

From 'My Blue Heaven' to 'Race with the Devil': echo, reverb and (dis)ordered space in early popular music recording

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Abstract

With the dramatically improving fidelity of electric sound recording in the 1920s, aural spatiality – traces of room ambience and reverberation – became a factor in record production. Drawing on prior radio broadcast practice, a split occurred whereby 'fine' orchestral musics were recorded with relatively high levels of ambient or atmospheric sound while dance music, popular songs, humorous recitations and other 'low' forms were generally recorded with little or no reverberation. Through the 1930s and 1940s, popular recording occasionally, though increasingly, made use of mechanically fabricated echo and reverb to present a kind of sonic pictorialism, especially on singing cowboy and popular 'Hawaiian' recordings. Hollywood film sound practice in this period employed similar sonic space-making devices to denote states of terror, mystical revelation and supernatural transformations. The coming of rock 'n' roll in the 1950s, with its characteristic big echo and reverb production sounds, may be seen as the radical recombining of these contradictory antecedents, effected in such a way as to allow (and promote) disordered, non-pictorial sound spatialities.

Introduction

The first wave of rock 'n' roll recordings of the mid- to late 1950s, famously, decisively broke with many prior popular music recording practices. One such break involved what was seen at the time as the extravagant use of echo and reverberation ('reverb') effects. The credit for aestheticising echo and reverb is usually accorded to 'indie' r&b and country producer/engineers. Most notable among these are Leonard Chess at Chess Records and Sam Phillips at Sun records, who between them recorded a significant portion of the first wave of global breakout rock 'n' rollers. At Sun and Chess, echo and reverb effects were applied both to entire combos and selectively to lead voices – vocals, guitars, harps, saxes (where elsewhere the same effects, when used at all, had been almost without fail applied only to 'off-centre' voices). Reverb and echo effects were featured on hit recordings by Little Walter, Elvis Presley, Carl Perkins, Chuck Berry, Jerry Lee Lewis, Bo Diddley, The Flamingoes, Charlie Rich, Johnny Cash, Howlin' Wolf and others.

Chess, Sun and other independents have been the subjects of considerable rock historiography,¹ and the uses of echo and reverb devices in rock and classical music have featured in various musicological, semiotic and historical analyses of music production.² Although Sun and Chess and other indies brought echo and reverb to the

forefront of recording, the effects had been used since the early days of electrical recording, both on the mass market side of the popular mainstream and in the fringe 'race' and 'hillbilly' markets. This article will survey development in the former, in particular, of a tradition of what might be termed 'pictorial' spatialising – reverb and echo effects deployed in combination with certain lyrics to render aural vistas. Although this strand of spatial sound practice developed an increasingly weird, uncanny sub-strand, particularly in the years immediately prior to the coming of rock 'n' roll, it will be argued that it remained – until then – a fundamentally pictorial tradition.

The word 'echo' used in relation to a sound recording usually refers to the presence of one or more slightly delayed repetitions of a discrete source sound – a vocal sound, drumbeat, guitar note, for instance – usually at lower amplitude than the source sound. 'Reverb' usually denotes a generally reverberant-sounding continuation of the source sound – as though the sound has been recorded in a highly resonant acoustic space. The effects may be used separately or together. Reverb may be the result of 'natural' acoustic conditions or may be fabricated with mechanical devices, while echo – or 'delay' – on recordings is usually produced mechanically, by delaying a signal and replaying fractionally after the source sound. Both phenomena are forms of reflected sound. Echo occurs when a sound is reflected in such a way that the source sound is more or less distinctly reproduced, as when a shout 'bounces' off a distant, relatively flat wall, for instance. Echo might be single or multiple, depending on how many times the sound bounces. Reverberation on the other hand occurs when reflections are so many and so close together that no single discontinuous repeat of the source sound is heard, or when the reflective surfaces are too near the listener to allow subjective aural separation between the source and its reflection (as in say, a tiled bathroom).

Reverberation does much to define what we perceive as timbre, volume and sound colouration, and largely determines our perceptions of directionality and nearness.³ As with much of the totality which comprises 'hearing', we are rarely fully conscious of lower amplitude reverberation, however much it may affect our subjective experience of place and space. The relationship between reverberation and the human voice in particular has a complex semiotic history, which far predates the invention of sound recording.⁴

Naturally occurring echo – hearing one's own voice 'emanating' from a chasm or cliff, or hearing footsteps bouncing off a distant wall – remains a deeply intriguing effect: that which is manifestly not the self seems to reproduce the sounds we make, or may even address us with our own voice. Atavistically, the phenomenon suggests that the world is animist: the non-human possesses human characteristics, it 'talks'. Echo suggests at once the possibility of a deep, extended reciprocity between the self and the world, just as it indicates a total imprisonment in selfhood. Not surprisingly, Echo is personified in a number of mythological systems. The ancient Greek myth of Echo and Narcissus in particular enacts the paradoxes of selfhood indicated above. Echo is a beautiful nymph who, as a result of a previous curse, has lost the ability to initiate dialogue – she can only repeat the utterances of others. She falls in love with Narcissus, who rejects her. Heartbroken, she gradually wastes away, her body merging with the rocks and trees. Finally only her voice remains, replying piteously to anyone who might call. Her continuing sonic presence acts as a constant lament for Narcissus's lost opportunity, but also hints at the (slim) possibility of a future reconciliation between the Narcissistic self and the Echoic other.⁵

Always possessed of such a powerful, complex cultural 'charge', it is hardly surprising that the phenomena of echo and reverberation would pose complex technical and aesthetic problems to the emerging technologies of sound recording. Many of these issues remained submerged until the mid-1920s, when two crucial but separate developments in sound recording coincided. The first was the development at Bell Laboratories of a fully electrical recording process. Under the new process, audio input was picked up by condenser microphones (replacing the large fluted horns of the acoustic process), amplified by means of vacuum tubes and recorded using an electromagnetic recording head (Gelatt 1977, p. 220). At the same time, Bell developed a much improved acoustic playback device, which used a nine foot exponential-horn, segmented so as to fit into a domestic phonograph cabinet (*ibid.*, p. 222).

These developments combined to dramatically alter the qualities of recorded sound in three significant ways: gramophone records now played back much louder than before; the recordable frequency range was immediately extended by two and a half octaves, to 100–5,000 Hz (the very best acoustic recordings had never broken the 168–2,000 Hz frequency range); and lastly, recordings became capable of picking up room ambience, of carrying, in other words, significant sonic information about the spaces in which they were made. Of this last point, Gelatt says:

... the 'atmosphere' surrounding music in the concert hall could now be simulated on records. Musicians were no longer forced to work . . . directly before a recording horn but could play in spacious studios with proper reverberation characteristics. (Gelatt 1977, p. 223)

By the time the major recording interests in the US and Britain began to adopt electrical recording methods, radio broadcasting had already been using microphones for some years. In the US, regular live broadcasting of big name dance bands and orchestras had begun as early as 1921 (Sanjek 1988, p. 77). Much of the technical expertise for early electrical phonograph recording then was provided by technicians already schooled in radio broadcasting, who brought with them the methods, aesthetic premises and prejudices of that medium.

