



South Asia: Journal of South Asian Studies

ISSN: (Print) (Online) Journal homepage: <https://www.tandfonline.com/loi/csas20>

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To cite this article: Budhaditya Bhattacharyya (2022) The Changing Ecology of the Kolkata Tanpura, *South Asia: Journal of South Asian Studies*, 45:6, 1095-1111, DOI: [10.1080/00856401.2022.2118480](https://doi.org/10.1080/00856401.2022.2118480)

To link to this article: <https://doi.org/10.1080/00856401.2022.2118480>



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Published online: 02 Oct 2022.



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The Changing Ecology of the Kolkata Tanpura

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ABSTRACT

The tanpura, a long-necked, unfretted, stringed lute, is arguably one of the most important instruments used by Hindustani classical vocalists. This ethnographic study draws from the lived experiences of luthiers and farmers specialising in crafting tanpuras. Auto-ethnographic reflections as a vocalist of this tradition also feed into this piece. Studying the effects of various phenomena, including evolving agricultural and climatic conditions in gourd fields and increasing scarcity of raw materials, the article underlines how it affects the sonic and visual profile of the instrument, thereby gradually transforming Hindustani classical sound at a very fundamental level.

KEYWORDS

Ethnomusicology; lutes; musical instruments; Hindustani classical music; South Asia; West Bengal

Tucked away in a shopping complex on the ground floor of an apartment in the bustling district of Kolkata's Bhowanipore is the tiny showroom-cum-workshop of Sur-o-Jhankar, a family-run business specialising in the crafting of premium tanpuras. Run by its current proprietor, Binoy Biswas, the firm caters to the bespoke needs of Kolkata's many fledgling and established Hindustani classical vocalists and instrumentalists. As a Hindustani vocalist and a regular client of Biswas, I had visited him in December 2016 to commission a new tanpura. Sensing the need for a more resonant tanpura to suit my still-deepening male voice, I requested a larger calabash—called *tumbā* in Bengali. In response, Biswas said that the larger *lāu* (gourd)¹ needed to construct *tumbās* for the larger tanpuras used by male vocalists had become tougher to grow; however, he promised to do his best. Eight months later, when the commission was ready, following custom, I took the new tanpura to my guru, Ajoy Chakrabarty, for inspection. As it turned out, my guru was not satisfied with the result. He advised two modifications: a *tumbā* of an even larger circumference and a lighter wooden

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1. Most instruments belonging to the lute family in South Asia—including the sitar, tanpura and rudra veena—have a *tumbā* made of the shells of the calabash gourd (*Lagenaria siceraria*), called *lāu* in Bengali. Also called bottle gourd, *lauki* and *kaddu* in Hindi, these are commonly grown across the subcontinent throughout the year, although winter is considered to be the best season. Gourd fruits mature into different shapes, mostly bottle or dumb-bell-shaped, spherical or cylindrical; the ones shaped spherical and almost perfectly round are used in the crafting of musical instruments.

frame which would add more resonance to the instrument and in turn seemingly help me in developing a ‘rounder’ tone and more sonorous voice texture. Typical of established luthier-musician relationships in Hindustani music culture, Biswas took back the new instrument, only to start re-crafting another one from scratch, this time attempting to come closer towards fulfilling Chakrabarty’s preferences.²

Stemming from this episode in my musical career, I explore how various phenomena are resulting in an ecological change of the tanpura crafted in the eastern Indian metropolis of Kolkata. Recent years have seen an intensification of problems that farmers in the Indian state of West Bengal have been facing with the cultivation of *lāu*, particularly those needed for the making of the ‘gents’ tanpura.³ Besides, technological innovations in the form of electronic tanpuras and mobile tanpura apps have had an adverse effect on the demand for the physical instrument in general. As I cognise the former as changes in the ecology of the tanpura, I will first explain ‘ecology’ in this context.

Daniel Neuman in 1980 suggested an ecological viewing of Hindustani music culture. By this, he meant studying the networks of producers and consumers of the music, the social contexts in which the music was performed, and the technology of production and reproduction, albeit focusing on human actors.⁴ Building on materialist scholarship, Kevin Dawe has more recently written on the palimpsestic nature of the human and non-human, technological and affectual, economic and socio-political influences that constitute the ecologies of musical instrument making, particularly in the context of guitar making in Crete and Granada.⁵ In the context of Hindustani classical music, Allen Roda has extensively studied the ecology of the tabla.⁶ So far as the role of the various actors involved in the ecology of the tanpura—right from luthiers’ workshops, gourd plantations to vocalists’ experiences—is concerned, I begin with the congruities arising from ‘new materialist’ thought, which seeks to destabilise anthropocentric proclivities.⁷ Following Roda, I extend the idea of a ‘flat ontology’, according to which material relations between humans and non-human objects like gourds and the celluloid used for

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2. It needs to be clarified here that Biswas was paid an advance upon the commissioned new tanpura. When he started re-crafting another instrument, I paid him a second advance to cover the accruing costs of labour and raw materials. Relationships between instrument makers and musicians are complicated. Compared to instrument makers in Kolkata, I have largely observed that musicians hold a higher rank in the hierarchy. However, there may be exceptions with senior instrument makers, who are considered as gurus by the musicians. Beyond the scope of this paper, tacit caste and class hierarchies need to be studied in the context of Kolkata’s musical instrument-making industry. Karnatic vocalist and activist T.M. Krishna has written about the casteism existing between Brahman mridangam players and Dalit mridangam makers: see T.M. Krishna, *Sebastian and Sons: A Brief History of Mridangam Makers* (Chennai: Westland Publications, 2020).
 3. The lower-pitched and larger tanpuras are usually called the ‘gents’ tanpuras as they are generally played by post-adolescent male vocalists. I have explained this in more detail later.
 4. Daniel Neuman, *The Life of Music in North India: The Organization of an Artistic Tradition* (Chicago, IL: The University of Chicago Press, 1990): 203.
 5. Kevin Dawe, ‘Materials Matter: Towards a Political Ecology of Musical Instrument Making’, in *Current Directions in Ecomusicology: Music, Nature, Environment*, ed. Aaron S. Allen and Kevin Dawe (New York: Routledge, 2012): 109–121; 119.
 6. Peter Allen Roda, ‘Resounding Objects: Musical Materialities and the Making of Banarasi Tablas’ (unpublished PhD thesis, New York University, 2013): 1–394.
 7. New materialism comprises three distinct strands: ‘vitalist’, ‘negative’ and ‘performative’, all of which commonly aim to problematise epistemological theorisations, and instead forward an ontological understanding. In this article, I do not give preference to any one over the other: see Christopher N. Gamble, Joshua S. Hanan and Thomas Nail, ‘What Is New Materialism?’, *Angelaki* 24, no. 6 (2019): 111–34, <https://doi.org/10.1080/0969725X.2019.1684704>.

decorative inlay work have different capacities for contributing to the sound of the tanpura; all my luthiers concurred that the materials used for decorative inlay work—bone or celluloid—have negligible or no effect on the sound production. In flat ontology, objects are unequal in terms of their capacities—they are considered equal so far as they exist. However, new materialism is not entirely adequate to explain the complicated belief systems of luthiers and farmers—at least most of those whom I have worked with—who are aware of the capacity of co-existing non-human objects to influence the outcome of the desired sound, and yet attribute the ‘immaterial’ and so-called enigmatic qualities of sound to the divine.⁸ Interpretation of all matter as equally existing is just a starting point for me, and an exercise to ensure non-human objects are not overlooked. However, I have attempted to ensure that by doing so, the human agency of the luthiers and farmers are not occluded, but further recognised and studied.

