



LIVE SOUND REINFORCEMENT IN GHANAIAN POPULAR MUSIC SCENE (1940s–1950s)

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ABSTRACT: *Live sound reinforcement has always been associated with popular music performances. However, the type of live sound reinforcement strategies and techniques employed at any given time depends on the technology available to practitioners. The 1940s–1950s represents the emergence and development of highlife big-bands and a social change in the then Gold Coast, where people were becoming economically sound to enjoy evening outings. This phenomenon, however, presented live entertainers with a new challenge of reaching more audiences with their performances. This paper looks at the live sound reinforcement strategies employed by Ghanaian highlife big-bands of the 1940s–1950s and how the available technology enhanced their performances. Using documentary search and interviews for data collection, we draw attention to the ‘Vortexion Amplifier’ and its influences on the live sound reinforcement practices and live performance in Ghana. Subsequently, we conclude that the live sound strategies in an era mirror the performance practices and their direct influences on the performers.*

KEYWORDS: Highlife big-bands, performance practices, sound reinforcement, technology, vortexion amplifier



INTRODUCTION

The history of people trying to amplify sound from source has been in existence since the early 4th century BC (Bellis, 2020; Cox et al., 2020). In its earliest times, masks were created with special mouth openings to increase the volume of a voice in an amphitheatre (Schwertly, 2014). In the Greek theatre of the 4th and 5th-century, masks were specially designed to amplify the actors' voices (Vovolis, 2011). Moreover, amplification was achieved through using architectural design. Architects used to design auditoriums so that voices would be echoed. The theatre of Epidaurus, which dates back to the 4th century BC, is an example. With this design, speeches made in such auditoriums echoed to seem amplified. Eventually, live sound reinforcement emerged with the development of the public address systems (PA). A *public address system* is an amplification system used to reinforce a sound source and distribute it through a venue or building (Coules, 2014). The public address system is the simplest form of live sound reinforcement and forms the basis of any live sound reinforcement. Coules (2014) outlined three primary functions of the public address system:

- A device for capturing sound vibrations and converting them into an electrical signal.
- A device for increasing and controlling the electrical signal or the power that comes into the speakers.
- A device for converting the electrical signal back into vibrations and propagating the source's sound.

The basic components of the public address system are the microphone, an amplifier, and a loudspeaker. The drive to reach more people with the source of sound led manufacturers to research how to improve the wattage of the amplifier so that the sound produced on stage can reach more audiences. However, this was not an easy task because of the background of most of the manufacturers. In addition, the backgrounds were affected and influenced by aspects of religion, the taste of music genres such as jazz and country music (Burnett, 2009).

Over time and the emergence of other forms of popular music, concert-goers and event centres grew. As a result, performers were challenged to reach more audiences at outdoor and indoor events. In Ghana, for instance, the 1940s–1950s represents the development of highlife big-bands¹ and also a social change in the then Gold Coast. Within this period, people were becoming economically sound to enjoy evening outings. This phenomenon, however, presented live entertainers with a new challenge of reaching more audiences with their performances. The demand for performers to enhance their sound and reach wider audiences with their performances, according to Burnett (2009), led to the invention of sound equipment such as PA systems (speakers, amplifiers) to mitigate the above challenge. One of these inventions was the *Vortexion Amplifier CP20*, which became very popular in the Gold Coast/Ghana. This amplifier became a game-changer for the highlife big-bands. Although the Vortexion amplifier was not meant for bands, the highlife bands of the 1940s–1950s were able to adopt this amplifier to meet their needs of reaching more audiences. This study looks at the live sound reinforcement strategies employed by Ghanaian highlife big-bands of the 1940s–1950s and how the available technology enhanced their performances.

¹ One of the distinct highlife bands in Ghana, fashioned after the post-World War II swing bands with prominent horns section.