By the mid-1920s, engineers had well-established methods of recording and broadcasting small ensembles – sound sources, whether human voices or musical instruments, were recorded on-mic in an acoustically dead studio, with all voices⁶ carefully balanced to create an effect of evenness. As one sound engineer wrote in 1930:

In radio broadcasting it usually is desirable to present all sounds as coming from approximately the same plane – that of the microphone. And so levels are raised and lowered to bring all sounds out at approximately the same volume. (Coffman, quoted in Fischer 1980, p. 199)

Yet another technique, derived from radio drama, involved slightly off-miking to produce the effect of aural depth. Given the narrow pick-up range of early microphones, sounds recorded only slightly off-mic tended to sound in the playback much 'further away' than in fact they were (Handzo 1985, p. 396; Cameron 1980, p. 211).

Whereas pre-electric 'descriptive recordings' such as 'Morning on the Farm' and 'Departure of the Troop Ship'⁷ had used sound effects – such as bird calls, animal noises and the sounding of foghorns – and elaborate verbal cues to construct a kind of pictorial spatiality, with electrical recording a real sense of spatial depth became possible. The sounds coming out of the phonograph had some of the same sensory qualities as real sounds in a real physical space. Small, varying degrees of reverberation 'attached' to separate voices imparted a sense of actual dimensionality,

a sense of life-like roominess in recording. A listener might now apprehend a recording and simultaneously experience a sense of a physical space, other than the actual space in which the playback device was located.

Producers of classical recording were quick to take advantage of the new capability for aural 'largeness'. Electrically made recordings of massed choirs were released – led by Columbia's live recording of a choir of 850 singing 'Adeste Fideles' (1925)⁸ (Gelatt 1977, p. 229). A technical writer at *The Gramophone* wrote:

I brought [the disc] home and put it on my . . . gramophone and the result overwhelmed me; it was just as if the doors of my machine were a window opening on to the great hall in which the concert was held. (*ibid.*, p. 232)

The home listener to a recording of fine music was granted a virtual access to the acoustic regime of the concert hall, an acoustic regime which already had embedded in it highly ordered codes of privilege and exclusion. Apart from these extrinsic political territorialisations, other intrinsic, prior musical spatialities also existed, best typified by the steadily increasing 'pictoriality' in Western orchestral music. In a development which roughly corresponded to the rise of landscape painting, eighteenth-century European composers such as Vivaldi, Handel and Haydn used musical means to denote events (and sites) in nature – the trilling of piccolos and flutes to represent birds, crescendos to denote the storm and so on. 'The descriptive piece of music, [of Handel, Haydn and Vivaldi]', says Schafer, 'turns the walls of the concert hall into windows, exposed to the country' (1980, p. 104).

'Low' popular music, on the other hand, lacked the same 'automatic' territorial rights, and the technicians who made such recordings in the main simply continued to seek the 'dry', 'zero degree' production standard of radio broadcasting. Yet the relatively depthless quality of the popular product also afforded potentials for more intimate listener engagement. The adoption of the radio broadcast 'close-up' aesthetic, in which small groups of singers or instrumental ensembles would use a small dead studio and work close to the microphone provided, according to Read and Welch, 'an effect of intimacy, the orchestra and soloist being transported into the living room, the singer or soloist singing just for you' (Read and Welch 1976, p. 377).

Blue heaven, blue shadows

The emergence of the crooner in the 1920s grew directly from this close-up, flat-plane approach to popular recording. Although perhaps not as well known today as Rudy Vallee or Bing Crosby, Gene Austin was by far the most commercially successful of the 1920s crooners. His 1927 recording of 'My Blue Heaven' sold more than five million copies, making it one of the biggest selling sound recordings of all time (see Whitburn 1994 [unpaginated]; Hardy and Laing 1990, pp. 27–8), and the song would be one of the most enduring standards of the twentieth century. In marked contrast to the vast majority of popular music recording of that time, Austin's 'My Blue Heaven' features distinctive use of reverb.

The song begins with a reverberant, off-microphone cello and piano, gently playing the recitative. The lyrics – sung on-mic and recorded dry – describe a scene:

Day is ending
Birds are wending
Back to the shelter of
Each little nest they love.

Night shades falling
 Love birds calling
 What makes the world go round?
 Nothing but love.

...

When whippoorwill calls and evening is nigh
 I hurry to my blue heaven.
 I turn to the right, a little white light
 Will lead you to my blue heaven.

A smiling face, a fireplace, a cosy room
 A little nest that's nestled where the roses bloom
 Just Molly and me, and baby makes three
 We're happy in my blue heaven.

The reverberant – i.e. seemingly distant, off-mic – cello and piano are in contrast to the close-miked, open-throated voice of the singer. The reverberant instrumental sounds of the recitative first indicate the *fact* of space, then the lyrics explicitly describe the scene. The listener is invited to imagine that the reverberant acoustic qualities heard on the recording pertain to the scene being described (further reinforced by a bird-like, whistled interlude later in the song). Although it is impossible to say with certainty how listeners of the time may have experienced the device, the effect nonetheless 'makes sense' semiotically. The reverb and the lyrics provide 'anchorage' in Barthes' sense; (Barthes 1977) for one another. The unspecified acoustic spatiality represented by the reverberant instrumental recitative is quickly 'fixed' by the lyrics which immediately follow ('Day is ending/birds are wending . . .'). The inferring of spatial depth in the recitative also lends an extra frisson of authority to the close-miked voice of the singer when it appears – the stage has already been set, and now the singer enters, strategically 'located' within the space, seemingly much nearer the listener than any other voice in the recording. Vocalising softly, casually, confidentially, he 'has our ear'; he is privileged as our main informant. This 'proximity' between singer and listener perhaps invites another more subtle participation – the singer is centrally located within the imagined field, and we listeners are in intimate proximity to him. Thus we are implicitly also at or near the epicentre of that notional field.⁹

The key elements here – soft twilight, comforting, reverberant sounds from the putative middle distance to soothe and enchant the narrator, and the inference that this moment has been won only at the end of a hard day's work – became the markers of a mode of pictorial spatiality which was to see many enactments over the subsequent two decades, especially in the *hapa haole* Hawaiian and 'singing cowboy' recording genres. Foy Willing and the Riders of the Purple Sage's recording of 'Blue Shadows on the Trail',¹⁰ for example, begins with two bars of accordion and vamped rhythm acoustic guitar, after which three male voices sing 'Woo-woo-woooo' in falsetto, the voices coming in two beats apart, with each singing a little lower than the preceding one, and each progressively more off-microphone. The last voice seems to be coming from far off in an imaginary distance. When the voices cease and the steel guitar comes in, it is further still off-mic and features a slow vibrato. The lyric begins with all the voices singing a close-knit, 'tin pan alley'-style harmony, with carefully controlled swells and diminuendos. Each line is punctuated by a steel guitar lick, which recalls the male voices' 'woo-woo-woooo' in the introduction.

Blue shadows on the trail
 Blue moon shining through the trees
 And a plaintive wail from the distance
 Comes a-driftin' on the evenin' breeze.

The recording connotes the spaces and places of the popularly constructed American West: the strummed guitar might be akin to the sound of the singer's horse ambling across the prairie, the 'woo-woo-woooo's are creatures calling out in the distance. The far-off steel guitar mimics a creature of the night – perhaps a coyote howling eerily from atop a butte or mesa (no doubt silhouetted against a rising full moon). The combination of lyric content explicitly denotes a setting in the American West (as constructed in Western comic books and novels, radio serials and cowboy movies of the time), while the backing vocals and the mimetic instrumentation connote participants – animals, other humans – located in that setting. They operate together coherently so as to strongly direct the listener to perceive the reverb as an acoustic quality of that imagined physical space.

