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Imperfection in Experimental Instruments and Their Performances

Caleb Kelly

Australian musician and media artist Peter Blamey is standing very still in front of an upright unshaded electric lamp (Figure 6.1). He holds two solar panels alongside the bright light. Blamey is almost completely motionless, but on close inspection he is moving the panels ever so slightly, and as he does, the sounds being emitted from a speaker change in unison. It is hard to see what he is doing, as the light is very bright and his movements are slight. The audio itself is a slowly oscillating drone being produced by an electric guitar that has been modified from the regular performance style expected from a guitar. Two eBows have been placed on its strings. These devices use electromagnetism to excite the metal guitar string, causing a tone to be emitted without the signature guitar sounds associated with the attack and decay of the pluck of a string. The twist, as it were, is that the two eBows are being powered by the solar panels that are held in Blamey's hands. The proximity of the panels to the light causes varying amplitudes of power to be sent to run the eBow and thus causes the shifts in volume heard from the speaker connected to the guitar.

Double Partial Eclipse (2014), as described above, is a critique of the narratives of good and bad energy, as the eBows are solar powered by an electric light that is itself powered by mains electricity—and in Australia, that is electricity is likely produced by coal power. The performance of the instrument does not conform to expectations of performativity. The instrument itself is constructed from an amalgamation of technologies (a constant in the media art practices of Blamey) and, as his performance, cannot be judged along traditional parameters of perfection in instrument construction. The performance raises numerous questions, not least of which is: “what is this performance and why is the artist employing this array of discrepant technologies towards a performance?” Some might even question its validity as a musical performance.

Figure 6.1 Peter Blamey, live performance of *Double Partial Eclipse* (2014), performed during the opening of Material Sound, MAMA Albury, 2018. Courtesy of the artist. Photograph: Jules Boag.

This chapter investigates experimental instruments in art and music. The instruments that form the basis of my enquiry are quite unlike the carefully constructed and highly perfected instruments that are typically expected. The traditional violin, for example, is an instrument that is built by craftspeople to exacting standards, and the violinist is a highly practiced musician who spends vast periods of time rehearsing a composition until they can play a piece precisely as the composer desired, without error and without deviating from the directions of the score. Instead of these and analogous traditions of perfection, the experimental instrument builder and performer is not interested in faultlessness; instead, they seek out imperfection in the accident and chance. Their instruments are built to allow for improbable and unexpected sound outcomes, and these instruments might look handmade, cracked, and as if they are structurally verging on falling apart. This chapter aims to unravel the rationale behind such practices, by addressing the question, “how can imperfection be understood as a desired outcome in experimental art and music?” In answering this question, I will look into

ecological considerations, engagement with the nonhuman and strategies that foreground indeterminacy.

Perfection is usually understood as an explicit goal of music, both in the physical form of its instruments and in the exactitude of its performance.¹ In the case of the former, perfection of the musical instrument can be understood as the correct method for production of the instrument itself. Guidelines as to the appropriate materials that should be used, and the sizes and dimensions of the instrument are all expected to follow strict rules and schematics. Following these rules, the musician can seek out the best and most perfect instrument. This type of perfection is based in the strict and exact way that an instrument is made and in the final product itself—in how close it comes to these measures and how flawless it is. The latter understanding of perfection is based in the performance of music. Here perfection is understood to be found in the meticulous manner in which the score is followed and in the flawless rendition of the performance itself. The musician aiming to perform in the concert hall, for example, trains for thousands of hours from when they were very young so that they might be able to perform the music perfectly. This is measured against the score, the needs of the conductor, other great performances of the work, and, in some instances, the historic record.

In this chapter, I undermine these two approaches to perfection by scrutinizing artists who seek to break the rules of instrument construction and of musical performance. In discussing their works, I use the term “imperfection” to capture practices that deviate from musical perfection—that is, from those musical norms and standards that, in the given times and places, rank as perfect.