An inexhaustive ecology of the tanpura would comprise the human and non-human networks involved: farmers cultivating *lāu* and then processing it into the *tumbā*; socio-economic factors driving *lāu* cultivation and meteorological variables influencing its growth; lumberjacks sourcing the tun or teak wood required for constructing the *ḍāṇḍi* and *khuntī*;⁹ demand and supply factors in the market for such wood; metallurgists manufacturing steel and bronze strings according to given specifications; the luthiers responsible for assembling all its constituent parts; and demand among musicians.

This article draws from eight years of face-to-face interactions, recent telephonic and in-person interviews with Binoy Biswas. Moreover, I have relied on the insights offered by two other leading Kolkata-based tanpura makers, Aurobindo Roy and Amit Mondal. Besides, I have turned to the lived experiences of *lāu* farmers like Ganesh Chandra Ray and Nitai Hazari.

After setting out my fieldwork methodology, I offer an overview of the tanpura, concisely discussing its constituent parts and etymology, before branching out to its cultural connotations. I also underline the sonic qualities attributed to the instrument crafted in Kolkata, especially from Sur-o-Jhankar. The following section tracks changes in meteorological and agricultural conditions, scarcity of materials like deer horn and a particular brand of cotton thread to document a sound that is arguably getting lost.

Conducting fieldwork during the COVID-19 pandemic

This paper results from my eight years of interactions with Kolkata’s luthiers as a musician and 18 years of experience playing the tanpura. Initially, I had plans to conduct fieldwork for this side-project starting from March 2020, which was when the COVID-19 pandemic struck us. At a time when all international travel was shut, I had no option but to re-create the ‘field’ in a virtual space. As I am myself a musician and a client—or even a prospective one—emic/etic distinctions were blurred. My musical background gave me access to ‘insider’ spaces, and at times I felt it was also the reason

8. Binoy Biswas, Nitai Hazari and Ganesh Ray, my primary interlocutors, have similar views on divine agency. All of them suggested that while they try their best to come close to the sound they can hear within, there is something unattainable with regard to sound. According to them, nothing can really explain why a particular tanpura sounds especially pleasing. They attribute these unexplainable phenomena to God.

9. *Ḍāṇḍi* in Bengali refers to the long-neck of the tanpura, while *khuntī* are the round-shaped wooden pegs which are used to tune the instrument.

that I got a chance to try to understand the hidden worlds of luthiers and farmers. This unique liminality has arguably proved useful to me in negotiating the ‘on-going struggles between the quest for objectivity and the acknowledgement of its potential elusiveness’.¹⁰ Among my interlocutors, I have been in touch with Binoy Biswas via the instant messaging app, WhatsApp, after I started living in London on a full-time basis from September 2017. Also, I had met Nitai Hazari a number of times at Biswas’ workshop and had been acquainted with his work before initiating this research. Over the years, Biswas and I have shared a luthier-musician relationship, which has also evolved into that of an interlocutor-ethnographer one since 2020. Despite my absence from the field site bound by space and time, digital technologies including social media have ensured the continued relationship with my interlocutors.¹¹ This research can be partly called a digital ethnography in the sense that many of the interviews were online conversations that I externally recorded on a voice recorder—with due consent of the interlocutors—while simultaneously jotting down copious amounts of notes. Though I have in one instance drawn from the digital world of the musical instruments marketplace—specifically the description of *Sur-o-Jhankar* and Miraj tanpuras from the website of *India Instruments*—I have not looked into the digital worlds of the tanpura industry.

I got the chance to conduct dedicated ‘real’ fieldwork in Kolkata, Ranjapur and Pashpur between May and June 2022. In light of the pandemic, I had to abandon my initial plans to conduct more sustained in-person fieldwork, and instead started working with fragmented but reliable data coming from the ‘virtual’ field before executing my planned in-person short-term field visits—this resonates with what is being called patchwork ethnography.¹² For this article, I have drawn extensively from my field visits to the gourd plantations and numerous visits to Biswas during the last week of May 2022. Spending more time in the gourd plantations would have been ideal. However, numerous long-distance conversations and sustained contact with the farmers enabled me to initiate very specific conversations, which would not have been possible otherwise.

Throughout this article, I have included auto-ethnographic reflections. Auto-ethnographic, in the sense that I have offered accounts of personal experience as a practitioner of Hindustani vocal music and a tanpura player and attempted to ‘articulate insider knowledge of cultural experience’.¹³ In this piece, I have often banked upon the transcripts of my memory to compare with the data that I have gathered as an ethnographer in the last two years.¹⁴

10. Till Mostowlansky and Andrea Rota, ‘Emic and Etic’, in *The Cambridge Encyclopedia of Anthropology* (2020), accessed August 29, 2022, <https://www.anthroencyclopedia.com/entry/emic-and-etic>.

11. Daniel Miller, ‘Digital Anthropology’, in *The Cambridge Encyclopedia of Anthropology* (2020), accessed August 29, 2022, <https://www.anthroencyclopedia.com/entry/digital-anthropology>.

12. Gökçe Günel, Saiba Varma and Chika Watanabe, ‘A Manifesto for Patchwork Ethnography’, ‘Member Voices’, *Fieldsights*, June 9, 2020, accessed May 31, 2022, <https://culanth.org/fieldsights/a-manifesto-for-patchwork-ethnography>.

13. Tony E. Adams, Carolyn Ellis and Stacy Holman Jones, ‘Autoethnography’, in *The International Encyclopaedia of Communication Research Methods* (2017), accessed August 29, 2022, <https://onlinelibrary.wiley.com/doi/full/10.1002/9781118901731.iecrm0011>.