LITERATURE REVIEW

Live Sound Reinforcement (SR) or Public Address System (PA)

The quest to enhance live sound production in the music industry has led to some form of debate among practitioners regarding the difference between live sound reinforcement and public address systems. Davis & Jones (1988, p. 4) defined live sound reinforcement as *the combination of microphones, signal processors, amplifiers, loudspeakers that make live or pre-recorded sounds louder and also distribute those sounds to a large or more distant audience*. Boyce (2014) also contended that live sound reinforcement primarily amplifies sound in a live environment, in other words, where a large percentage of the sound source is not pre-recorded, and the environment itself is subject to change during the process of sound reinforcement. The underlining term amplifies a source of sound to a specific audience. The main focus was to amplify the sound source and not enhance the quality by altering the signal chain with effects and other signal enhancing equipment. However, in some instances, a sound reinforcement system enhances the source of sound on the stage instead of simply amplifying the source unaltered. Eargle and Foreman (2002) also supported the above definitions but went further and noted that live sound reinforcement could be complex, including hundreds of microphones, complex audio mixing and signal processing system, tens of thousands of watts of amplifier power and multiple speaker arrays, all monitored by a team of sound engineers and technicians. On the other hand, live sound reinforcement can be as simple as having a microphone connected to an amplifier, which also connects to a speaker. The primary work of live sound reinforcement is to present the sound on stage to the audience in the best possible way.

Industry players differ in using live sound reinforcement (SR) and public address system (PA) as terms. While some use these terms interchangeably, others are very conservative in using these terms. (Elliot, 2009) used the terms interchangeably and actually recommended that the terms can be interchanged. Elliot further postulated that the primary function of sound reinforcement is to reach audiences with the sound source, whether it be a live performance from a band or just public speaking. However, we argue that the two terms should not be interchanged since sound reinforcement deals with live performers and the public address system deals with speeches. Borgerson (2003) supported this assertion that audio professionals prefer sound reinforcement (SR) to live events performance and public address (PA) system for the production of speeches and recorded music in buildings and institutions. Public address systems usually consist of a distribution of microphones, amplifiers and loudspeakers. It is used purposely to address a large public gathering, such as announcements in large auditoriums, seminar presentations, and lectures. In contrast, live sound reinforcement is primarily for live music performances. In as much as the above arguments about the terms, PA and SR are quite modern, for the purpose and gamut of this study, both terms will mean the same. We want to emphasise that *live sound practices* have always been associated with *live music performances*. It is quite usual for live performance practitioners to deploy sound equipment to aid them to reach their audience. Hence, the two cannot be discussed separately.

Live Performance in Gold Coast/Ghana from the 1920s–1950s

Night performance has been a cultural phenomenon from the earliest time of Ghanaian society. These performances could be dramatised storytelling or music performances for kids or adults at night. However, the emergence of colonisation affected every facet of the life of the Gold Coasters, including nightlife. Collins (1976, p. 64) states:



The Commonwealth and American troops stationed in Ghana introduced swing music. Subsequently, a new generation of smaller dance bands replaced the earlier large ballroom dance orchestras... these bands consisting of trap drums, double bass, guitar, three saxophones, trumpet and trombone played mostly at European clubs and Army camps... [this] stimulated the growth of nightlife: a large number of bars and clubs with a name like the Bazoon Bar, Weekend-in-Kalamazoo, and California, playing jazz and swing records were open.

Plageman (2013) discussed how the growing urban growth of the 1900s to the 1940s bred a new breed of African elites who wanted their own Saturday night entertainment just like Westerners to document the development and performance of highlife music in his book *Highlife Saturday Night*. This desire encouraged the African elites to have their clubs and *wine down* during the weekend. Although this craving started earlier, by the mid-1920s, they had centred their Saturday nights around the dance hall. This private recreational event featured elaborate dress, coupled male-female dancing, strict standards of etiquette, and a distinct form of popular music known as *highlife*. Like the other music of the period, highlife garnered considerable interest among the many struggling to stake claim over the Gold Coast. By the 1930s, highlife had a virtual monopoly on urban areas (Collins, 2018; Plageman, 2013). As the number of educated African Gold Coasters increased and patronised the highlife genre on Saturday nights, the bands also needed amplification to reach the ever-increasing audience attending these events.

While the highlife big-bands appeal to the elites in the urban areas, it is worth noting that the guitar bands² appeal to the rural folks (Coffie, 2012). The highlife big-bands had a standard repertoire (such as foxtrots, quicksteps, waltz, rumba, ragtime and highlife), which fits directly into the lifestyle and music taste of the elites (Collins, 2016). These repertoires were designed due to dances practised during the years under discussion. Therefore, the dances were very distinct, and people who wanted to dance to a particular genre must know the dance that goes with it. This phenomenon encouraged more people who wanted to enjoy Saturday night outings and enjoy the big-bands perform live to conform to the Western culture. Subsequently, the Saturday nightclubbing became a sign of affluence if one could attend. The culture of belonging to the elites became important that dance schools were established to teach people how to dance these genres of music (Collins, 2007; Plageman, 2013).

