Eighteenth-Century Music 18/1, 5–10 © The Author(s), 2021. Published by Cambridge University Press.
doi:10.1017/S1478570620000482

EDITORIAL

Much has changed since I started to write this editorial. The world has become a different place as we find our way through a universal and multi-faceted crisis. We have become different. Technologies have shaped the way many of us work, share information and socialize in ways that were not available to previous generations as they navigated similar – if not more catastrophic – pandemics. Music is shared remotely through recorded performance and livestreaming on a range of online platforms. Although the increased reliance on these forms of mediation does make many musical processes different, relevant technologies continue to bring us together, even from a distance, whether we are playing or listening. Many people have instruments in their homes and have been using them to find solace, fill time and share music with those close at hand, demonstrating that domestic music-making is alive and well. We share this phenomenon with eighteenth-century musicians, both professional and amateur, whose musical experiences depended on live music-making. Because of this, music connects us not only spatially but also across time. Music can travel in our memories, on paper, and today in recorded or other digital forms. Moreover, music also travels in an embedded form, within the material structures of musical instruments.

Musical instruments are positioned at a complex intersection. They are governed by acoustics and what is possible in our physical world as well as by materiality and what can be constructed using what we have available. Engineering and technology, in terms of the tools available and which component parts work effectively together, have their parts to play, as do the structures and capabilities of human bodies in their varied forms. We can also see the influence of visual aesthetics and taste, of fashion, cost and desirability, and of course the rise and fall of musical genres and our timbral preferences. There is also the impact of how much we prefer to retain the familiar or to embrace the innovative, when novelty in and of itself becomes important. Today we can add the digital domain and our desire to control or develop sounds beyond the physical capabilities of mechanical instruments. Yet where do we teach, research and fully explore these aspects of musical instruments and how they interact with the other factors influencing our musics?

There are places around the world where elements of musical instruments are considered and examined, most notably how to play them, such as in conservatoires and other kinds of schools of music performance, and how to make them, including at Newark College in the United Kingdom and the KASK (Koninklijke Academie voor Schone Kunsten) & Conservatorium in Ghent. Scholars also consider them in ethnomusicological contexts and increasingly in sociology departments. Musicologists at a number of institutions support their postgraduate students in bringing the specialized study of instruments (forbiddingly known as organology) into consideration, but there are no taught courses in the UK, Europe or North America where musical instruments shape their own academic discipline, taking a broad and deep approach to the knowledge contained in musical instruments themselves. Certainly in the UK, organology is at best touched on lightly in undergraduate programmes, and there is no master's course currently on offer that specializes in this field. And yet we have access to amazing collections of musical instruments held in national and public institutions and dotted throughout a wide range of specialist and general collections, both public and private. The national collections of each country have very strong representations from the eighteenth century, including examples of many different types of instruments, both those in common use and those on the peripheries of musical activity. So how do people engage with musical instruments? Although there are exceptions, we tend to compartmentalize our approach, using one perspective at a time. This is not wrong, but it does mean that we rarely have instruments themselves as the focal point and even more rarely use musical instruments to illuminate human activities to their fullest potential.

It's not just about historically informed performance (HIP). A great deal of existing interest in musical instruments comes through a desire to understand the music of past generations and to recreate – as

much as possible – the musical sound-worlds each composer would have recognized and in which they composed. Although there are many examples of musicians delving into the music of earlier generations for a variety of reasons, our current wave of HIP arguably dates from the 1960s, with musician-scholars making this a rigorous academic undertaking at the same time as being musically exciting. Today there are many fantastic musicians working in this field, amongst whom historical and contextual knowledge of the instruments being used is encouraged: the instruments are relevant through being the tools on which the music is played. However, this practice tends to be focused on Western art music, albeit with a more recent addition of popular musical styles (such as the ballad-theatre practices of eighteenth-century London), so it only catches certain elements of the picture.

