency to commodify every other aspect of our lives; both are reductive tendencies and we live in a world that has been spectacularly failed by reductive tendencies. Music is an extraordinarily complex phenomenon that so readily evades human agency, so why should we restrict it to a handful of stylistic traits that most efficiently enable its commodification?

This is much easier to write than to achieve. Recent attempts to make the world of classical music more representative of the rest of society offer one more example of the corrupting influence of superficial ideas of newness. In universities and conservatoires there have been laudable initiatives to decolonise music curricula; orchestras and opera houses are also trying to find ways to make their programmes more diverse. Yet new-music concerts and festivals are still promoted as opportunities to experience something uniquely, excitingly new, and they do so by privileging particular media, genres and venues as sites of innovation: new music that involves live electronics is more innovative than music for a string quartet; but a string quartet in a warehouse is more innovative than a string quartet in a classical-music concert hall, especially if the warehouse is in Berlin or New York. This confusion of innovation with fashion necessarily pushes less fashionable categories of work and place to the margins, re-enacting in the cultural domain the same inequalities, the same hierarchy of central and peripheral territories that were at the heart of the colonial project.

In a time of climate crisis and global inequality how, then, do we make music that enacts and embodies a more appropriate response to these terrible realities? How do we develop an approach to innovation that is compatible with a progressive approach to the sustainable use of resources and a more just civil society? What follows is a brief discussion of how I have attempted to address these questions in three recent works: *The calm of mountains*, for solo piano, *This has happened before*, for four clarinets, and *Hieroglyph*, for solo cello. Each of them explores the idea that the most effective way in which music can act as an advocate for change is by modelling possible change within its own form, in how the music is developed and in how it is realised. Most obviously, each of these pieces adopts an approach to the creation of music that attempts to replace conspicuous consumption with conspicuous reduction: I am trying to make new music from less, not more. The climate activism of recent decades has increasingly demonstrated that humanity already knows how to solve the problems that we face; the innovation we need is to find ways of drawing these solutions together into an effective strategy that is actually implemented. The music that I will discuss here is, I hope, innovative in the same way.

The calm of mountains (2018) is made up of a series of connected musical events. Everything we hear lies within the middle register of the piano, every event is more or less the same length, and the sustaining pedal is held throughout, so that every new event is heard within the context of everything that has already happened in the music. More fundamentally, all these musical events are connected by the implementation of two simple principles, the first relating to the choice of notes and the second to how they are articulated in time. The first principle is that in each new musical event one note will be changed: a note may be removed, or a new note added, and the relationship of the new note to previous notes will always be in

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a simple intervallic relationship: 1:2 (octave), 2:3 (perfect fifth), 4:5 (major third), 5:6 (minor third), 8:9 (major second). (see Example 1). The second principle is that in each new musical event there will be a metric modulation: the speed of the music will either double or halve, or it will change to a tempo that is related by the same simple whole-number proportions that determine the harmonic development. Example 1 shows the beginning of the music: in the second event the low F rises by a major second to G and the left-hand is slower; the left-hand speed becomes the new tempo in the third event, which also adds a G, an octave above the G that first appeared in the second event; event four adds a C an octave below that in the right-hand, and the G/A♭ dyad is slowed down, to become the new tempo in the fifth event; and so on.

By consistently and continuously following these principles the music becomes a metaphor for development itself. Every new event is developed out of the previous event, according to simple generative principles that are aurally perceptible, but each stage in the development also has consequences for everything that might happen in the future. If the metric modulations accelerate the tempo too much, the character of the music will become too quick; if they slow the tempo too much, the music will lose its forward momentum. Similarly, the process for changing or adding notes has the potential either to create harmonies that become more and more complex or to reduce the music to a single pitch. What interests me is that by following these simple principles the music evolves organically: there is a consistent method of development but, because it is not a minimalist process, it is impossible to predict what will happen next; instead it is

Example 1:
Christopher Fox, *The calm of mountains* (2018), first four lines.

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music that has to make subtle changes of direction in order to ensure its survival.

Another metaphor for sustainability might be music that draws its means of making from the acoustic characteristics of its instrumental resources, an organological music in which the nature of the instrument determines the sort of music it will play. The tonal architecture of my clarinet work *This has happened before* is based on the internal acoustics of the clarinet, which because it is a cylindrical tube, closed at one end, amplifies only the odd-numbered harmonics. The music begins on a low F, which becomes the fundamental of the piece; from there it gradually moves upwards to the third harmonic, the C in the middle of the stave, arriving on this note at more or less the Golden Section point in the music's architecture (see Example 2).

After this point the music continues upwards until it ends on the fifth harmonic, the A above the stave, but this continued upward progress also retraces the musical narrative of the first part, back to its beginning, with upward steps becoming downward steps, and vice versa: a retrograde inversion. This is complicated by the fact that the available space, both in terms of time and notes, is compressed: before the music reaches the third harmonic C there are 53 phrases, covering a range of an octave + perfect fifth; after that point there are 36 phrases, covering a range of a major sixth. Each phrase in the latter part of the piece is based on a phrase that we heard in

Example 2:
Christopher Fox, *This has happened before* (2020), p. 1.

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the first part of the piece, but the compression of space and time creates a greater sense of urgency, a sense of information being communicated more quickly.