14. *Ibid.*

An overview of the Kolkata tanpura: 'Gents' and 'ladies'

The tanpura is a musical instrument belonging to the family of lutes. Predominantly four-stringed, the two strings in the middle are tuned to the tonic, while the first string is generally tuned to the fifth degree,¹⁵ and the fourth string tuned to the lower tonic. The strings are played in a cyclical rhythm to create a sonic canvas for the musicians to perform. Consisting of a hollow body, the tanpura has a wooden soundboard called the *tabli*. Other parts include a gourd resonator and a neck joint, called the *tumbā* and *gulu*, respectively. The strings pass through the holes drilled into the two pieces of bone or horn called the *meru*. Fine tuners called the *manakā* are present below the main bridge attached to the *tabli*. Small pieces of thread usually made of cotton, nylon or silk—called *jiva*—are placed between the strings and the bridge to enhance the harmonic overtones.

Seen both in the Hindustani and Karnatic systems of the northern and southern parts of the Indian subcontinent, respectively,¹⁶ the tanpura is considered to be an accompanying instrument in classical and semi-classical musical genres, including dhrupad, khayal, thumri, ghazal and bhajan. From a vocal practitioner's perspective, the tanpura is often the primary archival embodiment of acoustic knowledge, serving as a repository of the most advanced tuning sensibilities and specialised vocal techniques.

The tanpura or the *tamburā* is understood to have come from the West Asian long-necked fretted lute called the *tambur*, which appears to be a melody-producing instrument according to pre-Mughal and Mughal sources. Numerous paintings indicate the appearance of the *tambur* as a drone instrument starting from the early seventeenth century. Eventually, the *tambur* became fretless and was developed into the larger form of the modern tanpura.¹⁷ The tanpura is also believed to have been associated with the mythological Tumburu, a celestial musician. Though the tanpura finds mention in the seventeenth-century version of the musical treatise, *Sangīt Pārijāt*, the form is not described.¹⁸ According to the *Oxford Encyclopaedia of the Music of India*, neither iconographic nor textual sources before the thirteenth century shed any light on the instrument.¹⁹

There are existing vernacular interpretations of the word 'tanpura' that I have heard from my guru and again while conducting fieldwork for this project. I have often heard my guru emphasise that the tanpura/*tānpuro*²⁰ completes (*puro*) musical movements (*tān*). Recently, I heard the same interpretation from Ganesh Ray, a luthier-cum-farmer, who features in the next section. Besides, all my other interlocutors were well versed with this explanation of the term. A recent publication on the tanpura, *Acoustical Analysis of the Tanpura*, also says that 'tanpura' is etymologically derived from two words, '*tān*' and '*purā*'.²¹ It is beyond the scope of this article to argue whether the word 'tanpura' has multiple etymologies; Frederic Cassidy uses the term 'multiple etymologies' to 'refer to only those words which seem to be derivable with

15. The first string may be tuned to the fourth or the seventh instead of the fifth. However, this depends on the raga being presented and the importance placed on its constituent notes.

16. Tanpuras of the Tanjore style usually seen in the Carnatic tradition are carved wholly out of wood, unlike its Hindustani counterpart.

17. *Garland Encyclopedia of World Music*, Vol. 5, 1st ed. (New York: Garland Pub., 2000), s.v. 'Hindustani instruments'.

18. *The Oxford Encyclopaedia of the Music of India*, Vol. II, 1st ed. (Oxford: OUP, 2011), s.v. 'tānpurā'.

19. *Ibid.*

20. Tanpura is also referred to as *tānpuro* in Bangla.

21. Asoke Kumar Dutta et al., *Acoustical Analysis of the Tanpura* (Singapore: Springer Nature Singapore Pte Ltd, 2019).

equal plausibility from two or more of the languages known to have been in contact at the time of their formation'.²² Even if the association of *tān* and *puro* seems to be a later literal conflation, I believe it is important to take it seriously as it influences tanpura culture, at least from what I have seen in the Kolkata-centred industry. For both musicians and luthiers, the tanpura not only enriches musical production, but also remains an intrinsic part of it.

The tanpura as an instrument has identities²³ and cultural capital independent of musicians.²⁴ Owing to the general pitch differences of male and female singers, the tanpura has to be constructed accordingly. The generally observed pitch of the male singing voice requires a longer neck (*dāṇḍi*) and a *lāu* of wider circumference to fit the bulkier framework. In Hindustani music culture, the 'male tanpura' and 'female tanpura' are themselves attached to stereotypical ideas of masculinity and femininity. The bass tone and larger structure of the 'male tanpura' often negotiates the aspirations and expectations of male vocalists to cultivate a baritone voice, thereby constructing gendered meanings within these 'instrument-human relationships'.

The 'male' and 'female' tanpuras are usually referred to as 'gents' and 'ladies' tanpuras, respectively. Imbued in the 'gents' tanpura are acoustic perceptions and anthropomorphic notions. During one of my regular monthly visits to Binoy Biswas, he mentioned that the hallmark of a 'gents' tanpura was a *gol* and *gomgome* sound. *Gol* literally means 'round' in Bangla; young vocalists learning in the traditional *guru-śiśya paramparā*²⁵ are often taught about the importance of developing a 'rounded' voice. When I first started serious *riyāz*²⁶ with a 'gents' tanpura, clocking an average of six to seven hours every day, Chakrabarty had stressed upon me the need to have a *gol* voice to be able to produce the subtle inflections of pitch and intricate movements that Hindustani music demands. *Gomgome* in Bengali might have a string of meanings. Literally translating to 'resonant', it represents sonic orotundity and is linked to a sound that is *bhāri*, often a marker of masculinity. The 'ladies' tanpura, on the other hand, is also linked to a *gol* but not so much a *bhāri* sonic footprint. Lighter in weight than the ones crafted in the western Indian city of Miraj, the Kolkata tanpura is recognised to have a distinguishable sound. *India Instruments*, a Berlin-based dealer in Indian instruments, state on their website:

22. Frederic G. Cassidy, 'Multiple Etymologies in Jamaican Creole', *American Speech* 41, no. 3 (1966): 211–15, <https://doi.org/10.2307/454027>.

23. Shubha Mudgal, 'The Tanpura as a Prop?', *Mint*, September 30, 2016, accessed September 25, 2021, <https://www.livemint.com/Leisure/wo83QgnenH6xNW1eTnlGHN/The-tanpura-as-a-prop.html>. Beyond the scope of this paper, the tanpura, like most other instruments in South Asia, has fluid theistic associations. Musical instruments, including the tanpura, are commonly worshipped during Saraswati Puja, or tied a thread obtained from a Muslim shrine, as vocalist Shubha Mudgal writes in this newspaper article.

24. Veronica Doubleday, 'Sounds of Power: An Overview of Musical Instruments and Gender', *Ethnomusicology Forum* 17, no. 1 (2008): 3–39.

25. '*Guru-śiśya paramparā*' is a tradition comprising a succession of teachers and their students. Knowledge is imparted by the *guru* (teacher) to the *śiśya* (student). Hindustani classical music has been traditionally passed down the generations through this tradition.

26. *Riyāz* is an Urdu term for supervised, rigorous and methodical practice of music, or other art forms.

