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**Revised Article Submission: Special Issue on ‘Foley: Poetics, Politics,
Philosophy’**

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Title: *Navigating ‘feel’: When hands touch sound effects*

Abstract: Holding and moving objects to create a sound effect requires a performer to navigate by *feel*, directing their listening from the solid (dried peas on a drumhead) to the imaginary (sea waves). The illusory properties of sound have long been exploited by sound effects performers for the purposes of Foley, silent cinema and theatre. While sound may provoke the imagination or emotional response of the audience, it also does its affective work on the performer operating the effect. In the moment of practice itself, sound binds to the object being manipulated, blurring the known boundaries of its physical properties. The Foley artist crosses a threshold between the tactility of the material and the dissolved representations of the intangible, as the sound itself feels like it is the material being manipulated. Simple hand actions become a gateway to the imaginary. This article considers the affective experience of creative bodily-guided soundmaking, and how the successful operation of a sound effect requires the performer to deliberately navigate between modes of listening, attuning their movements and engaging with a perceptual space where things, while making sound, are no longer what they seem to be. Focusing on sound effects beyond the screen allows for an exploration of the aesthetic, dramatic and syncretic in real-world experiences of sound and movement.

Introduction

Foley practice incorporates the creation and use of sound effects, where onscreen interactions are sounded by substitute materials - evoking gore and violence by smashing juicy ripe vegetables for example. The sonic and visual weld together in a process of *syncretis*, convincing us that what we see unfolding before us is the source of the sound we hear (Chion 2019:63). Foley sounds are created not just to intensify the visual, but to enhance the dramatic *feel* of a film (Wright 2014: 206). They can convey a range of human emotions through actions like footsteps (Wright 2014: 216, Pauletto 2022: 275). They can activate an embodied experience of inner movement in the listening audience, producing tension and release as we follow the movement of characters or react to sudden sounds (Huvenne 2019: 610). The dramaturgical potential of Foley shows us that sound does not merely index the world of the screen according to its material and spatial properties. As I will argue here, Foley's dissolution of the material causes of sound and its ability to communicate *feel* is not limited to Chion's audiovisual contract. Beyond the screen, sound can also blur material boundaries or change our felt bodily experience. This article explores Foley before it is brought to the microphone to record a take, examining the process of creating and playing an acoustic sound effect. Before Foley becomes an audio recording, *feel* is located within the body of the performer themselves, as they move, listen and respond in the creation of a sound that might be emanating from materials different to those that would naturally cause it. This moment of practice has much to teach us about the aesthetic and dramatic potential of everyday sonic experiences.

The visual elements of film, such as the lighting and props of the *mise-en-scène*, can be traced back to the practice of scenography for theatre. Foley's sound effects technique similarly originates in the illusion and sonic trickery of theatre performance. Before the age of recorded sound, materials and mechanisms were designed to bring the sound of animals, battles or weather events into the theatre space. Sound effects technique evolved through silent cinema, magic lantern shows (Bottomore 1999) and radio (Mott 1990) before finding a home in early sound film as Foley practice (Ament 2009). What sound practitioners knew across these sites of performance, just as Foley artists do today, is that sound is not simply

an index of the material and spatial, but can provoke the imagination or an emotional response (Turnbull 1951: 8). Sound effects were not designed to merely imitate real-world sounds, but aimed to create an *impression* in the audience (Krows 1928: 114). As part of scenographic practice, the aesthetic work of sound effects created atmospheres and moods for theatre performance (Böhme 2018: 24, 125). They were also explicitly designed for their affective qualities, wind creating *shivers* for example (De Nansouty 1909: 41). Like Foley, theatrical sound effects heightened the emotional and affective impact of the drama. Unlike Foley, which is an embodied and often secretive practice unique to each performer (Pauletto 2017), established methods for theatre sound effects have been documented in technical manuals or behind-the-scenes articles, giving us explicit instructions for the construction and operation of certain effects. With an established sound effect method to recreate, what is at stake in an encounter with materials used to imitate familiar sounds can be explored more fully. I will use these historical sources as the basis for this investigation into the theoretical potential of Foley practice.