'My Blue Heaven' and 'Blue Shadows on the Trail' take place in twilight settings. As the visual spatial perceptions fade, the aural swells. Throughout the 1930s and 1940s, reverb sound effects, as used on both popular music recordings and movie soundtracks, were frequently (although not exclusively) employed to accompany occlusions of the visual. In the peaceful 'twilight on the trail' of singing cowboy music, the moonlit littoral scenes of *hapa haole* Hawaiian music, the shadowy horror spaces of such movies as *Cat People* (D: Jacques Tourneur, 1942), *I Walked with a Zombie* (D: Jacques Tourneur, 1943) or *The Body Snatcher* (D: Robert Wise, 1947), reverb effects are selectively used to aid the rendering of 'charged' darkened (or darkening) space. As the scene dims and 'aural space' expands, the precise position of remote actants (night creatures, the undead, ghosts, cat people, etc.) can no longer with certainty be fixed. Even solid, quotidian presences in the reverberant twilight thus become like spirits, at best enchanting, mysterious presences (like the night sounds in 'Blue Shadows on the Trail'), but at worst terrifying and malevolent shape-shifters. The transformation, day to night connotes other shifts: from consciousness to dream, from the realm of the ego to that of the id. Spatiality in sound recording, as represented by the use of reverb or echo effects, was quickly recognised as alluding to these larger binaries. As filmmaker/theorist Jean Epstein commented:

Already the microphone has crossed the threshold of the lips, slipped into the interior world of man, moved into the hiding places of the voices of consciousness, of the refrains of memory, of the screams of nightmares and of words never spoken. Echo chambers are already translating not just the space of a set but the distances within the soul. (quoted in Weis and Belton 1985, p. 143)

Day and night, waking and sleeping, topographic centre and periphery, ego and id are all called into play. At the same time they overlay and reinforce a pre-existing musical binary – the primacy of the lead vocal over the 'subservient' backing chorus – instrumental accompaniment.

But for all that these constructs served to reinforce one another, the 'blue shadows' type of spatialising also suggested the zones *between* day and night – twilight rather than full night or day, implicitly hypnagogic rather than fully conscious or unconscious, the lighting is dim rather than simply light or dark, the ambience is changing rather than static. Night or day may be characterised as long – a seemingly interminable torment – but twilight is fleeting, teasingly transient. Rather than being a trope which implied stability or closure, this recorded spatiality in its

very constitution implied an ephemeral, momentary state, arising out of a subtle dialectic between shifting sonic and visual signifiers.

Through the 1940s and early 1950s, the spatialities constructed in popular songs tended to remain 'edenic'. But other developments – a growing and increasingly complex horror movie 'vocabulary' of reverberant space, the ever more overt suggestion that these sonic *mises en scenes* were as much landscapes of the psyche as they were empirical – saw a growing in power and mobility of the hitherto unseen other.¹¹

Ghost riders

One important example of this shift may be heard on Vaughn Monroe's million-selling record of 'Riders in the Sky' (1949). Textually, the song is related to the earlier 'mystical' cowboy songs of the 1930s and 1940s, except here, rather than a gentle, meditative moment of heavenly revelation in the wilderness, the central character experiences a vision of hell.

An old cowpoke, stopping to rest, alone in the wilderness on a dark and windy day witnesses the appearance of a herd of ghost cattle, their brands on fire, their hooves made of steel, their horns black and shiny, thundering through the cloudy sky. Moments later the ghost riders follow in (literally) hot pursuit. The cowpoke hears their mournful cry, the distantly reverberant, 'yippie-eye-ay, yippie-eye-o'. As the riders draw closer he sees their gaunt faces, blurred eyes, sweat-soaked shirts, and that they are riding on 'horses snortin' fire'. The phantom horsemen are chasing the ghost herd, 'but they aint caught 'em yet'. The riders must 'ride forever on that range up in the sky'. In the final verse one of the riders calls the cowpoke's name and warns him that unless he changes his ways he too will join the wild ride, for all eternity 'trying to catch the devil's herd, across these endless skies'.

In keeping with the motifs of ghostly visitation and spiritual edification, the mood of 'Riders in the Sky' is of high portent. The rhythm guitar plays a flamenco-like rhythm, simultaneously referencing the mock high seriousness and the drumming feet of the flamenco dancer. The rhythm here also mimics the thundering hooves of the ghost horses and cattle, and provides a feeling of relentless forward movement.¹²

The voice of the singer is close miked and dry, while the chorus is kept off-mic and richly reverberant, as are the muted horns (although the latter are less reverberant than the vocal chorus). The exaggerated differential between Monroe's close singing and the distant chorus sets up a vastness, a wide open spatiality, in keeping with the pictorial Western setting. As well as simply locating the male singers 'in the distance', the reverb on the male chorus also perhaps brings to mind the acoustic regime of Christian church architecture (consistent with the sermon-like aspects of the song's lyrics). At the same time, the effect powerfully (even if by today's standards, 'cornily') reinforces the supernatural, disquieting impact the appearance of the ghost riders has on the observer.

Significantly, 'Riders in the Sky' was one of the few million sellers in the US that year, and Sanjek (1988, p. 235) puts the song's success partly down to the easy manipulability of the (then) new magnetic tape-generated echo effects. (The record also, according to Sanjek, 'did more than anything to sell Americans on the 45 rpm concept'.) It is perhaps also significant that so spatial and dramatic a recording should be a standout commercial success at precisely the time Americans were generally buying few recordings, but were enthusiastically turning to the visual spatial-dramatic pleasures offered by television.

But apart from the different ‘hardware’ used in its construction and distribution, ‘Riders in the Sky’ does not in *textural* terms differ greatly from Willing’s ‘Blue Shadows on the Trail’.¹³ Both feature an up-front, non-reverberant lead vocal contrasted against a distant reverberant voice – the comforting steel guitar in ‘Blue Shadows on the Trail’, and the disturbing male chorus in ‘Riders in the Sky’. In both cases, the centrally located voice is louder in the mix than the reverberant voice(s). Both songs set up a dialectic between here and there, self and other, centre and margin, ego and id, embedded within a rendered virtual spatiality. The Willing record, made as it was immediately prior to the coming of magnetic tape, uses real space acoustics – the sound of the studio itself – to construct its distance, while the Monroe record uses tape delay to create its spatial other. The effect, a blend of the landscape pictorial and the uncanny, is similar in both.

But in terms of lyrical content there are sharp differences between the two. The visually occluded other denoted in ‘Blue Shadows on the Trail’ and the various sounds of the twilight on the trail constitute companionable presences, and the ‘plaintive wail from the distance’ is a trigger for a moment of rapture. But the other in ‘Riders in the sky’ is a terrifying, unholy force, and rather than remaining at a stable and reassuring remove from the observer, the ghost riders approach, address the observer and even hint at a possible ‘alien abduction’ (‘cowboy change your ways today or with us you will ride’). Singer Vaughn Monroe’s steely on-mic baritone suggests an equally steely ego which will no doubt withstand any terrors which might emerge from liminal zones. The last chorus from the ghost riders suggests a fading away into the distance, a diminution of the threat.