Our Miraj Ahmadsahab male tanpura [has a] built [which] is noticeably heavier than comparable tanpuras from Calcutta. Perhaps therein lies the secret of its unique sound quality.²⁷

India Instruments comments the following on a *Sur-o-Jhankar* product,

It is a relatively light-weight and thin-walled tanpura, thus sounding not only full, powerful and rich in overtones but also particularly warm, deep and earthy We carry only male tanpuras of Sur-O-Jhankar, because of their unique sound quality.²⁸

Toss Levy, a London-born musician and repairer, who runs a restoration, maintenance and repair workshop in the Netherlands, credits the Kolkata-made tanpuras with better finishes than the Miraj-made ones, but suggests that the best tanpuras come from the latter.²⁹

Though not the focus of this paper, it needs to be mentioned that the main competitors of the acoustic tanpura are its electronic and digital versions. Starting from the late 1980s, Hindustani music culture has witnessed a proliferation of innovations based on electronic and digital technologies. The sound and functionality of the tanpura have been attempted to be recreated in avatars like the electronic tanpura box and tanpura apps for mobile platforms in the smartphone era. Both the electronic tanpura box as well as the tanpura app are created using digitally sampled recordings of the tanpura, with the option to control the volume and tempo, and make fine adjustments to the frequency.³⁰ Electronic tanpuras saw growing popularity in the mid-1970s, which was most likely due to the ‘Western world’ increasingly taking to Indian music.³¹

Transformations in the Kolkata tanpura

Post-afternoon, there were few people out on the streets of Ranjapur, except for a few women tending to their jute plantations and some herding their cows. Well past mid-May, the sultry heat had receded. There were ominous dark clouds in the horizon instead. While there seemed to be a lull in the air, the current in the neighbouring Damodar river was visibly stronger. As Nitai Hazari, a luthier-cum-farmer, and I reached the residence of his 85-year-old colleague, Ganesh Chandra Ray, in the neighbouring village of Pashpur, we were greeted by fresh batches of peanuts and potatoes spread out in the courtyard. It was Hazari’s first visit in months; he felt hesitant to visit the Ray household after Ganesh Ray’s 11-year-old grandson tragically succumbed to a snake bite the year before. We were informed that Ray had been taking his siesta. Soon after, Ray emerged in his *lungi*, pointing to me his legs, swollen with arthritis. After we were offered glasses of *Glucon-D*—a glucose-based drink—Ray started reminiscing about how he started farming gourds for tanpuras and sitars from the age of 15, and about the day Ravi Shankar visited his then-existing musical instrument shop in Dum

27. ‘Miraj Ahmadsaheb Male Tanpura’, India Instruments, accessed September 25, 2021, <https://www.india-instruments.com/tanpura-details/miraj-ahmadsaheb-male-tanpura.html>.

28. ‘Sur-O-Jhankar Male Tanpura’, India Instruments, accessed September 25, 2021, <https://www.india-instruments.com/tanpura-details/sur-o-jhankar-male-tanpura.html>.

29. ‘Types of Present-Day Tanpuras’, ‘Indian Music Instruments’, TossLevy.nl, accessed September 25, 2021, <https://www.tosslevy.nl/tanpura/types-of-tanpura/>.

30. Earlier versions of the electronic tanpura boxes used transistors to mimic the sound of the tanpura. However, later versions contain sampled recordings of the acoustic tanpura.

31. Laxmi Tewari, ‘Changes in the Tambura’, *Essays in Arts and Sciences* 5, no. 1 (1976): 46–50.

Dum. Upon questioning the extent to which gourds are significant in the production of the sound of the tanpura, an animated Ray declared with a stamp of authority,

The importance of the *lāu* would be 12 annas.³² Unquestionably! No, make it 8 annas. The manner in which the *tabli*³³ is chiselled, it should be 4 annas. The remaining 4 annas would be craftsmanship: how the *juāri* is done and how it is finished ...³⁴

Ray ruefully mentioned how the *gol* sound of the tanpura is hard to come across these days. According to him, the ones with smaller *tumbās* are simply no match. Ray asserted the paramount importance of the *tumbā*, especially concerning the construction of the male tanpura:

Prokrito gān (real music) cannot be sung, learnt or taught without tanpuras, and that too without ones having a sizable *tumbā*. This is true for male vocalists. I have learnt vocal music in my childhood and ustads (teachers) would not allow male tanpuras with small *lāus*. In fact, there were no tanpuras with small *lāus*. *Tumbās* processed out of *boro lāu*³⁵ have a resonance of more supreme quality, which is suitable for developing the bass tones of the male voice.

The relevance of the *tumbā* further cropped up during another conversation with Binoy Biswas. More recently, I was at his workshop trialling the sound of my recently commissioned ‘travel tanpura’.³⁶ Responding to my comment that the sound of the ‘travel tanpura’ comes nowhere close to the traditional ones, Biswas replied:

No matter how hard we try, it is not feasible to replicate the sound of the traditional tanpura. While the longer *ḍāṇḍi* plays an important part in allowing the air column to vibrate and therefore creating the needed resonance and sustain, the *tumbā* is very vital in lending the sound its roundness.³⁷

Following the accounts offered by Ganesh Chandra Ray, Hazari and Biswas, in this section, I argue how there has been a sonic and visual change in the Kolkata tanpura.

Agricultural and climatic changes affecting production of boro lāu

Ray laments the fact that despite him being one of the most senior farmers in the business of sourcing *lāus* to instrument makers, he has had no crop this year; the untimely winter rains had damaged all the yield. This matches with the account that Hazari had given to me over the London-Ranjapur telephone line:

These days it is difficult to maintain the growth of the fruits ... We try very hard but still are rarely able to match up to the size that we would like to see. The weather changes frequently these days, the air changes, and the moisture content is higher ... this crop thrives more in colder temperatures and has to be sowed accordingly. Indeed, we have noticed the occurrence of more rains during the winters. The winter rain is very

32. An anna was a currency unit formerly used in British India; 16 annas comprised a rupee. Ray used the anna trope to speak subjectively about the relative importance of the gourd in the sound quality of the tanpura.

33. *Tabli* is the soundboard on which the bridge of the tanpura sits.

34. Interview with Ganesh Chandra Ray, Pashpur, West Bengal, India, May 19, 2022. Translation from Bangla mine.

35. Literally meaning large *lāu* in English, *boro lāu* in common parlance refers to gourds generally ranging from 56 to 60 inches in circumference, used in the construction of the ‘gents’ tanpura.

36. ‘Travel tanpura’ refers to flat-shaped tanpuras that are completely carved out of wood. They do not comprise a gourd resonator and are much more compact in their dimensions. These instruments are very convenient to travel with, hence the name ‘travel tanpura’.