Studies in Ghanaian Popular Music

Ghanaian popular music is gradually gaining attention in academia. In like manner, highlife music, Ghana's popular dance music, is perhaps the most frequently researched topic of Ghanaian popular music scholarship. Recent studies in Ghanaian popular music have attempted to investigate the contribution of individual musical instruments to the soundscape of highlife music (Acquah et al., 2021; Aidoo, 2014; Braddock, 2020; Coffie, 2020b; Collins, 2006; Yamson, 2016). According to Acquah et al. (2021), the contribution of the keyboard to the soundscape of popular music forms cannot be overemphasised. They further informed that the keyboard was not a prominent feature at the infantile stages of highlife. However, its prominence in the subsequent development of highlife enhanced the soundscape of the music. In the same vein, Coffie (2020b) and Yamson (2016) proposed highlife guitar styles as a defining feature to resolve the quagmire associated with the sonic representation of the music. In contrast to the above studies, others, too, have focused on highlife bands' compositions and performance practices (Coffie, 2020a; Collins, 2016; Kudonu et al., 2021; Marfo, 2016). These studies, however, do not pay attention to the live sound practices that influence the overall sound output of the individual instruments and the band in a performance context.

² One of the distinct highlife bands in Ghana, dominated by guitars.



Notwithstanding, Owusu-Poku (2021), in his seminal work, examined the highlife soundscape of the 1970s about the technological approaches to producing highlife songs in the recording studio. He also found that the specialised techniques and tools used in the recordings were socio-culturally influenced and designed to harmonise with the Ghanaian identity of the time. However, Owusu-Poku, despite his interest in the sonic aspect of highlife music, focused on the studio recordings, probably because he is an audio recording engineer. Cesar & Pessanha (2022, p. 2) also averred that *the technologies that emerged and developed throughout the 20th century have decisively transformed musical creation, especially concerning musical practice that somehow uses technological support*.

We want to emphasise that studies in highlife music span various topics, such as analytical study, social history, biographical study, composition & arranging, and bands (Acquah et al., 2021; Amenyo, 2010; Ampomah, 2013; Braddock, 2020; Coffie, 2012, 2019, 2020b, 2020a; Coffie et al., 2020; Collins, 1977, 2005, 2018; Fiagbedzi, 2010; Kudonu, 2012; Kudonu et al., 2021; Marfo, 2016; Otchere & Dordzro, 2020; Sowah, 2017; Webb, 2011; Yamson, 2016). As much as the above studies have broadened the scholarship of highlife music and Ghanaian popular music in general, literature on live sound practices of highlife performance over the years is still a desideratum in Ghanaian popular music scholarship. On this background, we look at the live sound reinforcement strategies employed by Ghanaian highlife big-bands of the 1940s–1950s and how the available technology enhanced and shaped their performances to fill the above lacuna.

METHOD

The authors of this article are music educators and highlife practitioners (sound engineers, composers and performers). This study extracts more extensive work on the *Live Performance Sound in Ghana*. In approaching this study, we employed a historical research design. According to Kerlinger (1972), historical research is a critical investigation of past events, development, and experiences, carefully considering past testimonies from information sources validity and subsequent interpretation of the concerned testimonies. Thus, documentary search and interviews were used for data collection to understand and situate the topic under discussion within a proper context. This method was also to trace the historical antecedent to live sound in Ghana.

Highlife practitioners such as performers and sound engineers were sampled purposively for a face-to-face interview to investigate the live sound reinforcement strategies employed by highlife big-bands of the 1940s–1950s. The highlife practitioners were purposively sampled because they are among the few surviving big-band highlife practitioners of the period under discussion. Furthermore, they are of advanced age; therefore, we risk losing all the knowledge on live sound reinforcement strategies under the investigation period, should they pass away. Finally, it is worth noting that prior to independence in 1957, Ghana was known as the Gold Coast; hence, Gold Coast was sometimes used in this study to reflect the period.