As with present-day Foley, historical sound effects performers had no standardised notation system, and so would have relied on the development of embodied knowledge in the activation and articulation of sound. Construction and choice of materials tend to take precedence over the movements and actions of the performers in historical sources on sound effects, but we do occasionally get a glimpse of what the performer's own experience might have been of this kind of soundmaking. Frank Napier, an early twentieth century theatre practitioner,¹ suggests that the way to ensure that the desired sound will be produced every time is to develop a feel for it:

The feel of it, transmitted to our brains through the sense of touch seated in the joints, muscles and skin. This feel is retained by what I have called the tactile memory. Let the man rehearse his gunfire [sic], therefore, often enough to impress the correct feel on his tactile memory. (1962: 6)

I want to explore here how playing the sound effect is experienced by the practitioner themselves in an attempt to articulate what this *feel* might consist of, and how this is akin to the dramatic *feel* that we experience when we encounter a sound effect in the audiovisual domain (Wright 2014: 206). Beyond the world of the screen, a sound effect is more than a

sound heard and perhaps recognised. It is also carefully selected materials, repurposed or crafted objects, movements made by the body of the performer - all rehearsed and refined to create a sonic experience. This necessitates connections to be made between scholarship focused on embodied technique, the perceptual experience of making and crafting, and research into the human experience of sound and listening. I will now briefly overview some of those key sources.

In 'What A Body Can Do,' Spatz explores embodied technique as the knowledge that structures practice in acting, dance and bodily practices such as yoga (2015). I use this approach to examine sound effects simply as a site of embodied practice, beyond the concerns of audience reception (2015: 9). The process of refining the sound effect through the choice of materials and calibration of movements creates knowledge, and rehearsing the effect makes particular demands of the practitioner's body and attention. In the case of feel, what a body can do and remember to do is also bound up in sonic memory and aesthetic experience. As I will explore here, we must navigate our way to the correct feel in the process of designing the sound with the right materials, and then use that feel as a guide to movement and listening during play. This embodied technique creates knowledge. To anchor the discussion, I will focus on the rain tray, an early twentieth century design which calls for the swirling of material across a resonant surface to create rain or sea sounds. The rain tray is much like present-day Foley objects, in that its material properties are configurable in different ways, and it is capable of producing more than one sound. My discussion incorporates a prereflective account of my work to recreate and perform with the rain tray. This account is deliberately *situated*, conscious as possible of the influences of my environment and accumulated skills (Merleau-Ponty 2002: 90). I then use this very specific example of a sound effect method in practice to reflect on the broader theoretical potential of the encounter.

The sound effect connects the body's sense of touch and movement to the real-time generation of sound through a material medium. To explore the material and tangible aspects of feel, I utilise Ingold's description of the process of sawing wooden planks to make a bookcase (2006), and Malafouris and Koukouti's (2022) investigation into the craft of pottery. Ingold investigates skilled practice from an anthropological perspective, framing the

creation of a bookcase as a a journey towards a destination (2006: 67). He begins by getting ready, assembling the tools, preparing materials and making measurements (2006: 68). Then he sets out to saw the planks to length, engaging his whole body in the process of balancing and cutting and responding to the wood. I use this framing to structure this article, exploring the creation of the rain tray first as a process of getting ready, and then as a process of playing to make the sound of the sea or the rain. Ingold also highlights feeling in the crafting process, and the experience of rhythmic movement that couples to perception in the act of sawing (2006: 75). This coupling, particularly in the case of the generation of sound, opens up the possibility of experiencing syncretism beyond the world of the screen (Chion 2019:63). Ingold only goes as far as bodily skill building in this encounter with tool use, and the activity has no wider implications. However, I want to keep in mind here that the process of building a bookcase might also be erotically satisfying, just as writing a poem or dancing or examining an idea (Lorde 2019: 26). Enacting bodily skill, particularly in the case of soundmaking, can be a sensory and satisfying experience. Malafouris and Koukouti's study of potters working at a wheel examines how the sense of touch and the material of the clay actively respond to one another as a form is generated (2022:266). I draw on this work to frame the moment of sound generation with the sound effect as a similar process of material engagement, with the body and materials in *temporal alliance* (2022: 274) as the desired sound is produced. Rather than framing embodied technique as determined solely by the physical properties of the world around us, I aim to highlight here that an engagement with materials and their sonic capabilities is also an opportunity to open the capacities of the body, expanding felt bodily experience through affect (Gregg and Seigworth 2010: 2). The feel of sound effects during their operation is both of and beyond the body, as the player negotiates the creation of a recognisable environmental sound with simple materials.