37. Interview with Binoy Biswas, Kolkata, West Bengal, India, June 7, 2022. Translation from Bangla mine.

damaging to the crops, especially if it hits them before they have matured. The rains are not able to affect the fruits, which are already matured. However, the tender fruits rot and fall off in the rain ...³⁸

Hazari's account resonates with that of his fellow farmer, Shyam Barui, who was quoted by journalist Gurrinder Singh in a story for *The Hindu BusinessLine*,

Nature has been playing a cruel joke with our lives for the past few years. I had grown bottle gourd with a lot of hope this year, but the sky looks ready to pour water on our hard work.³⁹

The issue of winter rainfall also surfaced when I interviewed another Kolkata-based luthier, Amit Mondal:

Rains in the winter do cause a problem. The weather deviating from its usual pattern makes things difficult in many aspects. When the flower buds grow into the *lāu* fruits, they are extremely tender, and do fine in normal weather. Rains at that crucial point destroy the fruits.⁴⁰

Candis Callison treats climate change simultaneously as 'object, issue, cause, experience, and body of scientific research, evidence, and predictions'.⁴¹ According to Callison, climate change creates its 'form of life' by the way it is understood and elucidated. For farmers, especially those like Ganesh Chandra Ray, rainfall-led destruction of gourd fruits and its adverse impacts on tanpura manufacturing form an intrinsic understanding of climate change. In a sense, climate change is captured in the non-existent sounds of those tanpuras that could have been crafted with gourds, if they were not blighted by rain. Carla Rancoli, Todd Crane and Ben Orlove, writing about the involvement of cultural anthropology in studying climate change, suggest how ethnographic methods expose the ways in which climate makes a mark on the well-being of people and their livelihoods, besides structuring memory and anxieties about the future.⁴² This applies in this context of gourd farmers as well; unseasonal rainfall attributed to climate change has also led to a romanticisation of an era when lesser gourd fruits were damaged, thereby effectively transforming their memory of a Hindustani classical sound that was less marred by climate-related crises.

However, winter rainfall does not seem to be the sole issue for Ray. The octogenarian recalls that in the 1970s, the *lāus* cultivated in the districts of Howrah and Hooghly were generally of a larger size. Ray said:

We used to grow *lāus* of above sixty inch in circumference very often. These sizes were very common. The largest I have grown weighed seventy kilograms ... roughly seventy-two inch in circumference. It won the best prize in a competition organised by *Krishi Sevak*, an organisation near the village of Antpur.⁴³

38. Telephone interview with Nitai Hazari, July 1, 2021. Translation from Bangla mine.

39. Gurrinder Singh, 'Gourd's Own Melody', *The Hindu BusinessLine*, March 1, 2019, accessed September 25, 2021, <https://www.thehindubusinessline.com/blink/know/gourds-own-melody/article26405292.ece>.

40. Telephone interview with Amit Mondal, July 1, 2021. Translation from Bangla mine.

41. Candis Callison, *How Climate Change Comes to Matter: The Communal Life of Facts* (Durham, NC: Duke University Press, 2014): 11.

42. Carla Rancoli, Todd Crane and Ben Orlove, 'Fielding Cultural Change in Climate Anthropology', in *Anthropology and Climate Change*, ed. Susan A. Crate and Mark Nutall (London: Routledge, 2009): 87–115; 104.

43. Interview with Ganesh Chandra Ray, Pashpur, West Bengal, India, May 19, 2022. Translation from Bangla mine.

Putting the blame on himself, Ray narrates that they have lost the special variety of *lāu* seed—typically found in Bengal—due to his efforts at cross-breeding:

In the 1970s, the *lāus* coming out of my land and in these areas were growing big. However, instrument makers were complaining that *tumbās* from Bengal were generally thinner and weaker. Rikhi Ram, a well-known instrument maker from Delhi, gave me seeds from the Pandarpur area in Maharashtra. The seeds I originally had were greenish in colour, with blackish markings. The *lāus* we grew in Bengal were dark greenish in colour, almost to the extent of black. The Maharashtrian variety happens to be white, bitter in taste, unlike the ones in our Bengal. We had sown seeds of both varieties in the same field. This resulted in a cross-breed. I have repented since. That has led to the shrinkage in the size of the crops. Now I go mad about the original variety of seeds I had, but nobody has them.

Another common area of concern that came up was land overuse. Sitting inside Hazari's Ranjapur residence, he explained to me that while land was left open after the yield of the gourds in spring, these days, it is very easy to get the soil ready with modern technologies and fertilisers. Farmers including Alokesh Ray, son of Ganesh Chandra, have observed land productivity increase manifold, and have yet witnessed the cons of overworking the land. According to Alokesh:

In my childhood, I have seen my father grow only one crop in a year. However, I grow up to three crops in a year. Besides the *lāu*, I grow jute and potatoes: all this would not be possible without modern fertilisers. However, the land also needs rest, which cannot be compensated by fertilisers.⁴⁴

Ganesh Ray responded to his son's remarks,

In the old days, we used mustard cakes, crushed shells of peanuts along with compost to enhance plant growth. The land had *ijjot* (prestige). Using artificial fertilisers have destroyed the calcium content of the soil, resulting in increased salinity.

Amit Mondal had a similar opinion:

Yes, the general sizes of gourds that we get for manufacturing musical instruments have decreased. This is because after years of cultivating, the land is not as fertile as it used to be. Even though we have tried to make it up by using fertilisers, it is not the same as one could expect from a fresh piece of land. Fertilisers are artificial, and they cannot replace the natural qualities of the land.⁴⁵

Adding to the complexity of factors in the field, shifting demand towards digital musical instruments have reduced profit margins for instrument makers, thus adversely affecting farmers' profit margins for every *tumbā* sold. As a result, farmers growing *lāu* have had no option but to get a better yield from the land, at the cost of growing a lesser number of *boro lāu*. Alokesh Ray, son of Ganesh Chandra, remarked:

What Baba⁴⁶ said about the seeds is absolutely true. The local variety, we believe, is now extinct. However, we could have preserved it. In retrospect, we were responding to much higher demand for smaller *lāus* used in sitars. As a result, we did not bother to segregate the original seed we had.⁴⁷

44. Interview with Alokesh Ray, Pashpur, West Bengal, India, May 19, 2022. Translation from Bangla mine.

45. Telephone interview with Amit Mondal, July 1, 2021. Translation from Bangla mine.

46. Baba in Bengali means father.

47. Interview with Alokesh Ray, Pashpur, West Bengal, India, May 19, 2022. Translation from Bangla mine.

Carsten Wicke, a German rudra veena⁴⁸ player partly based in Kolkata and involved in its crafting, said:

The factor I can confirm is a simple economical reason... farmers are getting more money for smaller *tumbās* than one or two bigger ones. When you want to harvest a big one, you basically have to cut the many surrounding offspring.... For the rudra veena, it is also very important to ensure a good shape. So you have to take a little care as to how they are laying it on the land... what I heard from the markets where we try to get those *tumbās*... sometimes if you really need these kinds of special big *tumbās*, the best method would be paying the farmers upfront. This way the farmers are relieved of the economic pressures, and one can ask them to take more care of individual fruits, which increases chances of getting larger *tumbās*.... I personally never had to go that far but this is definitely a big problem...⁴⁹

Binoy Biswas offered a similar explanation in an earlier interview:

These days, farmers do not allow the gourds enough space to grow. Earlier, they used to identify the ones with unsuitable shapes for the tanpura or sitar, cut them off, and perhaps even eat them. Nowadays, being more focused on the profits, they try to sell as many gourds as possible from a field. Hence, the individual fruits receive less nourishment, making it also one of the reasons that restrict their growth.⁵⁰

Going by Wicke's remarks, if gourds suitable for the rudra veena—which are usually of a 60-inch circumference—can still be cultivated, the reason for the disappearance of Kolkata tanpuras with a *boro lāu* seems baffling. Here, the answer lies in the much lower demand for rudra veenas, when compared to tanpuras. As a result, the lack of availability of *boro lāus* does not reflect in Kolkata's rudra veena market, unlike in the case of the tanpura. According to Ganesh Ray:

Making rudra veena is a highly specialised and religious process. Craftsmen have to follow a very strict routine of taking regular baths. Also, one cannot touch dirty surfaces. If one does, they have to bathe again and change their clothes... I once got an order for supplying *lāus* for fourteen rudra veenas from Kanai Lal. There are very few rudra veena players and hence they are crafted only when specially commissioned. In contrast, tanpuras are used by almost every other student of vocal music. Despite the fact that demand for tanpuras has declined after the electronic ones came, it cannot be compared with that of instruments like the rudra veena.

The affective values (sonic) of the larger *tumbās* and that of economic exchange are always in a trade-off. Larger *tumbās* increase the overall costs of production of the tanpura, the *boro lāu*—assuming it can be grown despite the already discussed agricultural and climatic challenges—even more so. The desired sound quality of the larger *tumbās* and that of economic exchange are always in a trade-off, thereby obsolescing the fashion of crafting larger tanpuras.

Gourds that are meant to be sold to wholesalers are segregated from the larger-sized ones. Nitai Hazari showed me his warehouse at his relative's house next door, where

48. A rudra veena requires the whole gourd to be fitted as a resonator, unlike the tanpura, where approximately two-thirds of the hollowed and dried gourd is cut and attached to the main body. This is a reason why gourds for the rudra veena need even more individual care as unevenness in the sphericity of the *tumbā* would likely have an effect on the sound quality of the instrument.

49. Personal communication with Carsten Wicke, September 6, 2021. Wicke answered my questions through audio messages, which he shared via the instant messaging app, Messenger.

50. Telephone interview with Binoy Biswas, April 1, 2021. Translation from Bangla mine.

gourds are stored for clients who travel from Kolkata to procure *tumbās* for tanpuras, which are sold readymade and not customised. The larger and more expensive gourds are stored in his house and reserved for niche and old clients like Biswas. Arjun Appadurai discussed the social life of commodities that accrete economic, social and religious values as they circulate.⁵¹ Even after gourds are metamorphosed into *tumbās* and become part of the tanpura, they very much retain their commodity status. This holds true for both the readymade and the bespoke markets. For bespoke markets, gourds are sometimes cultivated as gifts; Ray, Hazari and Biswas recalled instances when they crafted tanpuras which would be gifted to senior musicians by their students or colleagues. Having said that, following David Graeber's work, it is true for both these markets—especially the niche market—that values of economic exchange exist as a by-product of other systems of value.⁵²

Further, it needs to be probed to what extent the gourd resonator offers symbolic value. In a YouTube video, vocalist Venkatesh Kumar talks about the utility of the electronic tanpura on the stage, especially in large auditoriums.⁵³ Kumar complains that the acoustic tanpura can hardly be heard during performances, forcing him to rely on the pitch reference offered by its electronic counterpart. The fact that he still employs two tanpura players can possibly allude to the striking visual appeal of the instrument. London-based vocalist Chiranjeeb Chakraborty, in an interview, advocated the use of electronic or digital tanpuras. However, his argument in favour of the electronic versions was more from the point of practicality. According to Chakraborty:

The importance of the acoustic tanpura cannot be overlooked in any way. The acoustic image of a tanpura, especially with a large gourd, will definitely be better. Having said that, I am one who analyses everything from the perspective of convenience in today's world. I have to question myself if a *gents* tanpura in today's date is a feasible option ... we have to think whether there are trained tanpura players in a concert scenario; also how often do you see a tanpura player in London? Back in the day, I have heard Amir Khansaheb used to take four large-sized Miraj tanpuras during public recitals: the reason being, technologies of amplification were not as advanced; the sound of the tanpura was required to reach the audience without amplification ... Take the example of the tanpura offered in the 'iTablaPro' app. How beautiful it speaks!⁵⁴ For the acoustic tanpura, if the tanpura player is not experienced, not someone who regularly sings playing the tanpura, it will be of no benefit. Does that mean declining standards? Absolutely not. Now, technologies have become very advanced, and the idea of sound design has changed.⁵⁵

The visual capital of the *tumbā* is undeniable. Given the polarity of musicians' opinions in Hindustani music culture, it is difficult to judge if it outweighs its musical capital. Judging from the responses I have received, the *tumbā* does play a very important role in sound production, at least in unamplified settings. These days, the reservation about the Kolkata 'gents' tanpura that professional musicians hold is its apparent decline in

51. Arjun Appadurai, *The Social Life of Things* (Cambridge: Cambridge University Press, 1986).

52. David Graeber, *Toward an Anthropological Theory of Value: The False Coin of Our Own Dreams* (New York: Palgrave, 2001).

53. Kaahon, 'Pandit M. Venkatesh Kumar | Indian Classical Music | Miraj Tanpura', uploaded March 16, 2016, YouTube video, 4:22, accessed September 25, 2021, https://www.youtube.com/watch?v=Jvt3BNoQ5wE&ab_channel=Kaahon.

54. In Bengali, musicians often attribute a human quality to the sound emitting from the tanpura, using the word 'bola', literally meaning to speak.

55. Online conversation with Chiranjeeb Chakraborty, May 28, 2021. Translation from Bangla mine.

sonority and volume, something that is directly attributable to the smaller *tumbās* that they come with. The increasing rarity of the *boro lāu* has seen a decrease in the overall dimensions of the ‘gents’ tanpura—thereby transforming its iconicity—but more importantly, the reception of its sound quality.