Studying Sound

From the outset of this analysis it is crucial to understand that instruments are not always well-crafted or time-honored forms. Boston-based composer Jennie Gottschalk attests to the open possibilities for the instrument, stating, “just about anything can be an instrument. It doesn’t have to have a musical history.”² Developing on this position, I wish to take Gottschalk’s stance literally and argue that *anything* really can be an instrument. Thus, any object

¹ See Melle Kromhout, “Electronic Contingencies,” in this volume; for further reading about (im)perfection and music performance, see Ted Gioia, *The Imperfect Art: Reflections on Jazz and Modern Culture* (Oxford: Oxford University Press, 1988).

² Jennie Gottschalk, *Experimental Music since 1970* (New York: Bloomsbury, 2016), 89.

that is sounded as an instrument is understood to be an instrument—and in these cases, the objects are very often imperfect in their build and the sound they produce. To their makers, a found plate of glass is just as valid an instrument as a cello (as in the case of Sydney-based noise musician Lucas Abela), and the sound of a vinyl record being snapped is as musical as the sounds produced by a well-trained orchestra (this is true for the Peruvian abstract turntablist Maria Chavez).

The practices discussed in this chapter can be read through many different theoretical lenses. They might, in a very general sense, be relatable to theories of noise, yet this is not necessarily a productive approach to understanding these practices. Key to the critique of noise in this instance is the understanding that the approaches under investigation need not be seen as transgressive, excessive, or even chaotic, which runs contrary to much of the theoretical discourse around noise.³ Although at times noise is an outcome of the performances and its utilization is certainly excessive and at times very loud, it is just as often quiet, gentle, and almost inaudible. Noise need not be seen as disturbance; it need not be excess or transgression. Noise is the backdrop to all communication, but in those instances when the backdrop is brought to the fore it is simply not disturbing or blotting out any information; it is not a break in communication, but instead becomes the content of communication itself.⁴ The artists discussed below, rather than court noise itself, produce instruments and performance practices that are generative. In their work imperfection allows for unknown sonic outputs to be generated that employ methods of chance and indeterminacy.

To begin, this study is rooted in a number of closely related fields of research that have turned their attention to sound. In 2012, two voluminous readers were dedicated to sound studies, both with vastly different views of the field.⁵ Sound studies can be understood as a field that takes its methodology, for the most part, from cultural studies; within sound studies, sounds are not the sole focus of enquiry as equal importance is given to the cultures that surround them. As leading sound studies scholar Jonathan Sterne contends: “By analysing both sonic practices and the discourses and institutions that describe them, it redescribes what sound does in the

³ See, for example, Paul Hegarty, “Full with Noise: Theory and Japanese Noise Music,” *Ctheory*, 2001. http://ctheory.net/ctheory_wp/full-with-noise-theory-and-japanese-noise-music/, accessed May 22, 2019.

⁴ Caleb Kelly, *Cracked Media: The Sound of Malfunction* (Cambridge, MA: MIT Press, 2009), 82.

⁵ Jonathan Sterne (ed.), *The Sound Studies Reader* (New York: Routledge, 2012); and Trevor Pinch and Karin Bijsterveld (eds.), *The Oxford Handbook of Sound Studies* (Oxford: Oxford University Press, 2012).

human world, and what humans do in the sonic world.”⁶ Sound studies scholars Trevor Pinch and Karin Bijsterveld have much broader aspirations for their understanding of sound studies, arguing that the field approaches sound from multiple disciplines, including “acoustic ecology, sound and soundscape design, anthropology of the senses, history of everyday life, environmental history, cultural geography, urban studies, auditory culture, art studies, musicology, ethnomusicology, literary studies, and STS [Science and Technology Studies].”⁷ It could be argued that sound is an element of all disciplines, in as much as vision can be both employed as a tool of research and can also be the object of investigation. What sound studies researchers do is to turn their ears to culture and listen rather than look at it.