The materials of the sound effect are manipulated to produce sound. To explore the player's own listening experience, I draw on Petitmengin et al.'s (2009) listening framework, which proposes a three-fold structure of listening according to where the attention of the listener is focused. I will argue here that attention, and how it is directed, is critical to the success of the sound effect. In a previous exploration of another sound effect design, the theatre wind machine, I suggested that a sound effect had to somehow work on the player themselves,

and that this involves a strange experience of listening to both the material and immaterial during play (Keenan, 2023). The sound effect summons the presence of a phenomena (e.g., wind or rain) that is not really there. Rather than an audiovisual experience, where a sound produced by a source we cannot see binds to a visual event that we can, playing a sound effect and being the source of its sound presents an incongruity between what is seen and what is heard. The listening experience is not a simple matter of recognising the effect produced. Petitengin et al. describe listening focused on 1) the cause of a sound, such as indexical or everyday listening (Barthes 1985, Gaver 1993a), 2) the qualities of a sound, such as reduced listening (Chion 2012: 51), and 3) *felt sound* which is a more intensely sensory experience (2009: 253). I aim to illustrate the active nature of listening in the process of creative soundmaking, and show how feel can help us deliberately navigate between the thresholds of these modes of listening. I will argue that while feel is encountered in the moment of practice itself (Spatz 2015: 38) as joints, muscles and skin move and respond, its qualities are dependent both on how the materials and objects that produce the sound are assembled and configured, and on the sound effect being played. The rain tray has been deliberately chosen for its ability to produce more than one kind of sound – both the sea and the rain. There is another threshold here between two different but associated sounds, allowing my discussion to speculate on the quality of feel certain sounds might produce, both beyond and within the world of the screen.

Early sound effects, given their narrative and scenic importance in theatre, have largely been considered in terms of their impact upon the listening audience. Foley is similarly considered only in an audiovisual context. By temporarily suspending the audiovisual contract here to examine an experience of moving, listening and adjusting to create a specific sound, I hope to draw out some useful reflections on sound's ability to blur the boundaries of the material in our experience. I am conscious that discussions of Foley practice, and the undeniable skills of its practitioners, can seem to privilege a certain level of auditory and bodily acuity, and may therefore exclude those who do not share this. While I do focus on the use of my hands and the experience of listening here, I am motivated to research the embodied technique of sound effects not simply as a practice of skill acquisition but as a means of exploring how everyday contexts of sound might facilitate affective or even transformative experiences. Generating an environmental sound 'by hand,'

or becoming its source, offers a chance for the player to explore how sound indexes the world in unexpected ways, perhaps experiencing the ecstatic pleasures of expansion and dissolve of boldly boundaries. However, given the diversity of experiences of human embodiment and indeed aurality (Drever and Hugill 2022), there will be other ways to perform sound in order to interface with the imaginary. Sound and vibration impact us daily, and we can encounter an *impression* of the sound of the rain or the sea in our white noise machines, our screen-based devices, or the chaos of dried goods rolling across a kitchen countertop. We can know it, perform it, and be moved by it.

Getting ready

Sound effects were created with purpose-built mechanical objects or by gathering materials together and configuring them for performance. The design of the object itself, and the movement that activated it, were both critical to the quality of the resulting sound and its potential effectiveness. This relationship with objects and making, the measuring and calibration steps that come before the task of soundmaking itself, connect sound effects practice to tool use and crafting (Ingold 2006: 68). The sound of the sea, rain, and even hail were performed in theatres according to similar principles. Handfuls of material, such as pebbles, metal shot, or dried peas, were set in motion. This motion had different qualities depending on the kind of device used. I will outline the techniques used for creating rain and sea sounds here, before focusing on the creation of my own version of the rain tray effect.

As early as the eighteenth century, theatres were constructing large channels or boxes on their walls to allow dried peas to be poured through them (Collison 2008: 44). The rain tray itself, as I will explore further, allowed the material to be activated directly with the hands. The rain drum spun material around inside a rotated barrel-like enclosure, while the rain box was an oblong wooden enclosure tilted up and down much like a see-saw:

The rainbox is just a long, narrow box, like a little coffin, mounted on a stand so that it can be tilted up and down. According to how you tilt it, anything from the noise of a gentle shower to a cloudburst can be produced, and the noise is most convincing.

Also, by letting it down with a rush, and then slowing it suddenly, the sound of breaking waves can be most marvellously imitated. This requires a little skill, however. But what, do you imagine, is hidden within this modest box? It is so ordinary that I hardly like to tell you. It is full of dried peas, and has hundreds of long nails sticking out inside. The noise is made by the peas rattling on the nails.
(Sommerfield 1934: 78)

Playing and listening were a critical part of the selection of materials and the eventual construction of an effect. Sommerfield's account of the rain box illustrates how the pace and the shape of a movement alter the range of the sound it might produce, whether a shower, a cloudburst or a breaking wave. Other examples, such as Moynet's nineteenth century rain box, were said to create pelting rain storms (Baugh and Wilmore 2015: 166).