Declining availability of deer horn for constructing tanpura bridges

On the way back to Kolkata from Ranjapur, Binoy Biswas recalled the days when his father Bimal Biswas used to buy deer horns in bulk and personally carve out bridges for tanpuras and sitars:

I remember very vividly that our workshop had piles of deer horns. After the government restriction,⁵⁶ deer horn is rare to source. Instrument makers used ivory before deer horn. These days, I work mostly with buffalo horn, and sometimes camel bone. Plastic bridges are used in the wholesale market. I do not like the ones made of celluloid. I have never used them and do not intend to do so in the future.⁵⁷

At his Ranjapur residence, Nitai Hazari showed me his collection of tanpura bridges that have already been carved, ready for fitting. Taking out a camel bone and a deer horn bridge simultaneously, he explained how the deer horn is a ‘finer’ material and much easier to work with. For Hazari, the sound quality of a tanpura fitted with a deer horn bridge is much more ‘resonant’ and ‘brighter’ than ones made of camel bone. Hazari said:

I have still got a few deer horn bridges, mostly as gifts from people who had them fitted to their old, unused instruments. It is only the ustads⁵⁸ who can understand the difference in the sound quality, and it is for them that I reserve these.⁵⁹

The five luthiers whom I interviewed—namely Biswas, Hazari, Ganesh Ray, Aurobindo Roy and Amit Mondal—seem to have a common viewpoint on the deer horn bridge. All of them suggested that deer horn yielded ‘richer’ overtones. In my experience of singing with tanpuras fitted with deer horn, camel bone and celluloid bridges, the deer horn accentuates the *śrutis*⁶⁰ more; camel bone goes close but not quite. Celluloid bridges, subjectively speaking, yield a more ‘damp’ sound quality. For example, on tuning the first string of my tanpura—fitted with a deer horn bridge—to the lower fifth degree, I have perceived overtones of the second degree emanating from the first string. In contrast, I never managed to locate these frequencies while playing the tanpura that came with a celluloid bridge.⁶¹ While Biswas, Amit Mondal and

56. Antlers of the *barasingha* (*Rucervus duvaucelli*), a deer species found in the Indian subcontinent, have been traditionally used to make bridges for musical instruments. The *barasingha* has been protected under India’s Wildlife Protection Act, 1972. In 1998, collection of even shed antlers was banned in India. Very few instrument makers use antlers presently. Deer horn bridges from old instruments are often salvaged and upscaled to be fitted to new instruments. Deer horn sourced before 1972 can be legally owned. The handful of luthiers still working with this material suggest using this juridical licence. According to India’s Export Policy, 2012, even shavings of shed deer antler continue to be banned.

57. Interview with Binoy Biswas, Kolkata, West Bengal, India, May 19, 2022. Translation from Bangla mine.

58. Ustad is an Urdu word, which means an expert, especially an expert musician.

59. Interview with Nitai Hazari, Ranjapur, West Bengal, India, May 19, 2022. Translation from Bangla mine.

60. Literally meaning ‘what is heard’ in Sanskrit, *śruti* refers to the smallest measure of frequency that the human ear can detect.

61. A recent empirical study on the acoustical properties of the tanpura has shown the structure of bone to be more porous than of deer horn. Whether these results can explain the attributed superiority of deer horn vis-à-vis

Aurobindo Roy work with camel bone, Ganesh Ray is unsatisfied with materials like bone and plastic. Talking about bridges made of deer horn, he recalled an experience he once had at Singara Singh's shop in Lucknow:

I was observing a fellow instrument maker trying to achieve the sound that a guru was looking for. A senior musician had come to the shop complaining that he could not hear the frequency of the third degree from the *kharaj* string. Despite multiple efforts, the craftsman failed and I was requested to do the job. I replaced the string with a thicker one and re-sanded the bridge. Finally, an overtone of the third degree could be heard coming out from the *kharaj*. These things are not at all possible with newer materials like bone and plastic that instrument makers use these days. Of course, special skills are needed to work on the bridge. However, even the best instrument makers are not able to achieve that sound from bone and plastic bridges.⁶²

Not just senior musicians in the tanpura market show a clear preference for deer horn, those in the sitar market also do so. In a YouTube video, sitarist Anoushka Shankar is seen explaining to members of the Orpheus Chamber Orchestra that plastic bridges are not as 'interesting' as the ones made of deer horn.⁶³ The increasing unavailability of deer horn has altered the sound quality of the tanpuras crafted in the Kolkata-centred industry, at least so far as the subjective perception of the interviewed luthiers is concerned. This is especially true for the tanpuras sold in Kolkata's wholesale musical instrument market concentrated around the Lal Bazar area. Crafting non-customised instruments, most of the manufacturers are unable to afford the premium that scarce materials like deer horn demand. Paucity of deer horn has increasingly hierarchised the 'interesting' and 'richer' sound of the Kolkata tanpura, making it only accessible to senior musicians or students recommended by them.

Newer materials, especially plastic, for the tanpura bridge has provoked the ire of purists, which include both musicians and instrument makers. Ethnomusicologist Keisuke Yamada has written about the use of cat and dog skins in the making of *shamisens*. In his article focusing on the efforts led by members of the Society for the Preservation of the Sound of Traditional Japanese Musical Instruments for the Next Generation, Yamada applies the concept of 'horizon', as formulated by anthropologist Adriana Petryna in the context of climate change.⁶⁴ According to Petryna, horizoning offers a way of identifying risks that might threaten the survival of ecosystems, and further stabilising them.⁶⁵ Yamada's implementation of horizoning can also be extended to the tanpura ecology, especially to the human actors who are trying to create sustainable futures by working with novel synthetic materials—for example, luthiers working with plastic bridges—while in a state of uncertainty over the imminent extinction of the peculiarity of the sonic properties associated with deer horn. However, these

bone and plastic would require collaborative efforts: see Asoke Kumar Dutta et al., *Acoustical Analysis of the Tanpura* (Singapore: Springer Nature Singapore Pte Ltd, 2019).

62. Interview with Ganesh Chandra Ray, Pashpur, West Bengal, India, May 19, 2022. Translation from Bangla mine.

63. Algosser, 'Anoushka Explains the Sitar', uploaded January 30, 2010, YouTube video, 0:34, accessed May 31, 2022, https://www.youtube.com/watch?v=KyoQj4knz3g&ab_channel=algosser.

64. Keisuke Yamada, 'Shamisen Skin on the Verge of Extinction: Musical Sustainability and Non-Scalability of Cultural Loss', *Ethnomusicology Forum* 26, no. 3 (2017): 373–96, <https://doi.org/10.1080/17411912.2018.1423575>.