While an element of sound studies can be found within my research approach, I more directly draw on media art theory, media art histories, and art theory, investigating often singular practices within the arts as the key points of departure. A single artwork is often the focus of scholarship rather than whole cultures or trends within popular culture. Furthermore, rather than seek to reiterate disciplinary boundaries of visual art and music, I will employ the term “sound arts,” which encompasses all forms that explicitly embrace sound as a creative medium.⁸

The Ecology of Media

Media is often thought of as transparent and immaterial. As Jennifer Gabrys describes, “electronics often appear only as ‘media’ or as interfaces, apparently lacking in material substance.”⁹ A case in point is “the cloud,” where many media users store their digital data. The cloud is, of course, not located in the sky and is not built on the white fluffy masses we see from the ground. Instead, vast warehouses filled with hard drives form the hardware of the cloud. They are networked together by kilometers of cables and wires.

The popular image of the cloud as immaterial and therefore sustainable is, in short, far from the truth of the matter. Media theorists Kate Crawford and Vladan Joler produced an “anatomical case study of the Amazon

⁶ Jonathan Sterne, “Sonic Imaginations,” in *The Sound Studies Reader*, ed. Jonathan Sterne (New York: Routledge, 2012), 2.

⁷ Trevor Pinch and Karin Bijsterveld, “New Keys to the World of Sound,” in *The Oxford Handbook of Sound Studies*, ed. Trevor Pinch and Karin Bijsterveld (Oxford: Oxford University Press, 2012), 7.

⁸ For more detailed reading on sound arts, see Caleb Kelly (ed.), *Sound* (Cambridge, MA: MIT Press, 2011).

⁹ Jennifer Gabrys, *Digital Rubbish* (Ann Arbor: University of Michigan Press, 2013), 2.

Echo as an artificial intelligence system made of human labor,” in which they aimed to unravel some of the usually hidden costs associated with supporting the networks and systems behind the Amazon Echo device.¹⁰ Their case study modeled the labor involved in producing and running the device, a product that allows for voice-activated commands and answers to questions. Behind the seemingly simple tasks that “Alexa”—Amazon’s virtual assistant—can achieve is a “vast planetary network, fuelled by the extraction of non-renewable materials, labor, and data.”¹¹ This network ranges from the geological, such as mining of minerals including copper and coal, to the massive network of container ships that are at the core of the global logistics of supply chains, from the energy consumed by the systems (both the device itself and the massive networks of hardware that run the cloud storage) to the systems of payment for staff that run the call centers through to the CEO himself. Crawford and Joler paint a deeply disturbing picture of the costs of producing and running this seemingly singular device, and as such, their work constitutes a necessary stage in our understanding of the global nature of energies and material and their use and consumption.

Scholarship in the area of “eco-sonic media” furthers the concept of tangible media by thinking through sonic media (records, cassette tapes, cloud-based streaming) as physical objects that have a direct relationship to both the past (fossil fuels that make vinyl) and the future (vinyl’s nonrecyclable nature). Media theorist Jacob Smith understands the early shellac records as “green discs,” as they are based on the secretions of the lac insect.¹² Furthering this understanding, media theorist and musicologist Kyle Devine employs a similar approach, but looks beyond the biological basis of shellac to explore the less natural requirement of “fillers” that are bound together by shellac to make the record discs. These fillers were crushed limestone and slate, and the practices of mining the limestone was far from an eco-friendly practice.¹³ By rethinking, as they do, the imagined intangibility of recording media to understand it as a physical product with geological, biological, and chemical histories, we begin to hear a material sound—one that is sound as more than simply sound waves and cultural products.

Within the multinational networks of distribution, media artists in particular have come to rely on digital hardware and the associated ecologies

¹⁰ Kate Crawford and Vladan Joler, “Anatomy of an AI System: The Amazon Echo as an Anatomical Map of Human Labor, Data and Planetary Resources,” <https://anatomyof.ai> (2018).

¹¹ Ibid.

¹² Jacob Smith, *Eco-Sonic Media* (Oakland: University of California Press, 2015), 13.