At the turn of the twentieth century, larger sound effects devices incorporated within theatre buildings were becoming smaller and hand-held, as other sites of performance such as magic lantern shows or silent film began to require sound effects performers. The rain tray method, rather than enclosing materials inside a box or barrel, allows for a more direct activation of their motion with the hands. There are many ways to configure a rain tray to perform different qualities of rain or sea sounds. A wooden box, tray, wire sieve or drumhead was held in two hands and tilted back and forth or rotated with a slow movement. This action rolled and swirled the material in the tray, which is specified as anything from dried peas to lead shot (Logan (1871: 119) and Peterson (1934: 230)). Adjustments to the tray itself, such as studding it with nails (Rose 1928: 42), using a wooden hoop with a paper base (Leverton 1936: 45) or a tray made out of tin (Turnbull 1951: 212), were also made to change the quality of the sound. Practitioners differentiated between the rolling and swirling sounds that might more readily evoke sea sounds, and those individual *tics* or *plinks* that would suggest rain:

The sound of raindrops may be made with some dried peas or buckshot in a common, round, uncovered cheese-box. Dropping the peas or shot into the box, a few at a time, starts the rain; and then, moving the box with a rotary action so that the contents roll around and around, gives the steady downpour. A refinement of this device is to set a number of thin wooden sticks upright in the box that the

whirling missiles may strike them with sharp tics, continuing the suggestion of individual raindrops. (Krows 1928: 121)

Dried peas gently swirled around in the tray made a swishing sound combined with a very satisfactory 'plinking' of peas bouncing off the nails. A heavier rain sound can be achieved by lining the base of the tray with tin and using lead shot or marbles.

(Collison 2008: 45)

Although the rain tray is one method, it encompasses many kinds of materials and potential sounds. The plinking of distinct raindrops gives way to a continuous downpour or the rhythm of a rolling sea wave. Because the bodily action of the player is so important to the sound that is eventually produced, it is possible to play the rain tray badly and not produce a convincing sea or rain effect, no matter the material chosen. This is remarked on in historical sources, when the moniker *Percy Peashaker* was coined to describe a frenetic shaking of dried peas in a box to sound any appearance of water onscreen (Bottomore 2001). To provoke recognition in the audience and deliver the correct *impression*, the player must develop their embodied technique.

I chose to create a drumhead version of the rain tray following an encounter with a mid-twentieth century archival example of a 'surf and rain effect'.² The sound it produced was bright and granular, probably due to the copper drum shell and the tight tunable drumhead, with a loud noisy undertow. From just a few dried peas and beans, its sound is at once both rain *and* the sea - there are detailed plinking sounds to be found as well as the noisier wave effect. It is simply up to the motion of the player to determine the quality of sound to be articulated, and therefore the impression produced. My own rain tray is a commercially available frame drum turned upside down to hold a few handfuls of material.³ This has a slightly looser drumhead than the archival example, and a resonance that will ring out depending on the kind of material being moved inside it. The underside of the drumhead is smooth laminate, allowing various materials to roll and slide easily across it. Like the historical practitioners, I tried different materials inside the frame drum, experimenting with various forms of 'shot,' including plastic airsoft pellets and metal bb gun pellets, in addition to dried chickpeas, wooden beads and other items. I experimented with different actions to activate the materials, all the while asking myself questions like *can my body do this? What*

can I hear? What does this sound like? The quality and amount of material, the activating movement and my ability to keep that movement going all contributed to the resulting sound effect. I played, stopped and adjusted continually to refine the sound.

To produce the sea effect, I settled on the plastic airsoft pellets. They have become my preferred material for this drum as they can produce a fast moving, crashing sound or a slower, gentler wave. Other materials are capable of more rumbling and roaring sea sounds as their weight activates the resonance of the drumhead more readily. The bb pellets move very fast inside the drum because of their heavier weight, and so are harder to shape into the envelope of a wave, with a start, middle and end. The chickpeas create a wonderful crashing and noisy sea sound, but are much louder than the other materials. This makes the noise too continuous, giving less of a sense of a wave building and breaking. I explored different ways of activating the materials, including Napier's own quite complicated setup for a sea sound which sets the drum on the ground at an angle, allowing the player to activate the waves individually by pushing dried peas up alternately with each hand (1962: 57). In the end, holding the frame drum in both hands and tilting it back and forth to move the pellets inside allowed me to articulate different kinds of sea waves. For the rain effect, I settled on a mix of different materials to create a sound with a background (a noisy rushing of heavy rain) and a foreground (individual snapping and plinking). This was a much more complex sound to achieve than that of the comparably rhythmic breaking wave. The frame drum suddenly felt more unwieldy and difficult to position when trying to make a rain sound. I experimented again with different materials and actions. Dropping individual dried butter beans onto the drumhead did not produce enough of a sense of continuous rain (Krows 1928: 121). Continually moving the frame drum back and forth produced more of a wave-like sound (Vincent 1904: 418). To achieve a more continuous rain effect, I settled on a slow rotation of the frame drum to constantly move the material around it (Napier 1962: 53) while also muting the drumhead's resonance with my left hand. The material was a carefully chosen combination of stone and plastic beads to roll quickly and snap loudly against each other, smaller wooden beads that travelled more slowly and quietly, and some light metal snap studs (commonly used in paper crafting) to create a shimmering sound but also obstruct the motion of the various beads.