But subtle points of correspondence and identity between the observer and the unholy other set up troubling undercurrents. For the first three choruses, for example, the ‘yippie-eye-ay, yippie-eye-o’ chant (perhaps the true hook of the song) is sung by the reverberant ghost riders only, but by the fourth chorus Monroe himself sings it, and for all the upright God-fearing terror at the surface of the song, there is also clearly manifest in the singing a sense of exhilaration, of pagan abandonment¹⁴ – the unholy dead transmit to the singer a delirious energy. In psychological terms, there is an irruption of material from the id into ego. The ghost riders have the best part of the song, and singer Monroe wants in on it.

‘How near, how far?’

The spatial premises underlying ‘Western’ (and also much pop – or *hapa haole* – Hawaiian) musics allowed a spatial experimentation which remained on the whole pictorial, or at the very least coherently ‘imaginable’ as orthodox three-dimensional space. Increasingly during the late 1940s and early 1950s, *some* producers and musicians began to use echo effects to render unfixed, or (at least in part) anti-linear, self-consciously weird and/or futuristic spaces. And certain of the older style pictorially anchored spatial recordings during this period began to display an increasingly exaggerated pictorial field, as echo and reverb effects changed (in some cases at least) from being a covertly used producer’s technique to an increasingly emphasised, featured gimmick. In the late 1940s, music recording was still mostly in the thrall of the ideal of the authentic – the idea that sound produced when the shellac disc was played on a phonograph should be as close and true an analogue as possible of a single prior, empirical sound event. To enhance an indifferent performance with studio trickery was to commit an act of counterfeiting, to dishonestly misrepresent that

imagined prior event. Although producers in the 1940s were routinely (and more or less covertly) using judicious touches of reverb to enhance voices or to create a sense of presence, the practice was little talked of in the trade literature or elsewhere, and even in the late 1950s, Read and Welch (1976, p. 377) write with unmasked suspicion of 'purposeful distortions to the recorded groove' – referring to the production practices used by Les Paul and his so-called 'New Sound'.

Les Paul arguably did more than any other single operator in the recording industry to break the 'authenticity nexus' between the actual performance and the final recorded product, and some of his most arresting devices involved deliberate spatial plays. The million-selling 'How High the Moon' (1950/1951), Paul's first 'mag tape hit', made a feature of multi-tracking and of echo and reverb devices, applied here to his guitars and also to the voice of his vocalist wife Mary Ford. 'How High the Moon' is recorded in brisk two-four time, driven by vamped, multi-tracked rhythm guitar chords, with an overlay of (mainly) two-note chord lead electric guitar riffs. The rhythmic echo applied to the guitars¹⁵ seems to exaggerate every incidental string noise – each small tap of the plectrum on the strings rebounds *in tempo*, adding a compelling sense of drive and urgency. Mary Ford's singing is heard as a breathy, lightly-uttered, on-mic crooning, doubled (or trebled) by means of delay to resemble the sort of close harmony swing singing made famous by groups such as the Boswell Sisters and the Andrews Sisters. The echo and delay on the multi-tracked voices also greatly heightens incidental sounds, in particular the breezy sibilants.

Paul was apparently sceptical of simple *radial* spatialities, and for all their three-dimensional ploys and plays, his production spatialities tend to resist the sort of unpacking that earlier spatialised recordings allow. Significantly, Paul in the main chose not to pursue the sort of horizontal, centre-periphery landscape spatialities which were evident in (some) Western and Hawaiian pop music recordings of the time.

Paul also overturned the accepted procedures concerning vocal presence and microphone placement. Normal production practice at the time was to locate singers, even the most on-mic crooners – at roughly arm's-length from the microphone. For Paul however, close-miking meant 'lipstick on the mike' (Laurence and Rypinski 1978, p. 56). The extreme close-up meant that singers had to sing at much lower amplitudes to avoid overloading the microphone, and so Mary Ford's voice suggests a relaxed intimacy. The listener and the singer are 'placed' now in very intimate proximity. Whereas the arm's length mic placement located the listener in *comradely* proximity to the voice, close miking bespoke a familial or erotic closeness. At the same time the apparent lack of physical effort from the singer suggests a certain off-handedness, something of the quality of 'cool', a knowing withholding of excessive affect. The production suggests smouldering rather than explosive affect.

Indeed, unlike say the heavily reverberant guitar blues of his contemporary John Lee Hooker, Paul's 'How High the Moon' seems particularly 'airborne'. The briskness of the tempo, the relaxed musical precision combined with the sense of cool vocal intimacy, the favouring of higher frequency pops and rings, the relative absence of earth-bound, 'grungy' lower frequencies and the lyric themes of altitude – moons, heavens, faintly-heard tunes – combine to give Paul's production a breezily professional 'gloss'. In blues and country music, echo and reverb effects were increasingly from this time onwards used to suggest shadowy, subterranean, marginal presences. Paul's work largely paved the way for this to happen, but he partook of virtually none of it himself. Self-consciously hip though he may have been, his project

was pop, and his recorded soundspace was as pristine and freshly painted as the living room of the post-war Californian dream home.

'Lights go out'

Speedy West was a Los Angeles-based session pedal steel guitarist, who during the pre-rock 'n' roll period recorded a popular series of duets with Telecaster-playing Jimmy Bryant. The largely spontaneous, studio-improvised recordings were show-piece guitar instrumentals, sparsely backed by a crisp rhythm section, with the occasional addition of piano, and given a characteristic bright, clear West Coast production sound. The playing of both guitarists evidenced great dexterity but retained an unforced, freely improvised feel – which stands in marked contrast to the highly wrought and not infrequently bland productions of their Capitol stable-mate Les Paul. Pedal steel player West was (and still is) famous for his dynamic chord work and 'impossible' tone bending effects, used to great effect on a large number of West Coast pop and country recordings, including hits by Tennessee Ernie Ford. Popular music listeners have long since become familiar with an extraordinarily wide range of possible electric guitar sounds, but in the early 1950s West's and Bryant's electric guitar instrumentals must indeed have represented a wildly adventurous departure, radically unlike their immediate predecessors (including Les Paul).