¹³ Kyle Devine, *Decomposed: The Political Ecology of Music* (Cambridge, MA: MIT Press, 2019), 63.

that support them. The contemporary art practices under investigation here are intimately associated with the political ecology of media. They have emerged from a type of digital fatigue and a longing, from the artists, for a physical connection with the materials of their work.¹⁴ In the first decade of the twenty-first century the prevalence of digital production technologies, especially within the digital studio, led to a schism between artists and their materials, one that was further widened by developments in the complexity of digital processes in the period. Few artists have a thorough understanding of how the algorithms behind their postproduction software work, and the hardware itself, made from micro-scaled components, is locked away within the physical casing of contemporary computing architecture. As such, makers within the digital studio have become estranged from the means of their production.

Key for the desire to make their own instruments is the belief that digital computing takes electronic music makers and performers away from the tools they use to create their work. Electronics composer Nicolas Collins begins his hugely influential book *Handmade Electronic Music* by pointing to computer interfaces, keyboards, and mice as being inadequate: the “usual interface ... is awkward, and makes the act of performing a pretty indirect activity, like trying to hug a baby in an incubator.”¹⁵ By producing their own instruments, these artists are returning control and access to their tools.

The loss of access to the media in the digital studio, a loss caused by all of the making happening deep in the untouchable algorithms within the black box of computer-based media, has been strongly felt with media art and has led to a return to “making.”¹⁶ For example, an artist can today easily create sound with a virtual software synthesizer within numerous sound-making applications. These synthesizers are modeled on the original hardware synthesizers such as those produced by Moog, Arp, Yamaha, and Roland. And yet, in the face of this ease of access to creative tools artists are turning back to physical modular synthesizers. A culture of collection has grown around pulling together a unique series of modular synths from companies that handmake the modules such as Make Noise, Mutable Instruments and Sputnik. There are also synthesizer libraries, such as MESS in Melbourne, where musicians can gain access to rare synthesizers and join collector meet-ups, which are sometimes called “petting zoos,” for aficionados to come together to display and demonstrate their instruments.

¹⁴ See Caleb Kelly, “Materials of Sound: Sound as (More Than) Sound,” *Journal of Sonic Studies* no. 16 (2018), <https://www.researchcatalogue.net/view/456784/456785>.

¹⁵ Nicolas Collins, *Handmade Electronic Music* (New York: Routledge, 2006), xiii.

¹⁶ For details, see Victoria Bradbury and Suzy O'Hara (eds.), *Art Hack Practice: Critical Intersections of Art, Innovation and the Maker Movement* (New York: Routledge, 2020).

Another response to the premade and prepackaged digital studio tools is to build one's instrument from scratch, literally. Sydney-based artist Pia van Gelder's performance work *PvG sans PCB* (2014–) is not so much an instrument as it is a potential instrument (Figure 6.2). Van Gelder creates her synthesizers from the ground up, employing the most basic of electronic circuits, the breadboard. A breadboard is a solderless device into which are pushed electronic components. The device is usually used for temporary prototypes and to test circuit designs. In performance van Gelder starts without any instruments. The performance begins with a table and a sectioned box full of electronic components, an empty breadboard or two, plus a mixing desk. Van Gelder starts by making an oscillator from scratch to which she adds components, capacitors, pots, and diodes. Sounds start being produced and gradually become more interactive as layers of sounds are built up. For example, a light-dependent resistor is added, and a strobing LED is brought into the system to rhythmically activate synthesized sounds. Van Gelder also combines various conductive objects—a piece of fruit and a cream bun, for example—as variable resistors that can be squeezed and mashed-up.

Figure 6.2 Pia van Gelder, live performance of *PvG sans PCB*, performed during the NOW now festival, 2019. Courtesy of the artist. Photograph: Dale Gorfinkel.

The temporary nature of the breadboard circuit allows for experimentation, and at the end, Van Gelder's work is simply dismantled and returned to the components box. The performance is incredibly risky, as breadboard circuits are notoriously unstable. Thus, she performs instability and indeterminacy over the course of twenty minutes. I will return to this interest in chance and the accident later in the chapter, but for now it is important to point to the interest in the tangibility of van Gelder's self-built instrument. In building it from the ground up, she has reclaimed access to both the handmade, and to sounds and visuals that rank as imperfect, as they work in imprecise ways, if they work at all. She has not turned to the digital studio and the dream of pure transparent audio, but rather has produced a very noisy tool that only barely works.