In another area of scholarship, ethnomusicologists take instruments as a tangible and important element of research into musical and cultural practices in societies across the globe. Diverse instruments and their uses have been described, recorded and filmed. Notable instrument collections are to be found at the Horniman Museum in London, the University of London's School of Oriental and African Studies, and multiple other institutions around the world such as the Musée des instruments de musique in Brussels, the Musée Panafricain de la Musique in Bazzaville (Republic of the Congo) and the Metropolitan Museum of Art in New York. In addition, instruments can be collected, although this does remove them from active participation in their cultural locus, and so in a sense this decontextualization goes against the aims and ethos of ethnomusicology itself. Sometimes instrument makers are interviewed and their own practices recorded. Here instruments can be considered as material and sometimes gendered objects that are imbued with cultural significances of many kinds. In this context, the aim is to analyse cultural practice, with instruments constituting a central part of the narrative.

Sociologists, too, study music as a social activity, and some choose to include musical instruments in their discussions. Here the roles of musical instruments within modes of musical communication are constructed, building in particular on the classic work of Max Weber, notably his analysis of Western capitalist society and the meanings people form about the ways they behave. Recent sociological studies of sound include those in Michael Bull and Les Back's edited volume *The Auditory Culture Reader* (Oxford: Berg, 2003). Although there is a certain amount of crossover with ethnomusicology, where the latter tends to focus on traditional practices, sociology often focuses more on Western art music and, arguably since Theodor Adorno led the way in the 1940s, on popular music. The core of discussions relates to social behaviour and process, with instruments used as signifiers or actors within these contexts.

Material culture is growing into an independent, albeit interdisciplinary, field from its roots in archaeology and anthropology. Here, objects and their meanings are understood within their temporal and spatial contexts. Value is another central component, which can be found in musical instruments in financial and more abstract ways. Materials have meaning and, through their use, instruments can be imbued with the same significance. This is explored in different (non-musical) ways by various authors in Arjun Appadurai's edited volume *The Social Life of Things* (Cambridge: Cambridge University Press, 1986), and is applied to nineteenth- and twentieth-century musical instruments in Frode Weium and Tim Boon's edited volume *Material Culture and Electronic Sound* (Washington, DC: Smithsonian Institution Scholarly Press, 2016) and to instruments in general and plucked instruments from across the world by Kevin Dawe (see his chapter 'The Cultural Study of Musical Instruments', in *The Cultural Study of Music: A Critical Introduction*, second edition, ed. Martin Clayton, Trevor Herbert and Richard Middleton (New York: Routledge, 2012), 195–205). This approach is also discussed by Flora Dennis in her work centred on sixteenth-century Venice ('Musical Sound and Material Culture', in *The Routledge Handbook of Material Culture in Early Modern Europe*, ed. Catherine Richardson, Tara Hamling and David Gaimster (London: Routledge/Taylor & Francis, 2017), 371–382). Although they have been included in projects such as the conservation-focused COST Action WoodMusICK (Wooden Musical Instrument Conservation and Knowledge) collaboration, financed by the funding agency European Cooperation in Science and Technology (COST), eighteenth-century instruments have yet to make a major impact in this field.

As decorative objects, many musical instruments fit into their cultural milieu in visual as well as musical terms. The Indian mayuri vina (ta'us), with its body shaped like a peacock, is as much a visual statement as a musical one, while the decoration of eighteenth-century keyboard instruments places them firmly within the visual aesthetic of their place and time. Musical instruments appear in works of art, supplying meaning through association or metaphor to the art historian, as well as examples of posture and performance context to the musicologist. Richard Leppert's publications in this field, notably in his volume *The Sight of Sound* (Berkeley: University of California Press, 1993), have contributed significantly to the discipline of iconography, as does the work of the Association Répertoire International d'Iconographie Musicale (RIdIM). For analysis to be reliable and accurate, an understanding of the depicted objects is crucial. Knowledge of musical instruments enables the researcher to decode the messages being communicated with some degree of certainty, without which some interpretations of iconography can be at best vague and at worst wrong.