During the process of playing, listening and adjusting, I found myself reaching for a memory of the sound that I wanted to play as a way to evaluate the quality of each attempt at the sound effect. My recognition of the sound of the sea was much more immediate, and playing that sound effect provoked a feeling of *this is the sea* quite readily. The rain effect was harder to arrive at by comparison, and I found that I did not have a singular rain sound memory to draw on. Rain, by contrast, seemed to be a sound with many permutations. The final rain effect is informed by a memory of rain falling on a particular place in my everyday life - a bicycle bay on my university campus.⁴ The bay is a dodecagon (a twelve-sided shape) of distinct sections, with a layered corrugated plastic roof that is open in the middle. The roof is held up by a steel frame, and the bay is enclosed by wooden slats. When it rains, the plastic and steel create a wonderful plinking sound, while the open air of the roof and slats allow the hiss and shimmer of the rainfall through. It is a good place to stand to listen to the rain.

Making waves and rain

With the sound effects designed and ready to play, I will now explore the process of continually creating sound - producing an impression of the sea or of rain - and how this playing feels in the moment of practice. Depending on how I move the rain tray, it will produce different intensities and durations of sound. By listening as I move, I can learn to make the sound that I want to. This is the sound that most closely resembles what I am trying to imitate, whether the sea or the rain. Malafouris and Koukouti have theorised that the process of making is relational, with both the practitioner and material actively responding to one another to generate form (2022: 266). They explore the attunement, or material engagement, between the potter and their clay as it spins on a wheel (2022: 277). Soundmaking is itself a process of making. The rain tray is the result of its own making process, and once completed it becomes a tool through which the sound is shaped. Playing a sound effect requires the practitioner to continually initiate movement as well as respond to the sound they hear with further movement. The form that results is the impression of an environmental sound, or perhaps the illusion that the usual source of that sound is present.

To play the sea effect, I stand upright and hold the frame drum in front of my body at waist height. My hands are just wider than shoulder width apart when holding it. The frame itself is quite deep for the size of my grasp, and so I can just about manage to hook my thumbs over the top edge when holding it. My fingers reach to grasp the edge of the drumhead underneath, which is rough to the touch. I brace the frame against my belly to start. It feels like I am carrying a large and unwieldy tray. With the bright red plastic airsoft pellets inside, the slightest tilt of the drum will send them sliding in a particular direction. The resulting sound is a complex, noisy and shimmering *shhh* that I recognise as something akin to the susurrations of a sea wave. As the pellets slide across the drumhead, they cluster together against the frame and obstruct each others' movement. To keep them in motion, and keep producing sound, I need to tilt the rain tray forward and aft as well as side to side. This combination of the disruption of the frame, which brings the pellets to rest, and my continual activation of them through movement, produces a rhythmic and tide-like sound. The waves seem to ebb and flow. As with Ingold's example of the sawing motion that does not repeat precisely but instead adjusts according to the needs of the line being cut (2006: 74), I move simply to activate or respond to the sound I hear. There is no sense of my body, tendons or joints precisely calibrating, and I am not sure I could repeat my motion exactly. Similarly, my focus is not really on the precise position of the pellets, although they are my main visual feedback during play. My motion feels continuous overall despite its rhythmic quality. While the frame feels solid under my thumb, and the drumhead vibrates under my fingertips as the pellets slide across it, this tactile feedback seems to recede into the background as I focus more and more on the sound itself. When fully engaged in playing the sound of the sea, I experience a sense of expansiveness. Despite being the cause of the sound, what I hear seems not to be entirely the result of my actions.

To play the rain effect, I stand upright again, but this time place the middle of the upturned frame drum onto my left hand to dampen its resonance a little. My left palm and fingertips spread out across the centre of the drumhead, and my left wrist and arm are also in contact. The frame of the drum rests in the crook of my left arm, and also presses against my chest. I hold the edge of the frame in my right hand. My right thumb hooks over the frame and my fingers contact the drumskin underneath. With the combination of wooden, stone and plastic beads and metal studs inside, I slowly tilt the drum in a circular motion, this time to