It is certainly not the case that this approach to media production is new, but rather that the causes and influences upon this approach have changed. Historically, "cracked media" are the tools of media playback that have been expanded beyond their original function as a simple playback device for prerecorded sound or image.¹⁷ "The crack" is a point of rupture or a place of chance occurrence, where unique events take place that are ripe for exploitation toward new creative possibilities. The practice utilizes cracks inherent in the media themselves—we cannot play a vinyl record without causing some damage to the surface of the disc—and leads to a creative practice that drives playback tools into territory where undesired elements of the media become the focus of the practice.

At the heart of cracked media is the concept that art or music can be produced using malfunctioning recording equipment. In the work of artists such as Nam June Paik, Yasunao Tone, Christian Marclay, and Otomo Yoshihide, the sounds that are elicited from these cracked or broken devices are at once noisy and indeterminate. At the most extreme the instruments cannot be played with any certainty of the sound that will be produced, or even that a sound will be produced at all. Vinyl records are scratched, hacked into and broken and, while diligently trying to play the record, the turntable's needle skips and jumps over the shards of plastic.

A contemporary example of this approach is the performance of abstract turntablist Maria Chavez. Her DJ performances involve both the misuse and abuse of vinyl records paired with prepared turntables. Her performances court the accident in the unpredictability of her performance setup. In a

¹⁷ Caleb Kelly, *Cracked Media: The Sound of Malfunction* (Cambridge, MA: MIT Press, 2009).

typical performance, Chavez plays a single turntable with a mixing desk to the side. She often snaps vinyl records and stacks them on top of each other on the turntable platter. When the platter revolves, the needle picks up and plays fractions of records as it is dragged over multiple fragments of recordings. As the records are played a mix is formed that is inexact, which is the polar opposite of a digital mix with sounds that are locked together. Every performance, even with the same shards of vinyl, will be dramatically different as the tone-arm is dropped at inexact points on the record grooves and the shards themselves are positioned differently.

Chavez describes her approach as follows:

I developed the term “the beauty of destruction” in order to make sense of why I was allowing my practice to ruin expensive styli and records for the sake of performance ... But I saw the destruction happening to my equipment as opportunities for more sound development.¹⁸

Chavez hears the unwanted or unexpected sounds as expanding the range of possible sounds available to her; no longer is she controlled by the intended music locked into the record grooves or the verisimilitude required in the playback of recordings.

In addition to performing, Chavez also runs workshops in which she guides participants on how to perform damaged records and turntables. The students are shown numerous methods to prepare their records, from placing foreign objects onto the surface to Chavez’s technique of snapping the vinyl into shards and stacking the discrepant pieces onto the platter of the turntable. Her workshops illustrate that there is not only a desire for the innovative practices of musicians such as Chavez but also an interest in learning to make performances in this style.¹⁹

In the example above, Chavez courts chance in both the preparation of the records and in their performance. Indeterminacy and chance are key approaches for both the production of her instruments and their performance, and the aesthetic of chance is predicated on a desire for unknown outcomes produced from systems that are unstable and unrepeatable.

¹⁸ Maria Chavez, *Of Technique: Chance Procedures on Turntable* (New York: Rolling Press, 2012), 15.

¹⁹ See Abstract Turntablism-Maria Chavez—LUFF 2015—Workshops, <https://youtu.be/KctMvriuViY>.