As well as those working in the arts and humanities, scientists can do a great deal to understand how musical instruments work and what is physically happening when they are sounded. Acoustical analysis can illuminate the differences between instruments that might appear very similar to an untrained eye or ear. In addition, working out the inner subtleties of sound is an important undertaking and the findings can be applied in interesting and useful ways such as in the acoustics of buildings, including a recent project to recreate virtually St Cecilia's Hall in Edinburgh as it was at its opening in 1763 (www.ed.ac.uk/edinburgh-college-art/reid-school-music/immersive-history), or in hearing-aid technology. Acousticians want to understand the physics of what is happening within instruments or in spaces (including the work of individuals such as Patrizio Barbieri and teams such as that at Paris Sorbonne) or to simulate sounds by electronic means (exemplified by the Acoustics and Audio Group at the University of Edinburgh, amongst others), rather than necessarily how instruments have come to be the way they are.

Another central element of more scientific organological practice is to measure and analyse instruments in order to gain some understanding of the thinking, conventions, methods and aims of instrument makers. Such studies allow for comparison between instruments, between makers and between traditions. They permit a detailed understanding of the elements of an instrument that define its shape and sound, whether it be bore profile, string lengths, case design or any other feature. Since musical instruments are complex systems with many elements interacting in order to produce the sounds we hear, detailed analysis enables us to move towards an understanding of sound and its components, as well as offering an insight into construction practices.

Many museums and educational establishments are increasingly using modern technologies to enable data gathering and analysis in ways not previously possible. For example, the Musical Instrument Museums Online (MIMO) project has brought together digitized catalogues of numerous museums across the world, making possible a single access point to the holdings of participating institutions that as of late 2020 include 64,070 instruments (https://mimo-international.com/MIMO/). Scanners of different kinds are used to examine the insides of instruments and to analyse materials both structurally and in their chemical make-up. The outcomes are also shared digitally, with online and in-museum exhibitions engaging audiences in new ways. The Deutches Museum in Munich is at the forefront of analytical research, while the Bate Collection at the University of Oxford has scanned an eighteenth-century serpent and provides the data freely so than anyone with a 3D printer may print out their own copy (see www.bate.ox.ac.uk). At the University of Edinburgh, PhD candidate Daniel Wheeldon is using different types of scanning and 3D printing to understand the construction processes and mechanisms of eighteenth- and nineteenth-century guitars that have miniature piano actions (including keys, hammers and, in some cases, escapements) either attached or built in. These exciting developments have huge potential but still rely on fundamental knowledge of the object under consideration, which is also necessary in interpreting the information gained through the technological intervention.

One way of understanding instruments is by making them, thus learning how they are constructed and how to repair them, which are skills that will always be needed as long as we continue to play instruments. For some, when repairing an older instrument, the aim might be to upgrade it and to make it as 'modern' as

https://doi.org/10.1017/S1478570620000482 Published online by Cambridge University Press

possible. This can be seen in the case of numerous seventeenth-century Italian harpsichords that were modified in the eighteenth century to suit changes in musical taste, or the modification of baroque violins to enable them to project their sound into larger concert spaces in the nineteenth and twentieth centuries. An alternative approach is to try to understand what the original maker intended in an endeavour to replicate their preferred outcomes. Therefore an understanding of historical practices is important for repairers and conservators and is indeed taught in the courses offered by a few institutions. However, the craft skills themselves quite rightly remain the main emphasis of such programmes, as this type of expertise is in itself endangered. This is highlighted on the website of the Heritage Crafts Association (https://heritagecrafts.org.uk), where their 'Red List' of crafts that are 'critically endangered' (at serious risk of no longer being practised in the United Kingdom) includes flute making, bell founding and piano making, while the 'endangered' list adds the making of brass, free reed, keyboard, percussion and woodwind instruments as well as Northumbrian pipes and harps.

Musical instruments can also contribute to economic and business history. When the music industry is mentioned, what is often meant is the recording industry. However, musical instruments have played an important part in the economic history of music since at least the eighteenth century. Although complete business records for an individual firm rarely survive, there is enough information in a range of different types of archive to gain at least a skeletal idea of how firms generally operated in different times and places, offering the opportunity to add the musical-instrument business to wider discussions of economic behaviour. Some of the most complete records relate to Broadwood's piano makers (Surrey History Centre, UK), brass-instrument makers (America's National Music Museum, Vermillion, South Dakota) and nineteenth-century wind makers (Horniman Museum, London). Indeed, today the musical-instrument business is a major player in the wider music industry.