'West of Samoa' (1954) is in some ways a typical 'Hawaiianist' recording. A languid high register guitar lick played against a descending minor key bass line, also played on guitar, introduces the song, while a variety of echoic bird calls, croaks, taps and cries ring all around. West plays the bass lick on steel, using the swell pedal to prolong each note. The first verse features a not atypical Hawaiian-styled steel guitar riff – major key, 'upbeat' – while the electric guitar plays ukulele-styled rhythm. The following verse returns to the ominous bass string riff, this time with even denser jungle noises in the background, with added slithering, croaking and tapping sounds. During the 'jungle' verses, all voices are reverberant, though to differing degrees, while all is relatively dry during the Hawaiian. The alternating 'wet' and 'dry', minor and major verses, with and then without sound effects, serve to vicariously 'locate' the listener alternately on the beach and in the jungle. During the 'jungle verses', however, all voices are reverberant (to varying degrees) and no single melody lead line is privileged in the mix – no single voice is deputised to stand-in on behalf of the ego. Kienzle describes the 'West of Samoa' session:

At a late night 1954 session, they had one tune to finish . . . Fighting the effects of sick headache, [West's] taste and ingenuity were unimpaired. 'I was runnin' to the bathroom after every take and throwin' up,' he recalled. 'I said, 'Ken, turn the tape back on; I want to overdub some sound effects.' I had no idea what I was gonna do.' Maybe the headache helped West dig into the far reaches of his throbbing mind, for he created exotic sounds in ways even a Martin Denny couldn't conceive. By scraping and plucking the strings of his Bigsby [steel guitar], he created a thoroughly realistic set of tropical birds. (Kienzle 1999, unpaginated)

Although listeners may have pictured a jungle landscape, Kienzle's remarks suggest that for West at least (and *subtextually* for listeners perhaps) the space was every bit as much a dark mindspace as it was empirical. And the jungle itself intrinsically defies the pictorial – the dense undergrowth hides more than it reveals. We are in this sense at least, back in the familiar territory of the echo, with its partial occlusion of the visual. Here however, rather than adding a comforting twilight softness to the world, the occlusion conceals both marvels and terrors – the exotic creatures of the jungle might

equally be a source of wonder as of nightmarish fear, as they struggle ferociously for existence, near but unseen.

As producers became generally bolder with their use of reverb, yet another effect appeared, in which voices came in and out of reverb, both between verses, but also *within* passages. The same voice (human or instrument) would alternate between dry and roomy. Tommy Duncan's Capitol recording of 'Gambling Polka Dot Blues' (1949) extended the reverberant passages to include not just the yodel but whole sections of the chorus as well. Whenever the singer begins to lament his bad luck or sing in falsetto, or mumble and cry to himself, the reverb comes on. Although the song is generally anchored by the dry, centred vocal, the fact that the same voice is then distanced creates something like a spatial ambiguity, but stops short of dismantling the pictorial spatiality entirely.

Tennessee Ernie Ford's 'Mule Train', also recorded in 1949, (again on Capitol) begins with a reverberant call of 'Mule Train!', which becomes even more reverberant as the long final vowel turns into an upwardly inflected whoop. A reverberant steel guitar lick (played by Speedy West) comes in, followed by whip-like sound effects. The sung verse then is relatively dry, but each time the singer calls 'Mule train!', the reverb returns. The effect here is to render the dry upfront vocal as a kind of intimate voice-over to the overtly pictorial rendering of the mule train, and its rough-hewn teamster.

In the slow blues 'When the Lights Go Out' (Chess 1954), Jimmy Witherspoon admiringly describes his girlfriend – 'I love to look at my baby's face, I love to feel that silk and lace, and when she kiss she never makes me shout' – so far, all this recorded dry, on-mic, but the punch line, 'Great God almighty, when the lights go out!' is deeply embedded in reverb – the lights go out and the aural space swells. The next verse is again dry, as the singer returns to visually describing his baby: 'I love to see her walking down the street, she always dresses so nice and neat . . .' and again the reverberant punchline corresponds to the visual occlusion.

A notable production hook present on Julie London's million-selling hit of 1955, 'Cry Me a River' was the lush reverb enshrouding both the vocal and the electric guitar. The song ends with London repeating the line, 'I cried a river over you', as the volume progressively drops and the reverb increases. The singer seems to be moving away from the listener, disappearing into a fog or twilight.¹⁶

Space guitar

Johnny 'Guitar' Watson's instrumental, 'Space Guitar' (1954) also makes use of a radically fluctuating reverb. Recorded in Los Angeles for the r&b label Federal, 'Space Guitar' features fast and frantic guitar playing interspersed variously with brief, nervously subdued 'jazzy' chord passages, sax breaks, quotes from the *Dragnet* theme, double time riffs and dead stops. The guitarist intersperses fast and aggressive trebly single-string blues licks with rapid, jagged slides along the entire length of the guitar neck, producing voice-like cadences. Listening to the manic riffs, bent notes and overdriven chords it is not difficult to picture the wild and extravagant body movements needed to produce such sounds, a regime of body use the direct opposite of that of the 1950s Les Paul/Barney Kessell styled jazz guitarist – sitting hunched over the guitar, the treble controls wound back, face dispassionate, the left hand movements displaying a professional but non-committal dexterity, the whole performance an exercise in the *withheld*. The listener to 'Space Guitar' on the other hand might readily

imagine the stabbing, flailing movements of which the recorded sounds provide a direct index.

Watson moves rapidly and impatiently from idea to idea and the production space fluctuates just as wildly. A fast, dry, stop-time riff opens the song, followed by a deeply reverberant first four bars, then a dry four, another reverberant four, a reverberant theme quote, another verse with a whole new mixture of nervous-sounding themes and ideas. Then a sax comes in, which also alternates between dry and deeply reverberant. Significantly, the track was recorded before the launch of Sputnik 1, and before the US's more notable successes in the space race. In the *early* 1950s, rather than being imagined primarily as a zone ripe for heroic colonising – the territorialised space of screen productions such as *Outer Limits*, *Star Trek*, *2001 a Space Odyssey*, or pop instrumentals like 'Telstar' (1962) – 'space' as a trope in popular culture was then as much a source of terror, from which nuclear weapons or hostile invaders might come, terrestrial or otherwise. It was the terror-space of such early 1950s films as *It Came from Outer Space*, *Killers from Space*, *War of the Worlds*, *Man From Planet X*, *Phantom From Space* or *Invasion of the Body Snatchers*.

Watson's 'Space Guitar' keeps all its options open, however, and its space(s), moods and effects comprise an intense yet playful montage – one which thwarts any attempt at constructing a coherent or unitary spatiality. But, unlike the examples already cited, the spatial effects in 'Space Guitar' are essentially *serial* – the reverb switches on and off, and each segment of itself more or less 'makes sense'. By rapidly switching from 'near' to 'in the distance', the guitar plays the part of both the self *and* the invading other, but unlike the polyspatial regimes of some rock 'n' roll which was soon to follow, never quite manages to be both simultaneously.

Red Ingle was another Capitol artist, a long-time professional musician with big band experience whose 'Tim-tayshun', a hillbilly-esque parody of the standard 'Temptation' became a surprise hit of 1947. There followed a series of increasingly deranged send-up recordings, including '(I Love You) for Seventy Mental Reasons' (1947), 'Pagan Ninny's Keep 'Er Goin' Stomp' (1947), 'Cigareets, Whusky and Wild Wild Women' (1947/1948), 'Cigardust', and 'Moe Zart's Turkey Trot' (1947/1948). Performing as Red Ingle and the Natural Seven, the group toured widely, demonstrating a zany stage act, which featured numerous costume changes and elaborate musical hi-jinks,¹⁷ informing which, however, was a high degree of musical skill.

