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THE PRODUCTION OF TIMBRE

Analyzing the Sonic Signatures of Tool's *Ænima* (1996)

Kevin Osborn and Brad Osborn

In the infancy of studio technology, producers and engineers assumed a documentarian role in their reproduction of studio performances. But as equipment and practices evolved, the aims of popular music recording gradually shifted toward the production of a unified artistic sound world exhibited by a single album (e.g., The Beach Boys' *Pet Sounds* [1967]). American progressive rock band Tool's multi-platinum record *Ænima* (1996) presents the opportunity to examine the role of studio production techniques in producing these "sonic signatures" that define the unified artistic sound world in the record.¹ The album's remarkable timbre results from a tension between, on the one hand, the band's self-imposed restriction to voice, guitar, bass, and drums; and on the other, the artistic liberties taken in the methods in which these instruments are recorded and manipulated at mixdown. Through a closer examination of how studio production affects *Ænima*'s timbres, this essay aims to address the paradox wherein an album's unmistakable sonic signature is honed using only the most generic of instruments.²

With three-and-a-half million copies sold, *Ænima* remains Tool's best-selling and seminal album. Its memorable production results from a cooperation with three-time Grammy winning producer/engineer David Bottrill (King Crimson, Coheed and Cambria). Our primary insight into this pair's studio production techniques comes from an extensive interview we conducted with Bottrill.

As a discipline, music theory is just beginning to establish methods for the analysis of timbre.³ An archaeology of production methods, at least for studio-produced popular music, can only strengthen timbral analysis. Additionally, we bring into the analysis our varied backgrounds—one of us a music theorist, the other a studio engineer—as well as our intimate personal experiences listening to and playing along with this album over the past twenty years.

I. *Ænima* (1996)

Ænima Background

Tool was slow to find its audience with *Ænima*—not only among its alt-metal fan base, but also with critics of the day. While most reviewed the album favorably, a few major voices

Table 9.1 Complete Track Listing of *Ænima* with Durations and Description

Track Number	Song Title	Duration	Description
1	“Stinkfist”	5:11	Song: verse/chorus based
2	“Eulogy”	8:28	Song: extended, multi-partite
3	“H.”	6:07	Song: verse/chorus based
4	“Useful Idiot”	0:38	Interlude: record skipping noises, growing in intensity
5	“Forty-Six & 2”	6:04	Song: riff-based
6	“Message to Harry Manback”	1:53	Interlude: death threat left on Danny Carey’s answering machine, set to soft piano music played by Bottrill
7	“Hooker with a Penis”	4:33	Song: riff-based
8	“Intermission”	0:56	Interlude: variations on “Jimmy” theme played on circus organ
9	“Jimmy”	5:24	Song: riff-based
10	“Die Eier von Satan”	2:17	Interlude: recipe chanted menacingly over 9/8 industrial riff
11	“Pushit”	9:55	Song: extended, multi-partite
12	“Cesaro Summability”	1:26	Interlude: echoic baby cries with distorted speech
13	“Aenema”	6:39	Song: verse/chorus based
14	“(–) Ions”	4:00	Interlude: musique concrete featuring electrical noise and sheet metal
15	“Third Eye”	13:47	Song: extended, multi-partite

marginalized its significance. David Frinke of *Rolling Stone* gave the album five out of five stars, but went on to criticize its ambition: “Anyone who tries to elevate heavy music above cock-rock clown time is to be encouraged. Still, the best parts of *Ænima* come when Tool just let the music rip and dip.”⁴ Steve Knopper of the *Chicago Tribune* mocked the album for not being “metal” enough: “For a scary album with gruesome pictures of devil-babies and disembodied eyes on its cover, *Ænima* sure leans on catchy melodies... Maynard James Keenan sings in a high pitch that might have worked in the Gin Blossoms or Better Than Ezra and most of the 15 long songs start softly and slowly build to the big guitars.”⁵ Yet *Ænima* proved to be a slow burner. The persistent melodies and unique sonic signature of tracks like “Aenema” eventually earned it the 1998 Grammy for Best Metal Performance. “Bleak,” “creepy,” “ominous,” “hostile,” “brooding,” and “aggressive” are some of the terms *AllMusic* reviewers use today to describe its tone.⁶ Yet somehow, *Ænima* is peppered with moments of hope and levity throughout.

Ænima’s nine full-length songs are situated among 15 total tracks, whose moods range from antagonistic (“Hooker with a Penis”) to lighthearted (“Interlude”) to atmospheric (“[–] Ions”) to transcendent (“Third Eye”). This spacing is crucial. Too much time spent in self-seriousness and Tool may have typecast itself another angsty metal act. But letting the listeners in on the act, letting them partake in the mockery of society and the industry

itself, gives *Ænima* fans a look behind the curtain that the musical youth of 1996 had been waiting for.