The other complicating factor of *This has happened before* is that it is a work for four clarinets, each of them playing the same melodic line but entering one after the other, each playing slightly faster than their predecessor; the score explains 'that all four performances of the melodic sequence should finish at roughly the same time'.[7] This indeterminate canon technique owes something to Morton Feldman's *Piece for Four Pianos* (1957), but in Feldman's piece the four pianists begin together; each pianist plays from the same score but moves through the music at their own pace, so that gradually the four pianists go out of sync (on one famous occasion John Cage finished many minutes after the other players). In other words, Feldman's *Piece for Four Pianos* begins as a unison but turns into a canon, whereas *This has happened before* begins as a canon that gradually converges on a unison.

I wrote the piece during the first COVID lockdown for the clarinettist Ronald Woodley and, because of COVID restrictions, he decided to make a multi-track recording in which he played all four parts. In the liner notes for his *Luminos* album, on which that recording was eventually released, he observes that 'although the score of *This has happened before* looks astonishingly spare on paper, it is one of the most mentally challenging works I have performed'.[8] It's an interesting remark: in part it reflects the technical demands of multi-tracking, but I think it also says something about the trajectory of the music, always upwards, straining towards a coming together. Feldman's *Piece for Four Pianos* is a beautiful work but, like a lot of experimental and indeterminate music, its form seems to model both entropy and a sense of things falling apart, a gradual loss of collective purpose; perhaps in 2023 these are phenomena that no longer offer us helpful models for the future.

Finally, I would like to discuss *Hieroglyph*, a work that carries on the reductive approach of *The calm of mountains* and *This has happened before*. *Hieroglyph* was written for the Israeli cellist Dan Weinstein, and the music begins with a sonification of the first nine letters of the Hebrew alphabet, from aleph to tes. A single note, the stopped A on the D string, is plucked, spelling out the number values that have been traditionally associated with each letter of the alphabet[9] (see Example 3). At first this might seem to be communicating little more than the progressive lengthening of the gaps between the notes but, because we are human beings, a species defined by our curiosity, we start to listen and look for other information. Our ears begin to notice how the repeated note activates the resonant qualities of the cello's body and, if we can also see the performer, our eyes watch his hands on the string, the left-hand static, the right-hand active. As the piece continues, this interaction, between the sound of the instrument and the way that different modes of playing change that sound, become the real subject of the music. The music sets up a sort of feedback loop between the cello and the cellist, a loop that yields ever more substantial results. But even on the first page of

[7] Christopher Fox, *This has happened before* (Chipping Norton: Composers Edition, 2021), introductory notes.

[8] Ronald Woodley, *Luminos*, liner notes, p. 10. 2024, Divine Art Records, MEX77118.

[9] Kabbalah scholars number the letters of the alphabet from 1 to 9, then in tens from 10 to 90, then in hundreds from 100 to 900.

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Example 3:
Christopher Fox, *Hieroglyph* (2021), p. 1.

the score it is possible to see how the music slowly fans out, from the reiterated pizzicato A, to a sounding of the strings that have begun to resonate in sympathy with that note, to the use of the bow, to the sketching out of something that might become a melody, and then a return to the opening note.[10]

The analogy I had in mind as I wrote this music was the learning of a lost language. This is very different from learning a language as a child, or even as an adult, when context provides so many clues about meaning. More specifically, as the title *Hieroglyph* suggests, I was interested in the way in which, in the first half of the nineteenth century, the so-called Rosetta Stone (see Figure 4) enabled scholars to unlock the secrets of Egyptian hieroglyphs. Because the Stone is inscribed with fragments of three parallel texts, two of them in languages for which there was a continuous history of understanding, it presented its readers with a key to decipher these hieroglyphs. In my work it is the bodies of the cello and of the cellist that provide the context, perhaps even the parallel texts, within which that initial reading of the Hebrew alphabet may begin to make sense.

[10] Dan Weinstein's recording of *Hieroglyph* can be heard on the album *Hieroglyphs* (Christopher Fox, *Hieroglyphs*. 2022, ezz-thetics, 1030).

https://doi.org/10.1017/S0040298224000093 Published online by Cambridge University Press

Figure 4:
The Rosetta Stone.

Only when we understand what we are doing can we decide whether our actions are sustainable; the industrial innovations of the last three centuries generated extraordinary wealth, but now we understand that the beneficiaries of that wealth were never more than a small group of people and that their good fortune was achieved at a great and lasting human and environmental cost for everyone else. In its very modest way, *Hieroglyph* attempts to model the development of such an understanding. The hieroglyph analogy has wider implications, too: it suggests that puzzles can be solved and that the solutions will be extrapolated from things that we already know – an innovation that is genuinely sustainable.

Acknowledgements

This article is based on an evolving series of lectures that I gave in the first part of 2023, at Goldsmiths, University of London, the University of Huddersfield, the TU Conservatoire Dublin and online for the European Academy of Science and Arts. I am grateful to Roger Redgate, Bryn Harrison, David Bremner and Violeta Dinescu respectively for the invitations to present those lectures and to all the people who so generously offered feedback.

https://doi.org/10.1017/S0040298224000093 Published online by Cambridge University Press