Ingle's recording of August 1948, 'Serutan Yob', was a hillbilly-ised parody of Nat King Cole's recent hit, 'Nature boy' (1947). The title of Ingle's parody is both a near-anagram of the actual title, and a reference to an extensively advertised laxative, Serutan. The song begins with a reverberant, pained human howling, followed by a threnodic whistling and a strummed ukulele, all highly reverberant. The song proper begins in the familiar Natural Seven style – brisk tempo music behind a broadly hillbilly-esque deadpan vocal: 'there was a boy, a plum enchanted boy who wandered furr . . .' Slang terms recur throughout. Samuelson gives the following account of the recording session:

[Due to an American Federation of Musicians ban] union members Ingle and [arranger/musician] Washburne couldn't participate on the session, but singer Karen Tedder could. Washburne decided to produce the record in layers. First Tedder cut her vocals and timed interruptions onto an acetate, accompanied by union-exempt members of the Pasadena Uke Club. When Tedder was done, popular Los Angeles radio personality Jim Hawthorne laid down two overdubs. For the first he . . . played a Duo-Lyka, a novelty instrument with a

bass-like sound. For the second he essentially went into a free form rap, adding [a] break from his trademark musical device, the hogantwanger . . . [which consisted of] graduated hacksaw blades mounted on wood. (Samuelson 1997, unpaginated)

The sound of the hogantwanger is rendered all the more strange by the application of dense reverb. There follow more sound effects and vocal overdubs, in which the singer quarrels with Hawthorne, competing for musical space, eventually cutting him off completely, before the whole song collapses in argument, finishing with a metallic breaking sound.

Recorded six months before even 'Riders in the Sky', 'Serutan Yob' could well be mistaken for a sonic satire from a much later time, and it is noteworthy that so spatially playful and deconstructive a recording should pre-date infinitely more seriously intended spatial recordings. It may be significant that some serious spatialising 'western' recordings such as Vaughn Monroe's 'Riders in the Sky' and Foy Willing and the Riders of the Purple Sage's 'Stampede' (1949, for the movie *Trigger Jr.*, D: William Witney, 1950) both feature the kind of dramatic, high adventure narrative associated with cinema and television westerns, while Ingle's recordings, and 'Serutan Yob' in particular, owe more to the zanier end of radio broadcasting practice.

When I'm calling you

Slim Whitman's hit recordings of the early 1950s are firmly in the pictorial western spatial mode, yet his recording of 'Indian Love Call' (1952) constructs a baffling, almost hallucinatory spatiality, in which the rigidity of the singing and instrumentation is counterposed against double and triple echoes, 'breakout' yodels and steel guitar harmonics, to the point that the 'space' becomes a wholly delirious zone.¹⁸ This deliriousness remains unacknowledged in the verbal text of the song; however, on the surface, it is as earnest and po-faced as any pre-rock 'n' roll of the period. 'Indian Love Call' was a well-known pop tune when Whitman recorded it: it had been the feature number of the 1924 stage show, *Rose-Marie*, which was filmed to great commercial success in 1932 with Jeanette MacDonald and Nelson Eddy in the leads. Invoking the 'masculine-Narcissus-calling-into-the-wilderness-responded-to-by-a-hidden-female-Echo' construct, the song sets up horizontal here/there, self/other, masculine/feminine dichotomies. The roles should be clear – the song is organised around the motif of call and response, with the call from the self coming first, answered by the hidden echoic other.

When I'm calling you,
Will you answer too?
That means I offer my love to you to be your own.
If you refuse me, I will be blue and waiting all alone.

But if when you hear my love call ringing clear
And I hear your answering echo so dear
Then I will know our love will come true
You'll belong to me, I'll belong to you.

The first sound heard is Whitman's wordless, unaccompanied, yodel-like 'love call', which is sung twice, slightly reverberant the first time through, treated with echo/delay the second.¹⁹ The first sung line, 'When I'm calling you', however, is quite dry, but the drawn-out yodel which tags onto the end of the first line (slightly overlapping

the held 'you', indicating that it is the result of multitracking) is richly reverberant. The narrating Whitman is 'close by', speaking confidentially to the listener while his own pre-recorded voice echoes elsewhere, 'answered' by his own echoic voice and/or the steel guitar, which sometimes seems to stand in for his voice, sometimes answers it.

The steel guitar itself is reverberant, and the player makes frequent use of high harmonics, which act as a kind of counterpart to the yodel, a steel guitar falsetto, a floating, disembodied, 'aerial' voice. One would expect that the spatialities here *should* be clear and coherent, yet the overlapping pairings of self and other, voice and falsetto, dryness and reverberance, nearness and distance serve rather to create a kind of sonic hall of mirrors. The echoes themselves produce more echoes; the others spawn even more others. Figures are multiplying out of control, and some of them are taking to the air. There are whole squadrons of them.²⁰ There are 'air-borne' others and there are land-based others, and they are swapping places with each other and with the self. The surreal effects of the sonic doubling and treblings in 'Indian Love Call' are further heightened by the repressively strict tempo of the rhythm acoustic guitar, and by Whitman's almost freakishly accurate intonation, particularly in the falsetto range.²¹ There is not a trace of the knowing wink at the audience here. Neither the voice nor any aspect of the musical arrangement acknowledge even for a moment the swelling, ambient craziness. An almost parade-ground seriousness remains in force.

Most of the recordings mentioned above were made in Los Angeles²² in the decade following World War Two. All tracks make a feature of the fact of spatiality. Produced in the city from which the US film industry operated, it is not surprising that these pop products should have made such a show of sonically fabricating space, and that those spaces should be so glossily rendered. And perhaps that is what most defines the sort of West Coast echo and reverb surveyed here – it invariably sets up and operates within a virtual proscenium arch. The dazzlingly constructed West Coast pop spaces afforded listeners little in the way of participatory response other than as passive audience, entertained, charmed and intrigued perhaps, but never for a moment allowed to forget their place as receivers of product. West Coast pop music rarely invited its listeners to 'inhabit' its virtual spaces, to become co-creators of its inner worlds in the way that southern rockabilly or Chicago blues (sometimes) did.

The spatial experimentation at Sun records – from Phillips' early reverberant recordings of Louis Hill Louis and Walter Horton, his use of 'slapback' echo initially on Doctor Ross's 'Boogie Disease' and later more famously on Elvis Presley's vocals – and related experimentation at Chess – notably on early Muddy Waters and Little Walter recordings – were too wide ranging in their ambitions and outcomes to do justice to here.²³ Suffice it to say that both, more or less together, pioneered and extended a spatialising which was not underwritten by textual guarantors. Their echo and reverb is *not* accompanied by descriptions of sublime western canyons, tropical beaches or steaming jungles. And when songs do specify place, it will likely confound common sense, as when Presley in 'Mystery Train' is in one verse *on* the train, in the next is watching it leave and in yet another seems to be awaiting its return.

Chess and Sun were not the first music producers to heavily 'echofy' or 'reverbify' lead vocals but they did it routinely, with different artists, and they were prepared to try it on virtually anything – up-tempo dance tunes, doo-wop ballads, gospel songs, hillbilly tunes, blues shuffles, novelty songs, monochord Bo Diddley

chants and rockabilly tracks – and in so doing decisively decentred and dismantled mainstream pop's so-carefully constructed spatial fields, along with its hitherto non-negotiable divides between performer and audience. Taking Les Paul's polite echoic taps and rings and applying them without restraint, those studios between them fabricated recorded fields, characterised by vibrating, stuttering, hiccupping vocals, guitars, drums and percussion effects. Again and again, the music of Bo Diddley, Carl Perkins, Jerry Lee Lewis, Elvis Presley and others 'called to the faithful' – 'I heard the news . . .', 'Come on over baby . . .', 'Meet in a hurry behind the barn . . .' or summoned listeners with the muezzin-like 'We-e-e-e-l-l-l-l-l'. Both studios may have started out attempting, at least in part, to ape the spatial gimmickry which had been so commercially successful for Les Paul, but by the mid-1950s they had made that project seem hopelessly dated. Soon the majors were attempting to ape them.