progress the material around the edge of the frame. As they roll around the frame, the beads and studs hit against each other as well as the frame itself. The studs themselves cluster together at times or obstruct the motion of the beads a little, making the overall motion of the material uneven and complex. This produces a sparkling plinking sound in addition to a more steady hissing or shimmering, creating a sense of individual raindrops as well as a downpour. As the motion of the material speeds up, the downpour becomes louder and more intense. The movement of the rain tray needs to be steady and consistent, but also somewhat arhythmic, to produce the rain effect, as any audible rhythm starts to make it wave-like. This is why I avoid pushing the material back and forth across the drumhead, and instead aim to rotate it around the frame itself. Occasionally, a bead will break free from the cluster of material and roll across the drumhead like a marble, breaking the effect. As a result, my body strains to articulate the motion. I listen to the rain, but I also listen for waves in an attempt to avoid them. While there is less of a sense of letting go here and experiencing some kind of expansiveness as with the sea sound, there is a sweet spot where I can keep the rain continuing on and on. When I arrive at this point, I am able to settle into a place where the effect no longer seems to be coming directly from my hands, and instead sounds like rain.

The two sound effects offer different experiences. The sea sound, for example, eventually overlays my reality and seems to augment it. The expansiveness I feel during play is not there prior to my use of the rain tray. Nor does it happen immediately upon activating the sound, but is something I find my way to in the process of settling into continually moving, listening and responding. This wayfinding involves overcoming the inertia of the materials used to produce the effect, steering the sound away from the real plastic pellets and towards an illusory sea wave. Once the wave breaks, the effect must be maintained, and my attention is focused on keeping its rhythm going. When I hear the sea effect and recognise it as such, it is something I sense as an atmosphere - the sea is somehow present in the room as sound (Böhme 2018: 23). Although the rain effect is more challenging to start and maintain, I can also navigate towards it as an atmosphere if I engage with the rain tray and its materials in the correct way. But the slightest distraction, such as a rolling bead, breaks my attention and pushes me outside the illusion again. In the configuration of the rain tray and its materials, I rely on my muscles, tendons and joints to sketch out a suitable activating

action for the sound effect. However in the more prolonged process of play, when the sound continues on, my sense of my own body shifts. In the sense of expansiveness, and the presence of sea waves or rain within the room, I engage again with the memories of sounds that helped me design the rain tray in the first place. I use feel to get to the place where the atmosphere is created, and then I use feel to stay in the centre of that place and keep the sound effect going. I continually adjust my movements based on this feel.

Thinging with sound

Having explored the experience of designing and operating the rain tray sound effect, I will now reflect on my account to expand upon established theories of sound, perception and material engagement in order to consider *feel* more thoroughly.

Preparing the rain tray and selecting the 'right' materials for each sound confronts us with the prospect of an environmental sound being caused by a hand-held object. Research into everyday listening experiences has so far focused on sound and cognition, with sound framed as a stimulus that usefully indexes the world around us. We tend to first perceive sounds as events (e.g., a crash) rather than focusing on their acoustical properties (e.g., the pitch or timbre of the crash) (Gaver 1993a: 286). The action that caused a sound (e.g., the collision that caused the crash sound) is in fact much more important to our perception than the material involved (e.g., metal or wood), which we find much harder to determine (Lemaitre and Heller 2012). This ambiguity around material interactions is a clue to the potential efficacy of the rain tray, which seems to produce the sound of the sea from plastic pellets on a resonant plastic surface. The rain tray can also produce the sound of rain however, suggesting that this material ambiguity also exists in the case of environmental sounds. The audible motion, or rhythm, of the rain or the sea may be the primary way we identify these sounds in the real world. If both of these sounds can be produced by the same sound effect design however, they may share some rhythmic characteristics in our perception. Historical sound effects methods for sea and rain sounds were materially linked, with the principle at the heart of both - controlling the motion of granular material - used across different theatres and devices. In my own explorations of this embodied

technique, I have found that where the reliable rhythms of waves or the granular plinking of rain fall away, there exists an in-between space where the sounds of the sea and the rain meet. This is in the continuous hiss or roar of noise, a quality both of these environmental sounds share in particular quantities. Our sonic experiences build up a perceptual lexicon that facilitates their recognition in the future (Adams and Bigand 1993: 6). Sounds are also somehow categorised in our perception, discrete impacts perceived as very distinct from continuous sounds like tearing, for example (Houix et al. 2012). I have already highlighted how the apparently discrete sounds of the rain and the sea have a potential point of convergence, where we may recognise either one or the other when played as a sound effect. This is demonstrated by shifting from the continuous circular motion of the rain effect to a more rhythmic movement of the same material; the granularity of the plinking rain builds to a mass of droplets moving together in a more wave-like manner. Our recognition of particular sounds is not provoked merely by the same sound in the same situation (e.g., the rain hitting the bicycle bay), but also extends to an aesthetic of sound. This is also evidenced in the historical sources I consulted, where an environmental sound like rain is described in a nuanced and specific way, comparing a *shower* to a *cloudburst* for example (Sommerfield 1934:78).).