FINDINGS AND DISCUSSION

The 1940s–1950s represents the development of big-bands and also a social change in the then Gold Coast, where people were becoming economically sound to enjoy evening outings. This culture, however, continued after the Westerners had left after independence. The middle-class then became the primary clientele of the big-band highlife practitioners. As people were able to get more decent jobs, which also enhanced their economic and financial status, more of the middle-class people now had the means to afford and patronise Saturday night entertainment



venues. This development, however, presented live entertainers with a new challenge of reaching more audiences with their performances. The surge in attendance meant that the highlife big-bands that performed at these venues had to devise means to reach their audience from the stage. In their search for amplification, bands settled on the *Vortexion Amplifier CP20*. The Vortexion amplifier, manufactured in Britain, became the *game-changer* for performers of the 1940s–1950s in mitigating the above challenge. According to David Joe Mallet, a technician around the 1950s, the amplifier was ironically brought to the Gold Coast by *Compagnie Francaise de l’Afrique Occidentale* (CFAO), a French company in the Gold Coast. CFAO was also the sole distributor in the country.

The Vortexion Amplifier CP20, manufactured in 1937, became an instant hit for public speaking and bands in Ghana. This amplifier, which could operate from the mains or off a 12V battery and draw some six Amperes with a total output of 15W, became the new trend in sound reinforcement of the 1940s–1950s bands in Ghana. It is also worth noting that the amplifier was not built purposely for band use. However, it became a *big deal* for bands in the then Gold Coast. Ralf Quist, a veteran guitarist and sound technician, recounts: *I remember as a small boy in the late 1940s, the Vortexion amplifier was very popular in the Gold Coast*. This view was corroborated by Slim Bright, a veteran highlife big-band bass player. He states: *when I started playing as a young boy in Koforidua around the 1940s, the only amplifier we used was the Vortexion amplifier which has, I think, only two inputs*. Francis Kwakye, a veteran highlife recording engineer from the 1970s, similarly states that: *the Vortexion amplifier was very popular in Ghana when I started*. Osei Tutu, a veteran highlife trumpeter, also concurred that: *when I joined E.T. Mensah’s Tempos Band in the 1950s, we used the Vortexion amplifier for all our performances*.

The Vortexion amplifier aided musicians to reach more audiences and transformed the live performance scene for the years to come. With the use of the amplifier, the voice and the other instruments that were not loud enough acoustically were amplified to meet the needs of the ever-growing audience. How the Vortexion amplifier emerged in the then Gold Coast and its popularity is unknown. However, being a British manufactured amplifier, it may be considered a colonial heritage. Nevertheless, the amplifier and its adjoining speakers transformed the live performance space in the Gold Coast. With this setup, the bands could also be engaged anywhere since they could amplify their voices to reach more audiences. According to Slim Bright:

The setup was straightforward. It comprised just an amplifier and a pair of speakers placed at the left and right sides of the band. The amplifier usually had one input, so we gave one microphone to the singer and the entire band.

This kind of live performance setup was popular among the highlife big-bands in the 1940s–1950s. Its relatively simple setup aided the bands to tour the country since they could now reach out to many people. Throwing more light on the Vortexion amplifier, Slim Bright states:

The amplifier was so durable and portable that we took it anywhere we went to play. Furthermore, it was straightforward setting it up with the speakers...I remember it fell from our car several times, and we would reassemble it, and it would be working.

The durability of the amplifier stems from the way it was built, as David Mallet narrates:

The amplifier came with a hard body cover. It was in something like a flight case, which could be removed, worked on, and returned into the case. The case was designed to protect the tubes in the amplifier.



The amplifier's durability became the focal point for bands to rally behind it, considering the conditions in the country at the time, such as bad roads. The amplifier also did not quickly develop faults, making it reliable to the bands. One of the qualities that made the amplifier the favourite of most bands was the availability of parts (components), as David Mallet narrates:

The amplifier was very popular with performers because its parts were available through CFAO, the leading distributor. Unfortunately, the amplifier comprises tubes, and sometimes a tube may crack due to a fall, leading to malfunction. Nevertheless, we bought and replaced the cracked tube, and the amplifier would be ready for the next gig (engagement).