'You still can find some room'

'Heartbreak Hotel' was recorded at Presley's first session with RCA, in Nashville, under the direction of Chet Atkins. When RCA engineers found themselves unable to create a Sun-like slapback, they opted instead for a heavy reverb sound. Using the hallway outside the studio as an echo chamber, they fed the reverberant signal back into the studio itself. The performers could hear the reverb as they played. (At Sun the echo was added outside the studio, in the control room, unheard by the performers; Guralnick 1995, p. 237.)

The song itself had been inspired by a report of a teenage suicide, who had left a note declaring simply, 'I walk a lonely street' (*ibid.*, p. 238). Mae Axton's lyric tells of a dark hotel located at the end of 'Lonely Street', where the 'bellhop's tears keep flowin'" and the 'desk clerk's dressed in black', a place where 'broken hearted lovers cry there in the gloom'. On the one hand, the production on 'Heartbreak Hotel' marked a return to stable pictorial spatiality – the reverb is more or less 'authorised' by the references in the lyrics to the baroque, horror film-like hotel located in the noirish 'Lonely Street'. Yet for many industry insiders the lyrics bordered on the absurd, and the huge, vaulted-chamber reverb sounded weird and unseemly (Sam Phillips called it 'a morbid mess'; *ibid.*, p. 239). Presley himself appeared to have complete faith in it, and his recorded performance shows no trace of doubt or hesitancy. His reverberant voice richly and unequivocally occupies the recording's virtual space. But instead of a Sun-styled open, flimsy, (notional) juke joint that anyone might enter, 'Heartbreak Hotel' was a gothic structure, and Presley a weirdly inflated presiding presence within it. The reverberant production of the voice combined elements of the Muddy Waters, John Lee Hooker, Lightnin' Hopkins tradition, the West Coast Capitol sound, and the Perry Como, Dean Martin, Patti Page style of vocal staging. But Presley's exaggerated use on 'Heartbreak Hotel' of what is sometimes called the 'chest voice' – achieved by singing in the baritone range, with the head tilted slightly downwards, the voice seemingly resonating in the singer's chest – works in concert with the reverb to suggest that the vaulted chamber is physically contained within the singer's body. The singer is a participant within the represented world, but at the same time the represented world is 'housed' within him. The refrain, 'you feel so lonely baby, you feel so lonely, you feel so lonely, you could die', is close in both lexis and spirit to Hank Williams' 'I'm So Lonesome I Could Cry'. While Williams' exterior world had been so much a projection of his pained subjectivity that

its very exteriority was cast into doubt – the gloomy landscape he describes is equally (perhaps primarily) a landscape of the psyche – he nonetheless constructed his world through strictly verbal and musical devices, pointedly eschewing any production trickery. Presley, six years later, uses reverb to elaborately stage his attempt at a not dissimilar effect. And unlike the consummately adult bearing of his vocal forebears – such as Waters, Hooker, Hopkins and Williams – Presley’s performance here was unashamed in its delirious inflation of *adolescent* angst. And the message to teen listeners worldwide was explicit in its delineation of a strangely inclusive space: ‘although it’s always crowded,’ sang Presley, ‘you still can find some room’. The zone was at once solitary and collectivist.

The recording, not surprisingly, marked the beginnings of Presley’s transformation into an object of virtually religious adoration – he is simultaneously assuming the world-creating power of a gnostic demi-urge and the charisma of a dying young god, both the maker of territory, and (as a potential suicide) its destroyer. Whether seen as fatuous or as boldly transcendent, the record was a demonstration of the extent to which sonic spatialities had been, for the moment at least, deterritorialised.

Following the success of ‘Heartbreak Hotel’, the recording industry responded – independents more rapidly than the majors – with an enthusiastic quest for Presley look- and sound-alikes. And, deliberately or otherwise, record producers sought to reproduce the spatial effects, and in turn aspects of the spatial politics which had been formulated at Chess, Sun and now RCA. Capitol producer Ken Nelson recorded Gene Vincent’s ‘Be Bop a Lula’ (in Nashville rather than Los Angeles), in which the echo-drenched vocals, guitars and background howls owed much to both ‘Heartbreak Hotel’ and such Sun recordings as ‘Baby Let’s Play House’. The singer’s panting, hiccupping, barely intelligible vocals on both ‘Be Bop a Lula’ and its flipside, ‘Woman Love’, suggested a demented, drooling state of excitation. Vincent’s follow-up single, ‘Race with the Devil’ (1956) might be read as almost an answer to ‘Riders in the Sky’ and all the other gloomy cautionary tales of the fate which awaited sinners. So too Vincent’s ‘shook up’ persona – realised through reverberant, echoic vocals, heightened ‘breathiness’, and the absence within the recorded field of a fixed centre – might be seen as an opposite (and challenge) to Monroe’s steadfast, old-school masculinity.

‘Race with the Devil’ begins on a stop-time vocal: ‘I’ve led an evil life, so they say, but I’ll outrun the devil on Judgement day’. How? He will beat the devil in a hotrod race. Vincent proceeds to call the fateful race. He gains an early lead – the devil is left standing at the lights. But in subsequent verses the devil matches his every move. As with Vaughn Monroe’s ‘Riders in the Sky’, the vocals are saturated with echo and reverb,²⁴ but here it is the singer (and his hotrod) rather than the supernatural others who possess the super-charged spatial mastery. Indeed, Vincent in one sense is the other. With his greasy, tousled hair, pock-marked face and characteristic sneer, and dressed in jeans and cloth cap, Vincent richly conformed to a then current stereotype of the juvenile delinquent, the great folk demon of the 1950s. In ‘Race with the Devil’ his otherness is of an order that puts him almost in a kind of peer competition with the prince of demons himself.

By the end of the song, Vincent still has not shaken off the devil (‘[I] thought I was smart, the race was run/[but] here comes the devil doin’ a hundred and one’). Vincent implores his vehicle, ‘Move hotrod, move me!’. He will beat the devil only as long as he maintains his mobility. The race itself may be exhilarating, but at some

point further down the line, when the singer tires, or when the hotrod fails, after the record finishes, there will be an accounting. The machinery of reterritorialisation – the devil – cannot be shaken off for ever, but the final judgement itself has at least been displaced, postponed. Yet another directionality – the narrative arc – has been removed from the space of the recording.

In the late 1950s, the coming of hi-fidelity stereophonic sound, with its strict left-right axes, its triangulations which figuratively (and for earnest hi-fi enthusiasts, literally) located the listener at a precise point in relation to the apparatus, reinstated the virtual proscenium arch and seated the listener at some notional 'sweet spot' in an imagined concert hall. Stereo simultaneously afforded a more convincing spatialised participatory contract between performance and listener while emphasising to listeners – initially at least – that the space was ordered. And as Keightley (1996) points out, it imposed powerful middle class, masculinist protocols on corresponding domestic space. But rock 'n' roll's fundamental spatial production insight – the idea that sonic spatiality might be rendered in any way musicians and producers chose, regardless of whether it was linked to coherent realist narrative or not and regardless of whether it made a pretty picture or not – remained, and was to inform widespread subsequent practice all over the world. The message, in the end, was that spatiality was now on call, to be used as was seen fit. Music amateurs and professionals in the UK, in Africa, in Japan, in Australia and Oceania, in Jamaica and elsewhere now knew that space – picturesque or expressionist, literal or metaphoric – might be created and made to signify by anyone willing to try.