65. Adriana Petryna, 'What Is a Horizon? Navigating Thresholds in Climate Change Uncertainty', in *Modes of Uncertainty: Anthropological Cases*, ed. Limor Samimian-Darash and Paul Rabinow (Chicago, IL: The University of Chicago Press, 2015): 147–64; 150.

horizoning efforts to promote what Jane Bennett phrases as ‘greener forms of human culture and more attentive encounters between people-materialities and thing-materialities’ are not without disjunctures.⁶⁶ While there are veteran luthiers like Ganesh Ray who see using bone or synthetic materials as contaminating sound, a majority of the luthiers and musicians are devising innovative ways to balance contemporary ethical norms with traditional cultural practices.

Recent unavailability of a special cotton thread for the *juāri*

The ‘buzzing’ sound quality of the tanpura is referred to as the *juāri*. After the bridge of the tanpura is polished, strands of cotton thread are inserted between the strings and the surface of the bridge. The action of making fine adjustments on the bridge is called ‘*juāri korā*’ in Bengali, literally meaning, ‘to do the *juāri*’. The position of the filaments of cotton threads are adjusted to achieve the extra resonance. Cotton threads are referred to as the *jīva*, as mentioned before. In Hindi, *jīva* means life, which hints at the lifelike sound quality which the adjusted threads add. Most of the premium tanpura makers in Kolkata use fine cotton threads for the *juāri*. Tanpuras with deer horn bridges especially require fine cotton threads for the *juāri*. Using thicker threads erodes the evenness of such bridges, resulting in a quick decline in the sound quality of the instruments. Eight years back, when I graduated to a Sur-o-Jhankar tanpura, I was surprised to see cotton threads. Till then, I had been practising on a tanpura purchased from the wholesale market in Lal Bazar. The Lal Bazar tanpura had a plastic bridge and came with much thicker yellow nylon threads; these nylon threads are generally used for manufacturing fishing nets. Given my naïve understanding of the tanpura back then, I was keen to see the result of replacing cotton threads with the nylon variety. On taking my new tanpura to Biswas, I received a stern reprimand from him. He demonstrated that the coarser and thicker nylon thread was yielding a jarring sound. Biswas said, ‘*Āoāj tā phete jācche* (the sound is cracking)’. What he meant by the ‘cracking’ of the sound was that the subtle harmonic overtones were no longer distinguishable. As a result, the *juāri* had to be done all over again.

Traditional luthier houses place significant importance on the seemingly insignificant *jīva*. Aurobindo Roy, proprietor of the acclaimed Naskar brand, recalled his days as a child at his father’s workshop:

I have seen great vocalists like A.T. Kanan visit my father’s workshop.... Prasun Banerjee would often visit and hold lengthy discussions with my father... not only vocalists but also instrumentalists like V.G. Jog. Each one of them would come with one’s own preferences, and ideas about sound.... The great Bade Ghulam Ali Khan was very fond of my father’s *juāri* skills. My father would use an extra fine cotton thread for the *juāri*. Bade Ghulam Ali always preferred an open sound.⁶⁷

My visits to Binoy Biswas in the last five years have entailed a discussion on the *jīva*. He has been complaining about the lack of availability of a particular brand of size 80 cotton threads. In September 2017, I went for the revamping of the *juāri* of my tanpura. After making all the adjustments to the bridge, neither Biswas nor I were yet fully

66. Jane Bennett, *Vibrant Matter: A Political Ecology of Things* (Durham, NC: Duke University Press, 2010): x.

67. Telephone interview with Aurobindo Roy, June 29, 2021. Translation from Bangla mine.

satisfied with the end result. Biswas attributed the difference in sound quality to the new brand of size 80 cotton threads that he was compelled to use. Luckily, he had already wrapped a few reels of his preferred thread around one of the tuning pegs. Replacing the new brand with the old brought back the sound quality that we sought. During my most recent conversation with Biswas, I asked him in more detail about the cotton thread. According to Biswas:

For a very long time, I had been using size 80 cotton threads of the Ameto brand. However, they have disappeared from the market in the last couple of years. I still use size 80 cotton threads but the local brands are not as good. They are thinner than what I want. As a result, I am getting a *khyānkhyāne* sound.⁶⁸

Khyānkhyāne is a loaded word in this context. It hints at a sound that is shrill and less bass, antithetical to the sonorous, *gomgome* sound. Although challenging to hold the complete essence of the word in English, *khyānkhyāne* also means a sound that is less even and balanced. In the same breadth of conversation, Biswas further said, ‘Perhaps this is a blessing in disguise. Nowadays, I have to work harder on the *juāri* to get the desired result’. Hazari also spoke about the same problem. More luthiers need to be interviewed to ascertain whether this is a widespread concern. However, it seems not as commonly reported as the scarcity of the *boro lāu* or deer horn. Biswas opined, ‘While some musicians notice the difference in sound quality, some do not. It is ultimately dependent on the individual musicians’.

Conclusion

The tanpura arguably has a primary place in the complex world of Hindustani music production. The making of tanpuras, like that of other musical instruments, involves a vast network of actors. The life-worlds of the farmers and luthiers involved in the tanpura industry are no less complicated. Based on ethnographic evidence, this piece argues that musical sound is shaped by networks that go much deeper than that of instrument makers—in this case, farmers. Phenomena like unexpected winter rains, cross-breeding of gourd seeds, and decreasing availability of deer horn—to name a few from the ones discussed above—have brought about transformations in the acoustical and visual reception of the tanpuras crafted in Kolkata.

Responding to an industry in flux, my farmer and luthier interlocutors are researching newer models to collaborate with each other. For example, Binoy Biswas shared his plans of co-leasing land with Hazari to grow gourds specifically for his firm. This would perhaps increase the chances of *boro lāu* production, as Biswas would have more autonomy in the farming process and be able to take more care of individual gourd fruits so that they can grow better. Alokesh Ray has been contemplating going back to using more natural fertilisers, which is expected to give better yields, besides simultaneously preserving soil productivity. There seems to be increasing attention to combining the best of both worlds—local knowledge and modern science. This article raises more questions than it answers. Though I do not claim to have looked into every

68. Interview with Binoy Biswas, Kolkata, West Bengal, India, June 7, 2022. Translation from Bangla mine.

nook and cranny of the Kolkata tanpura ecology, I do hope to have initiated a much-needed conversation on Hindustani classical music from a very fundamental level.

Acknowledgements

I thank *South Asia's* anonymous reviewers for their incisive criticisms, and the editors of this special issue, Dr. Priyanka Basu and Dr. Radha Kapuria, for offering very useful advice and comments at all stages of writing this article. This research would not have been possible without the unwavering cooperation of all my interlocutors. Thanks are due to Professor Martin Clayton, Professor Laura Leante, Thomas Graves, Sara Salloum, Prabhat Rao and Kaustuv Kanti Ganguli for their valuable feedback and encouragement. Discussions with Moushumi Bhowmik regarding conducting fieldwork in general have been particularly inspiring. As goes without saying, all responsibility is mine.

Disclosure statement

No potential conflict of interest was reported by the author(s).