According to Osei Tutu, other amplifiers include Philips, Sony and Grampian. These amplifiers, notwithstanding, performers and musicians might have preferred the Vortexion amplifier due to the above qualities. Furthermore, the amplifier could also be powered by a 12-volt battery, which meant that public performances could be staged at places where there was no electricity. These qualities also allowed the highlife big-bands to tour other remote parts of the country, where there was no electricity, rather than only performing in the urban areas. Consequently, live performers could go to more places, and the populace had more access to the bands. Also, with this amplifier and setup, performances could be indoor or outdoor. Although the Vortexion amplifier was the mainstay of the bands, its usage was not only limited to the bands but also extended to any institution that needed any form of live sound reinforcement, as Mallet puts it:

The amplifier was so popular among churches, bands, clubs and anyone who needed live sound reinforcement, including the government. The funny part was it was costly then. In the late 1940s, I remember it was around 20 pounds, which was very expensive then, but it was a *hot cake* that everybody needed. This high demand created shortages to the extent that it was out of stock for three months.

The craze for the amplifier reflects how active and vibrant the live performance scene was in the Gold Coast, and the activeness spurred the formation of bands all over Ghana, which translated into higher demand for the amplifier. This new development of the live performance scene also introduced the economy of music-making in Gold Coast to the electronic world, which signified a significant change in live performance. One interesting thing about the amplifier was that it had no equalisation, as Osei Tutu informs:

There was no equalisation on this amplifier. It only had the volume controls... hence, the bands had to be unique by their tone quality, which separated one band from the other. Each band had a unique tone, and although the microphone was picking the band as a whole, we did not have any issues with Equalisation. The quality of the tone of the players was enough.

Mixing and balancing were achieved through proper tuning and arrangement of the band in proximity to the microphone. The ability of the bands to develop their tone quality without depending on the amplifier helped them practise and become unique. This phenomenon further demonstrates that the live sound reinforcement used in the early formation of bands in Ghana was only for the band's projection rather than enhancing the tone quality. Therefore, we posit that the background instruments' quality and the band's tone directly influence the overall sound output.



Setup Practices

As already stated, live sound reinforcement practices are associated with performers. The primary objective of live sound reinforcement is to project what is happening on *stage* to the audience, which means that without performance, there will be no need for sound reinforcement. For our discussion, we operationally define *stage* as the sound source. Live sound under the period of discussion was relatively simple. The basic setup was the Vortexion amplifier with the speaker and a microphone. According to David Mallet, the bands used the *reslo* microphone, put in front of the band. The microphone was not designed to take it out of the stand like the present-day microphone. It was fixed and not moveable. This basic setup of the equipment was enough for the band to perform. Slim Bright also informs that: *during a performance, we set our Vortexion amplifier, a member of the band was put in charge, and immediately he makes sure the sound is coming through the speaker, we were good to go.*

The band setup and arrangement depended on the microphone's position since the microphone was picking the entire band (instruments) and voices. It is worth noting that the microphone was for the singer and the entire band. For instance, the lead singer usually comes to the microphone during a performance and then retires (leaves) the microphone after singing. This practice of alternating the microphone between the singer(s) and the band (instruments) continues throughout the performance. The microphone was the only *line-out* channel for both the musical instruments and the human voice.

In an attempt to achieve clarity in the overall sound output, the percussions (such as trap set, congas, bongos, bell and rattle) were always positioned farthest from the microphone, probably because of their relative loudness. However, this positioning minimised *bleeding*³ into the microphone as much as possible. Other background instruments (such as upright bass), which are relatively low in loudness, were put quite close to the microphone to pick the sound and project it a bit. This style also explains why the bands' arrangement on the performance stage was critical to the overall sound output since the microphone picked all the sounds. We also want to emphasise that quite apart from the bands' arrangement on the stage, which places the percussion instruments farthest from the microphone, they were also ensured to play relatively soft to achieve the clarity of sound.