In their study of listening experiences, Petitmengin et al. suggest that the process of identifying the source of a sound – in other words, directing one’s attention to the physical event that may have caused it – might evoke a specific memory or visual scene (2009: 262). This was clearly the case in my design of the rain sound, where I settled upon a sound that evoked a specific setting and sonic experience from my daily life. By playing and listening, and probing my memory, I worked to design a rain sound of a particularly recognisable quality. I explained that I was aiming for a sound that *most closely resembled* what it was aiming to imitate, suggesting that I was getting to a specific sound through other potential sounds that were deemed insufficient, and therefore discarded. These insufficiencies were not only focused around the prospect of triggering recognition, but also on the qualities of the sound when it was recognisable. For example, I describe *the envelope of the wave* when discussing the sea sound, grouping two distinct listening modes together. The envelope, or development of loudness in time, is a term associated with the features of a sound or its auditory qualities (Petitmengin 2009: 264), something we would discuss when

engaging in reduced listening (Chion 2012: 51). The wave is simply the source of a sound. This sense of having an idea of the kind of sound effect I wanted to create I believe came from this process of listening both to the source of the sound and to the qualities of that source in an integrated way. This helped me to judge the effectiveness of the sonic illusion.

While playing the rain tray however, I am not just listening to a sound effect but I am also producing it as I listen. The sensemaking potential of sound in a sonic interaction is often framed again in terms of an everyday environment that provides reliable sensory stimuli and responds to our manipulations in familiar and expected ways. When moving explicitly to create sound, listening becomes a process of *ergoaudition*, or listening to self-produced sound (Chion 2015: 88). The sonic, tactile and kinaesthetic bind together to create a multisensory experience. Chion theorises that this experience brings *ergoauditory pleasure* (2015: 90). Research in the field of Sonic Interaction Design (SID) has suggested that this multisensory feedback from touch, movement and audition should be tightly connected (Franinović & Serafin 2013: x), and that action and sound should reliably *correspond* or make sense when paired together (Hug 2008: 15). This correspondence is the mechanism by which we recognise that the sound we are producing is the direct result of our movements. There is however something absurd about watching beads and studs swirl around a frame drum in response to my movement, and then hearing a familiar rain sound as the result of that movement. The experience however makes sense to me. This suggests that our capacity for coupling touch and movement to the generation of sound in a way that we understand has potential beyond the directness of a *swipe gesture – swoosh sound* correspondence that we might experience when using a smartphone or a game controller. I recognised a process of learning taking place in listening to the results of my movement of the rain tray. My movements were not the focus of my full attention however, because I was not clear that I could exactly repeat them. I was instead paying attention to the sound. In their exploration of the craft of the potter, Malafouris and Koukouti use the term *thinging* to describe thinking with and through things, such as the clay on the potter's wheel. The potter's hand, when touching clay, is not merely following orders issued by the brain, but is engaged in its own *mindful handling* (2022: 275). My operation of the sound effect is similarly not a matter of conscious planning moment by moment, but rather a holistic experience of holding the rain tray, moving and balancing, feeling the material shift around

inside it, and listening. Like a piano player, I am not consciously aware of each movement I make, just that the movements are taking me to where I want to go (Spatz 2015: 52). As with the coupling of rhythmic movement to perception in the act of sawing (Ingold 2006: 75), there is a fluid experience of attunement with the rain tray as we move together in a *temporal alliance* (Malafouris and Koukouti 2022: 274, 277). Here, the body attunes to a rhythmic movement with a tool (the rain tray), but the focus of that attunement is the generation of sound. What we listen to has the potential to change our own sense of touch or movement (Difranco et al. (1997) and Kang et al. (2021)). Experiencing attunement, the sound of the rain tray blurs my perception of its material qualities, and the resulting sound seems to be a thing that the hand can touch and potentially shape. This experience, and the *ergoauditory pleasure* (Chion 2015: 90) of not only producing but touching sound, welds movement to sound through the medium of the rain tray in a syncretic way (Chion 2019:63). Accessing this state is not guaranteed, however. I also reported that the rain sound was *arhythmic*, and that during play I found I was often listening both for what I was trying to avoid (waves) and for what I was trying to create (rain). The connection between my movements and the resulting sound was more challenging to navigate.