Nonhuman Agents in Musical Sound

In experimental music practices, indeterminacy has been a driving factor since the time of John Cage's early experiments. Indeterminacy is derived from systems that, while themselves somewhat determined (such as a graphic score), produce outcomes that cannot be known in advance. Here the composer creates a system which is set in motion and allowed to produce what it will. These systems might be a score but could equally be an instrument that is prepared with foreign objects or played in a fashion that was not intended. An example of the latter is French artist Céleste Boursier-Mougenot's installation *From Here to Ear* (1999–). The work is highly successful and at the time of writing has been installed twenty-two times in cities including Brisbane, Paris, London, New York, and Montreal. The installation for the piece is particularly difficult in that it requires the transformation of the art gallery into an aviary to hold up to seventy zebra finches that, over the course of the day, "play" electric guitars. They do this, unbeknown to them, by landing on the strings of horizontally installed electric guitars that are placed throughout the gallery. The sounds that are created within the installation are sporadic, as the birds are so light that often landing on the strings does not generate enough movement of the strings to produce any sound at all. Overall, the sound is not dissimilar to a sparse indeterminate composition, with the sounds from lightly plucked guitar playing at random through guitar amplifiers placed around the perimeter of the gallery.

Boursier-Mougenot has installed traditional instruments within the art museum but has created chance in their performance by allowing the instruments to be played by finches. The finches, who have no conception of their musical performance, go about their everyday actions and by doing so perform extended guitar techniques. This work develops the conception of the desire for imperfection by engaging in nonhuman intervention in musical performance—and with that approach, Boursier-Mougenot has produced a highly successful and desirable exhibition.²⁰ This nonhuman performance cannot be understood within traditional notions of performance and perfection. The finches do not understand that by perching on the instrument they cause the guitar to sound and they do not themselves attempt to perform anything. Rather, they are going about their movements in an everyday manner that is natural to finches. It is the audience who hears these chance occurrences and the juxtaposition of multiple sounds being

²⁰ For further discussion of this approach to music in galleries, see Caleb Kelly, *Gallery Sound* (New York: Bloomsbury Academic, 2017), 129–45.

produced from many individual birds landing on the guitars placed around the gallery, as music.

Boursier-Mougenot's traditional instruments placed in the art museum can be seen in contrast to nontraditional instrument building—another practice that foregrounds sounds that are traditionally labeled as imperfect. In 2014 Germano Celant curated the exhibition *Art or Sound* for the Fondazione Prada in Venice. Celant's exhibition was a mammoth expression of what he calls the “sound artifact.”²¹ These artifacts demonstrate a critical and elongated investigation into the sounds of things and artists' employment of sounding objects. The early practices, from around the second decade of the twentieth century, that are situated within an approach to making objects sound are most widely known through the instruments of the Italian futurist Luigi Russolo whose *intonarumori* were initially created for the performance of the noise music that he espoused in his seminal manifesto *The Art of Noises*.²² These instruments have come to be regularly displayed in art museums including in *Art or Sound* and the Sydney Biennale (2008). The box-like instruments are constructed out of wood, and each box has attached to it a cylindrical cone; most have leavers and hand cranks attached. The sounds created by the instruments are based on glissandi that produce rolling pitches and complex microtonal scales. The instruments, for Russolo, were transformed by mechanical means, “raw matter (in the form of pure noise)” into enharmonic pitches and an infusion of energy.²³ Contemporary performances of the instruments, such as the one presented for *Performa 09* by Luciano Chessa, are noisy affairs and are by definition an inexact art, yet these historical contraptions have had a lasting influence beyond their time that continues to this day.

Noise Performance and Cracked Glass

Courting chance and indeterminacy, experimental instrument building also allows the artist access to the destructive potential of material media. That is, in imperfectly building an instrument, one that is not crafted to the highest design standards from the most sought-after materials, the artist is free to crack, break, and destroy their creation. One of the most extreme contemporary instrument builders is noise musician Lucas Abela. Abela's

²¹ Germano Celant, *Art or Sound* (Milan: Fondazione Prada, 2014), 24.

²² See Luigi Russolo, *The Art of Noises*, trans. Barclay Brown (New York: Pendragon Press, 1986).