In the context of mainstream musicology, traditional courses most often touch on instruments through the teaching of orchestration. Thinking about what modern instruments can do and how to utilize them is of course important for composers and arrangers in all musical genres. But this doesn't address instruments from cultures not under consideration or all instruments from the past. It also doesn't necessarily address the reasons behind the strengths and weaknesses of instruments as well as how composers from the past used these facets to their advantage in their compositional processes. Writing specifically for a one-keyed flute or natural trumpet is not the same as writing a melody and then making it fit on an available instrument. We cannot fully understand orchestration or compositional processes if we do not bring into consideration the instruments known to each composer, particularly with individuals such as Hector Berlioz, who clearly intended parts to be played on a cornet rather than a trumpet, or on a natural horn rather than a cor à pistons.

For many, a music department is the most obvious place for musical instruments to be studied, but most musicology courses focus instead on the structure of music and the lives of the people who create or perform it. Some individuals do engage with musical instruments very deeply, but for most, the functionality of their instrument is the only matter of relevance. This is understandable, as the practitioner's responsibility is to deliver an output, often here a concert performance or a deeper understanding of the creative process. A number of institutions support research degrees in which musical instruments are included, but ideally – in the contexts of higher education – these would form the pinnacle of programmes where the foundations of musical-instrument research are more formally established in undergraduate programming.

If we consider music only from the perspective of the notes on the page, we miss one crucial and central aspect of that music – its timbre. This dimension is beginning to be addressed, notably in the new *Oxford Handbook of Timbre*, edited by Emily Dolan and Alexander Rehding (New York: Oxford University Press, forthcoming; chapters are being published online as they are completed). This is seen particularly in the chapter by Elizabeth Bradley Strauchen-Scherer, 'Technology and Timbre: Features of the Changing Instrumental Soundscape of the Long Nineteenth Century (1789–1914)' (www.oxfordhandbooks.com/view/10.1093/oxfordhb/9780190637224.001.0001/oxfordhb-9780190637224-e-24). Any written notation is inevitably a shorthand, which offers clues concerning pitch, duration and volume, but usually nothing about tone quality. This is akin to approaching art being able only to use black-and-white images. The

structure, brush strokes, shapes and characterization are apparent, but not the use of colour. By adding instrumental timbre to our understanding of music we add the colour to the art. We can then choose to recolour it or rework it according to our own tastes, but if we don't know what colours the music included in the first place, we cannot truly understand what the composer had in mind. Of course, most music is not passed on through notation, with aural traditions being important across the world. Such traditions are often, although not always, instrument-specific, with students learning their instruments' repertory via their teacher. As such, the choice of instrument is important – but again the focus is on the techniques of playing rather than on understanding the instrument itself.

If we only consider those instruments in widespread use, we only see the tip – and miss the bulk – of the inventive iceberg. Many instruments that were the perfect fit for a musical purpose in the past have ceased to be used due to their niche having disappeared, with fashion driving the adoption of something new, or with an instrument that is in some sense easier to play taking its place. One example would be the pianoforte guittar, a type of cittern containing a miniature piano mechanism so that the strings can be struck with tiny hammers or plucked with the fingers, which saw a brief moment of popularity in the 1780s. Other instruments demonstrate the beginnings of innovative ideas that might have caught on if they had benefited from further development, or were conceptually out of the mainstream direction of travel at the time and so never became established. Perhaps William Meikle's Caledonica from 1825, a small bassoon-like instrument but with a single reed mouthpiece, fits into this category. Some instruments are created and publicized as unique selling-points for flamboyant performers and so were never intended for widespread use. Griffith James Cheese's Grand Harmonica, patented in 1786, was such an instrument, combining a set of strings struck by hammers or plucked by harpsichord jacks with a set of glass rods held in a frame. Others show how an inventor perceived a problem and presented their solution to the musical marketplace of the day. For example, George Buttery's idea for reducing the impact of an increase in soft furnishings on the sound of pianos by placing all four legs of the instrument on bracketed flat springs was patented in 1792. If, as seems to have been the case for Buttery, no one else had perceived that issue to be a problem, the proffered solution was not necessary. But these alternative solutions can show us much more about the musical world in a given period and place than we can see from looking only at the instruments in common use.