Endnotes

1. See especially Tosches (1977, 1982), Guralnick (1981, 1989, 1994), Palmer (1981, 1996), Gillett (1983), Marcus (1990, 1991, 1992) and Escott (1992).
2. See Nisbett (1974), Wishart (1985), Middleton (1990), Palmer (1991), Moore (1993), Cunningham (1996), Lubin (1996), Théberge (1997), Waksman (1999), Fast (2001), Zak (2001) and Doyle (2002). Lacasse (2000) in particular carefully examines a number of key moments in the emergence of echo, reverb and other effects within a context of the 'staging' of the singing voice.
3. If real-world sounds were to be somehow stripped of their 'cloaking' of reverberation, we would find ourselves in a disorienting, 'dead', almost spaceless and depthless world. For a fuller explication of the relation between reverb and sound (including musical) perception, see Pierce (1996, pp. 144–6).
4. See Schafer (1980). See also Bagenall and Wood (1931) for a discussion of medieval church acoustics and the human voice, and Beranek (1962) and Rasmussen (1964), each of whom discuss echo, reverb, delay and musical perception in the context of architecture and psycho-acoustics. For a discussion of echo, reverberation and resonance in prehistory, antiquity, in Western acoustic musics and in non-Western cultures, see Lacasse (2000, pp. 32–70).
5. See Ovid, 'Echo and Narcissus' in *Metamorphoses*, trans. Ted Hughes (1997, pp. 74–84).
6. The term 'voice' is used here and henceforth in its more general musicological sense to mean a line or separate strand of music in a harmony or counterpoint.
7. To play a descriptive recording such as 'Morning on the Farm', in one's own parlour was, according to the catalogue blurb, to open an imaginary window on a farmyard scene 'so real and exact that it requires but a slight stretch of the imagination to place one's self in that delightful position, the result of which is the drinking in of copious drafts of fresh air and numerous other pleasures attainable only on the farm'; quoted in Gelatt (1977, p. 88). 'Morning on the Farm' can be accessed online at the US Library of Congress, <http://memory.loc.gov/ammem/ammemhome.html>
8. Columbia's own publicity claimed that 4,850 voices were captured on the record.
9. See Cubitt (1984) for an explication of the dynamics of identification between the popular singer and listener. The 'nearer' the singer, the more pointedly *removed* he or she becomes. 'The grainy, lived-in voice of the popular singer ... promises ... a physical intimacy. But in the case of recorded songs, that presence is illusory. The voice is the site of a paradoxically simultaneous promise and denial of intimacy' (1984, p. 213).

10. Precise release date not available. 'Blue Shadows on the Trail' was written for the Walt Disney cartoon, *Melody Time* (released 1948), in which it was performed by Roy Rogers and the Sons of the Pioneers. The only copy of Willing's recording I have ever encountered was on a two-volume German LP release of the 1970s, which dates all twenty-four tracks as being recorded 'around 1950'.
11. See Doyle (2002, pp. 107–13) for a more detailed discussion of echo effects in the movies *Shane* and *High Sierra*.
12. After the huge sales success of 'Riders in the Sky', the 'thundering hooves' feel became a western staple, appearing in the theme music for the TV shows *Bonanza*, *Have Gun Will Travel*, *Rawhide*, *Johnny Yuma* and *Outlaws*, among others.
13. See Moore (1993, pp. 106–10) and Middleton (1990, p. 89) for discussions of the notion of 'texture'.
14. In keeping with the pre-Christian pedigree of the wild ride (or 'Herlequin's Ride') myth.
15. This type of echo was used frequently by Les Paul. The delayed note(s) – there may be a single repeat, or a series of repeats – are roughly 'in time' with the source note. The effect, which both 'spatialises' and adds rhythmic complexity, was later featured on recordings such as Little Walter's 'Juke' and Doctor Ross's 'Boogie Disease'.
16. In the film *The Girl Can't Help It* (D: Frank Tashlin, 1957), a drunken Tom Ewell hallucinates an apparition of Julie London singing to him alone, disappearing and then reappearing in different rooms. As the song finally fades out and the reverb deepens, so the image of London fades.
17. In early 1951, Ingle and his then band, the Frantic Four, toured the UK, with Peter Sellers as a support act. One wonders to what extent, if any, Ingle's stage act and recordings influenced the craziness of *The Goon Show*.
18. 'Ethnic love calls' seem to have a natural affinity with echo, reverb and overdubbing effects. Duke Ellington's 'Creole Love Call' (1929) opens with a reverberant, wordless vocal from Adelaide Hall, and the subsequent solo verses are markedly on or off-mic. The wordless 'love calls' at the beginning of the earlier Eddy/MacDonald version of 'Indian Love Call' (1932) are both reverberant, as though the two are calling to one another, each at some remove from the listener (the remainder of the singing is recorded 'dry'). Cunningham (1996, p. 20) cites Lawrence Tibbett's 'Cuban Love Song' as an early – perhaps the earliest – instance of overdubbing, although Lacasse (2000, p. 127) finds no evidence of overdubbing on the recording.
19. Whitman's tightly controlled falsetto, with its vibrato and characteristic echo/reverb, strongly recalls the theremin, and all the weird, 'unearthly', 'ghostly' qualities of that instrument.
20. See Hayward (1999) for a discussion of the deterritorialising, interplanetary aspects to this particular recording and its ability to destroy airborne alien invaders in the film *Mars Attacks*.
21. The strict 'whiteness' of Whitman's recording persona is even more pointed when it is considered in context – his label Imperial recorded mainly r&b music, later breaking Little Richard and Fats Domino. Whitman himself was from the deep south, and his name, for all that it suggested the cowboy persona, could just have readily belonged to a southern r&b performer (cf. Lightnin' Slim, Guitar Slim, or pulp writer Iceberg Slim). Indeed, while Whitman's vocalising displays an effortless quality, it is markedly without swing inflections or blue notes of any sort. In the context of post-war West Coast pop music, Whitman's work stands out as a throwback to pre-jazz, pre-blues styles. It should be noted too that the spatial derangements of Whitman's 'Indian Love Call' are by no means unusual in his 1950s work: his 'Cattle Call' and 'Love Song of the Waterfall' both make similar sport of western spatialities.
22. With the exception of 'My Blue Heaven', 'Rider in the Sky', 'When the Lights Go Out' and 'How High the Moon' – the latter, although thoroughly West Coast in style, was recorded while Paul was temporarily relocated in New York.
23. For a fuller discussion of these, see Doyle (2002).
24. The song also resembles Chuck Berry's heavily reverberant *Down Bound Train* of 1955 which in turn recalls 'Riders in the Sky' in feel. But like the latter, Berry's song is a stern cautionary tale, drawing directly on nineteenth-century sermonising traditions. The vision of damnation is heeded and, unlike Vincent's unrepentant hotrodder, the drunkard changes his ways.

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