²³ Luciano Chessa, *Luigi Russolo, Futurist* (Berkeley: University of California Press, 2012), 138.

early work was based on the extension of the turntable's cartridge head and the reinvention of the turntable platter. He has built instruments that make use of different types of needles, objects that are engaged on records, various types of discs, and sometimes body parts. One instrument known as "the Humming Bar" is simply a skewer attached to a turntable cartridge that is played through an array of effects boxes strapped to Abela's waist. The bar is placed in his mouth and he produces sound by running the bar across his teeth and grinding it against his tongue.

Abela also made an instrument from a Volkswagen Kombi. After he transferred the motor and the stereo system into another Kombi body, the vehicle began to display unexpected audio responses from the car stereo. In fact, the van had become a contact microphone causing all its vibrations to be amplified and played through the Kombi's speakers when the radio was on. Thus, closing the door, turning on the blinkers or the windscreen wipers: all these acts produced distinct noises. Abela employed his dysfunctional van to produce an album under the moniker A Kombi entitled *Music to Drive-by* (1996).²⁴

The instrument that has gained Abela the most notoriety, not to mention the most esteem, is the plate of glass with which he performs, often under the guise of Justice Yeldham and the Dynamic Ribbon Device. Attached to the glass plate is a contact microphone that is fed through effects pedals before being amplified at high volume. The glass is played after lubricating it. Abela presses his face against it, blows onto it, and bites it.

The sounds generated by these actions, as caught by the contact microphone, are amplified at extreme volume. Abela risks injury during the performance as there are no safety precautions taken with the sheet of glass. He often nicks, cuts, slices, and gashes his face during performances of the work. Blood often covers the glass and the instrument itself snaps, breaks, and fractures, and to end the performance he often shatters it over his head.

As with the other practices under investigation, Abela's performances are highly desirable and he has performed the glass plate on hundreds of occasions. In interviews Abela talks about the audience members' reaction to these sometimes bloody performances, pointing to a bloodlust in his audience.²⁵ This lust is driven by a combination of a highly charged performance practice that employs noise at extreme volume, alongside a physical performance with the risk of injury.

²⁴ Lucas Abela, "A Kombi," *Dual Plover*, accessed June 23, 2019, <http://dualplover.com/kombi/>.

²⁵ See, for an exemplary interview, Julian Morgans, "Meet the Experimental Musician Who Plays Cut Glass with His Mouth," *The Feed*, July 10, 2018, <https://www.sbs.com.au/news/the-feed/meet-the-experimental-musician-who-plays-cut-glass-with-his-mouth>, accessed February 27, 2020.

Conclusion

This chapter ends with an instrument made from a scavenged plate of glass, already broken the glass shard has been discarded on the street. The idea that such an object could be an instrument could not be further from the initial concept of the perfect historically correct artisanal musical instrument. Abela's piece of glass is not only rubbish but it is actually dangerous: a simple internet search will display many images of the blood-covered instruments and of Abela himself covered in blood. Demonstrating that the pursuit of musical perfection is not a necessary condition of musical performance, the artists discussed use their makeshift instruments as generative tools for music creation. The noisy and at times dangerous edges of these tools allow for unexpected outcomes, outcomes that cannot be formed by the practiced rehearsal of musical perfectionism.

Binding the diverse array of artists discussed, some of whom produce loud and violent spectacles and some of whom produce oftentimes barely audible sounds, is the motif of imperfection. While there is a differentiation of strategies within the works, which include unpolished and impermanent practices, nonhuman agents, and danger and destruction, we also witness an *imperfection strategy* that allows the artists to engage experimental and unknown outcomes. Rather than follow the tight and prescriptive rules of traditional instrument building and performance, these artists allow for undetermined and unresolved musical eventualities. The cracked media of Chavez produces audio that, while holding structure in the material support of the practices, is always different each time she performs. Zebra finches produce sounds that cannot be predetermined, and Boursier-Mougenot sets the birds free in the space with the knowledge that they will land on the guitars and this will produce a sound. Making instruments that do not conform to musical norms allows these and other artists to explore possibilities outside of traditional expectation of the musical canon and performance, and thus, new musical structures and sonic possibilities are produced.

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