There are many misconceptions about why instruments fall out of favour. Take the harpsichord, that mainstay of the eighteenth century. You will read (not least in student essays) that it was replaced by the piano because 'you can't play dynamics on a harpsichord'. This is not true. You might also read that the harpsichord is 'not expressive'. This argument rests on an assumption that touch-controlled dynamics are the sole means for expressivity and is therefore also fallacious. No instruments are in themselves 'expressive', since they are inanimate objects created from a wide range of materials that require an intervention of some kind to make them sound, as well as a human interpreter to understand the expressive qualities of the sounds they make. However, all instruments can produce 'expressive' music when in the right hands. You may also be referred to the harpsichord's comparative lack of sustaining power. This too is ripe for challenging: listen to a piano from the eighteenth century next to a harpsichord from the same period and compare their length of sustain. The similarity between the two was known and utilized to advantage by composers of the time, such as Carl Philipp Emanuel Bach in his Concerto for Harpsichord and Fortepiano in E flat major, Wq47. The picture is instead much more complex and can be more dependent on the marketplace and changes in musical styles than on any inherent properties of the instruments themselves. Yet it is perceived inadequacies in musical instruments that are usually given as the cause for the effect being discussed.

One problem we have, in Britain at least, is the lack of expertise in the relevant places. There is no musical-instrument expert in a curatorial role in a national museum, despite many of our national collections including musical instruments. This includes the national collection of decorative art at the Victoria and Albert Museum and the National Museum of Science and Industry in London, National Museums Scotland in Edinburgh and National Museum Wales in Cardiff. There is currently no lectureship in a British university where a specialism in musical instruments is specifically named. This situation is different in other places, with expert curators at national collections in many countries, including France, Germany

and the United States, who lead the way in research and engagement. There are specialist organizations across the world that support the work of those interested in musical instruments. The Galpin Society for the Study of Musical Instruments is the UK-based group, equivalent to the American Musical Instrument Society, both of whom have an international reach and publish scholarly research; and there are numerous organizations focused on specific types of instrument that attract players and scholars with a particular interest. These groups do a great deal to further the study of instruments and to support those who wish to work in this field, but they should not be relied upon to replace formal academic training, as is the case today.

Musical instruments can offer an inclusive approach to music, which is becoming increasingly important in today's political climate and in the important move to drive racism and colonialism from society and education. Once we place instruments in all of their contexts, we can see that any musical instrument can be considered in these different ways and can demonstrate that we are all dealing with the same central elements, including acoustics, materials, cost, cultural meaning (aural and visual) and ergonomics. How we individually deal with these factors is what makes our instruments distinct and hence our music distinctive. Although such issues have been raised and discussed previously, for example by John Tresch and Emily I. Dolan (see their article 'Toward a New Organology: Instruments of Music and Science', *Osiris* 28/1 (2013), 278–298), this approach has yet to become widespread. Arguably, historical musicologists and musicians are those who have engaged with instruments most fruitfully to date, so perhaps this is where the lead in making a widespread change to the current situation could begin. Musical instruments are the tools of music. Studies of tools demonstrate that first we shape our tools and are in turn shaped by them. We have an opportunity to add to the existing analytical tools that are taught in our educational establishments through bringing musical instruments more holistically into consideration in our pedagogy at all levels. The expertise is there – it just needs bringing into the right places to make a real difference. Those responsible for music curricula at all levels would need to acknowledge the potential of including musical instruments in all types of courses – historical, analytical, compositional, performative. Programmes could be built that bring instruments into the mainstream and allow musical-instrument specialists to contribute to academic engagement, allowing interdisciplinary and subject-specific teaching and research to be embedded within the music curriculum, to grow and to flourish.

JENNY NEX
jenny.nex@ed.ac.uk

https://doi.org/10.1017/S1478570620000482 Published online by Cambridge University Press