The process of attunement creates the experience of *felt sound*, where listening to a sound changes the experiential texture of a space. Petitmengin et al. describe this as a sensation of relaxing, softening or opening (2009: 273). Attentiveness to the sound is more passive and receptive (2009: 271), akin to the open or *panic listening* described by Barthes (1985: 258). This listening mode gives a sense of bodily disappearance (Petitmengin et al. 2009: 272) and a feeling of inward and outward space becoming *synchronised*, again making the body feel more permeable (2009: 274). Despite being the source of the sound, the sea sound did not always seem to be the result of my own actions with the rain tray. In these moments, I imagined I was listening to the sea itself, or that I was in a different place. The sound of the sea activated a *being-outside-oneself*, unfurling bodily felt space and giving a sense of expansiveness (Böhme 2018: 133). Here, the sea sound effect acted much like music would in a domestic setting, overlaying the real with a co-present acoustic space and shaping the listener's disposition (Böhme 2018: 127). This process is a clue to the efficacy of sound effects in historical theatre, and their ability to create an *impression* (Krows 1928: 114) or atmosphere (Böhme 2018: 24, 125). These expansive qualities suggests that the *vibrating*

openness created by film sound, and particularly elements of Foley (Huvenne 2019: 610) can manifest beyond the world of the screen. Although a single and arguably simple sound, the sea effect is an aesthetic material, as potentially evocative and expansive as something musical. Playing the rain sound was not always an expansive experience by comparison. In his discussion of soundscape and our impulse to achieve unity in sensory integration, Brown reflects on the sea as a *continuity* comprised of overlapping wave sounds (2020: 27). Although both the sea and rain sound effects are produced by granular materials within the rain tray, there is much more unity in the sea sound and it therefore may have been easier for me to attune my movement and listening to it, producing that experience of felt sound more readily. Listening to real-world rain (as in the case of my bicycle bay) may be a similarly expansive experience without the challenge of having to attune my deliberate bodily movement to something I felt was more *arhythmic*. Perhaps this sense of arhythmy was also a reflection of my paying attention to not only the source of the sound (rain), but also its sonic qualities (pace of the plinking), thereby pulling me away from paying attention to it as felt sound.

I have reflected here on the experience of creating the rain tray and using it to play sea and rain effects. The foundation of this embodied sound effects practice is feel. This is not just a sense of how the hands should move or how the body will feel during play as Napier advises (1962: 6), but feel that extends to a deliberate navigation between different modes of listening, drawing on memory and opening up an expansive activation and modulation of felt bodily space. This is what links bodily feel beyond the screen to the dramatic feel of Foley within a film soundtrack (Wright 2014: 206). Maintaining this feel, holding there, is how the sound effect is played. When something happens to disrupt this experience, such as a rolling bead heard above the plinking of rain, I engage again with feel in an effort to return to the authentic effect. I do this by realigning what I hear with my intended sound, drawing on my memory of the rhythmic attunement and expansiveness that occurs when the sound effect is working on me. The ability to engage with the edges of this experience, to deliberately occupy different modes of listening, potentially simultaneously, in order to recentre the sound effect and maintain its desired qualities must be key to how everyday sound acquire dramatic potential through the practice of Foley.

Conclusion

Historical sound effects practice allows for the exploration of soundmaking in a simple form. Specific design instructions for the creation and activation of particular devices offer a glimpse at the embodied technique of present-day Foley, where everyday sounds become not reliable stimuli that index the world, but an aesthetic material capable of engaging the felt body in an expansive experience. My exploration of the practice, and the configuration of the rain tray, has allowed me to expand upon our understanding of how materials and movement create sound, how apparently discrete sounds might converge in our perception, and how environmental sounds might provoke memory or be experienced as aesthetic materials. What we can understand as caused by a bodily movement or gesture can incorporate the aesthetic or the illusory, and indeed what is cultural or dramaturgical may also be part of the feedback loop in the sonic, tactile and kinaesthetic of an interaction. Playing the rain tray has opened up the potential of feel as something that also encompasses the felt body, and highlighted that beyond the audiovisual contract, Foley practice can still exploit the possibility of sound as something which blurs the boundaries of the material world. Sound effects, and the possibility of learning to use them, suggests that bodily felt space is itself a site of memory and experience that can bind to multisensory interaction in its summoning. Bodily felt space can be accessed through the strange experience of playing a sound effect. By means of the rain tray, simple hand actions become a gateway to the imaginary.

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¹ Frank Napier was an actor and stage director, notably at the Old Vic Theatre in London from 1931-1934 He published *Noises Off*, a manual of sound effects practice, in 1936, and another book about the visual side of theatre, *Curtains for Stage Settings*, in 1937.

² This is archived at St Cecilia's Hall Musical Instrument Museum at The University of Edinburgh: <https://collections.ed.ac.uk/mimed/record/15506?highlight=rain+machine>

³ Remo's fiberskyn frame drum: <https://remo.com/products/product/fiberskyn-frame-drum/>

⁴ This is on Heslington East Campus at The University of York.