Performing with dynamics is quite a usual practice among Ghanaian highlife bands, which could be traced to the setup style and the type of live sound reinforcement equipment available to the performers around the 1940s–1950s. This performance practice has existed until today. For instance, drummers usually call other instruments to *order* in a performance context when the entire band is beginning to play loud. However, Francis Kwakye, as quoted in Owusu-Poku (2021, p. 256-257), captures it differently:

From my observation as a child to adulthood, I realised that Ghanaians loved the instrumentation of a song as well as the vocals in all performance circles. Musicians occasionally tone down their performance to project a particular phrase in the lyrics of a song for artistic purposes and not to draw back on the overall instrumental performance. You will hear an instrumentalist shout 'down!' to cue in

³ The leakage of one audio source's output into another audio source's input. This can happen onstage, such as a drum or cymbal's sound bleeding into a guitar amp mic, or in the studio, such as the output from a singer's headphones leaking into the vocal mic.



an important message that needs to be heard loud and clear for a moment and not throughout the song. This is all done as part of the totality of music performance in Ghana for aesthetic purposes.

As practising live sound engineers and performers, we observe that the toning down of musicians during *live band* performance has become one of the criteria for assessing a good band among practitioners, pundits, and the audience. For instance, in a performance context, when a band attempts to perform *harshly* and *noisily*, it is also quite usual to hear comments from the audience such as: *is that how to perform live?* Considering the discussion above, one may infer that live band performance is well enjoyed when a band performs with dynamics to the ordinary Ghanaian. However, it is interesting to note that highlife bands of the 1940s–1950s had no dedicated person in charge of sound (sound engineer) due to their simplistic setup practices and limitations. Corroborating the above assertion, highlife practitioners of the 1950s, Slim Bright, Ralf Quist and Osei Tutu, narrated that:

We did not have a sound engineer. We usually had a band member, either an instrumentalist or a singer, set up the sound equipment. The moment the setup is complete and the microphone is working, we are ready to start our gig.

It is quite apparent that the person in charge of the amplifier, in this case, acts as the *sound engineer*. This tradition of the sound engineer being a member of the band (instrumentalist or singer) has continued today. Most live sound engineers in Ghana started as instrumentalists or vocalists. The transition from instrumentalist to sound engineer is usually motivated by the desire to enhance the sound of their respective bands.

The Soundscape of Live Sound Reinforcement in the 1940s–1950s

Owusu-Poku (2021) has documented the sonic imaginations of highlife music recordings in the 1970s. He argued that Ghanaians traditionally favour instruments that produce bass frequencies as leaders in most ensembles. However, in live sound reinforcement, the soundscape at a particular time is dependent on the technology, its availability, and deployment to practitioners of live sound reinforcement. This phenomenon is because live sound reinforcement practices are dependent on the technology at any given period. In the year under discussion, live sound depended on three components; *the microphone, the speakers and the amplifier*. The speaker design, which was the main output of the setup, was built with only mid-range speakers. Although the high-frequency speaker (Tweeter) was incorporated into live sound speakers by the Altec Lansing Group, which introduced the coaxial duplex driver in 1943⁴, this technology had not reached Gold Coast under the period of discussion. According to Mallet:

Our speaker was home built, and as such, it was the 12-inch full-range speaker. Each box usually had only one speaker, and we got the *naked* speaker from the CFAO Company in Accra. So, we did not have the tweeter (highs) and subs like you have now.

⁴ This tweeter had the high frequency and it usually had the frequency range of 2Khz to 20Khz. For more information check: *Lansing Heritage. Loudspeakers by Lansing: First time in History. A Two-Way speaker in Compact Form. (1943 catalog).*



Using only the mid-range in live sound during the period under discussion prevented the audience from enjoying the spectrum of frequencies projected from the stage. Considering the above discussion, we posit that the live sound reinforcement soundscape in the 1940s–1950s was around 300 to 5kHz. Although this frequency range eliminates most frequencies, it was the available technology then. According to Ralf Quist: *as practitioners then, we did not even know these frequency ranges to which you refer. All we wanted was for the people to hear our music, and indeed the audience enjoyed our music and the speakers' sound.*

CONCLUSION

In this study, we have brought the live sound reinforcement strategies and the performance practices of highlife bands in the 1940s–1950s to the fore. The highlife big-bands reached larger audiences due to the available technology. During performances, the output quality, however, was always a challenge. For instance, the microphone projected the vocals; notwithstanding, the other instruments bleed through it, which gave an unplanned line-out through the main horn speaker. Also, the unique arrangement of the band on stage, coupled with the toning down of the other instruments, reduced the bleeding level of the instruments into the microphone, which did not eliminate this phenomenon. We, therefore, conclude that the live sound strategies in an era mirror the performance practices and their direct influences on the performers.

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