Several non-musical factors are also responsible for *Ænima*'s longevity. These include: 1) its unpublished lyrics, which Tool invited listeners to uncover for themselves; 2) its puzzling self-produced music videos; 3) its Illuminati-inspired CD art; and 4) Tool's cryptic and antagonistic interview personae with magazines and music channels. These brought together an army of detectives across the fledgling World Wide Web in 1996, and cemented in fans' minds the idea that *Ænima* was bigger than the music that comprised it.

Of course, despite these extramusical antics, *Ænima* may have been forgotten today if not for the band's precise performance of such captivating songs. But we also believe that much of the album's staying power comes from Bottrill's masterful treatment of the songs and timbres. As evidence for this position, we'll consider in the next section the difference between demo versions of *Ænima* and the final studio mix. Four unreleased *Ænima*-era demos from 1994, performed with former bassist Paul D'Amour and produced before Bottrill signed on, speak to Bottrill's masterful touch in refining the raw ores of these demos into a triple-platinum record. Examining the demos and corresponding album tracks makes it possible to assess the changes that result from studio production, despite each song's identical compositional structure.

Comparing Unreleased *Ænima* Demos to the Album

Most notably, the demos sound considerably rawer, and much closer to *Opiate* (1992) in terms of their production value. It's likely that Tool tracked these demos live in the same room together, which paints a more realistic image of the band onstage. However, Bottrill admits that nearly everything on *Ænima* was overdubbed—meaning that each member replaced their own parts in isolation after tracking. This allows Bottrill to mimic the synergistic push and pull of a live Tool performance, yet still craft the sounds in such a way that they can be manipulated in the mix.

Next, despite vocalist Maynard James Keenan's clear raw talent, the vocal parts in the demos lack the dynamic touch that Bottrill brings. Keenan's soft lilts sound buried and cartoonish amongst the backdrop of heavy guitars and drums; his *Undertow*-era bellows come across monotonous and overblown in many choruses. Neither Keenan's timbre or character suit the dynamics and epic new direction of these songs.

Finally, the electronic percussion that integrates naturally with Danny Carey's kit throughout the LP sounds especially disjointed on demos like "Eulogy"—more like percussion overdubs than a drummer at his kit. Bottrill's technique of piping electronics back into the drum room and recording them with live mics gives the LP's drums an organic excitement that sells the flesh-and-bone nature of the album.

Sonic Signatures

While *Ænima* is big on overdubs, it's spare on complex edits. This is either a byproduct of Bottrill's tracking to analog tape, which made editing performances tougher than did the digital tools of the day, or a stylistic choice. The approach both adds to *Ænima*'s organic atmosphere and separates the album from its later metal counterparts, which eschew fluctuations in micro-timing and -tuning in favor of tempo quantization and pitch correction. The creepiness of "Die Eier Von Satan," the gallows humor of "Message to Harry Manback,"

and the hopeful hidden spirit of songs like “H.” are each amplified and authenticated by the sincerity of the performances.

Like its name suggests, *Ænima*’s track tempos breathe with a creaturely rhythm. Common practice in the recording industry is to record musicians along to a click track (metronome), which eliminates the natural push and pull of human performance. But Bottrill and Tool opted to record the whole album *tempo a piacere*. This allows songs like “Pushit” to breathe naturally, Carey giving space to the cool percussion interlude (~117 BPM @ 5:04) and building momentum into the latter parts (~124 bpm @ 7:48) and fiery outro.

Ænima’s moments of surprising dynamic power are important to its sonic signature. Big moments, like the chugging guitars in the bridge of “Eulogy” (6:03) or the thunderous tom runs following the interlude of “H.” (4:48), are allowed plenty of headroom to reach their climaxes. Even in their mastered states, these tracks show around 10dB of dynamic range between their peak and program levels.⁷ This is a calculated move on Bottrill’s part. It requires him to keep the master fader lower on sections building up to the few truly loud moments—a risk even by 1996’s loudness standards—in order to push big moments into the void. These *subito forzandi* make the form more dynamic by adding points of salience that grab the listener’s attention.

A closer, more detailed look at these production techniques can only be revealed through a first-hand account by Bottrill himself. The interview questions and responses that follow will provide fodder for detailed analyses of selected passages on the album in Part III of the essay.

II. Interview with David Bottrill

[KO: Kevin Osborn; BO: Brad Osborn; DB: David Bottrill]

KO: Tell me as much as you remember about the recording process. I understand the album was tracked at Ocean Way [now United Recording Studios] in Hollywood.

DB: We tracked as a band, no metronome, on Ampex two-inch tape and tape machines. Possibly the most interesting aspect of it was that we had a live PA behind Danny where I bussed the close mics and the electronics he played back into the room. Danny played all the drums and electronic percussion together during the takes, and we edited the tape from two or three performances to get the best rhythm track. We then overdubbed all the bass, guitars and vocals separately after recording the basic tracks.

KO: What were the console and the rooms like?

DB: The console was a vintage Neve. The room was a classic-sounding room that, I believe, they have modeled for some software plug-ins. As always with vintage consoles, they have a great sound, and of course Ocean Way had a great mic selection, so we were able to record the drums very extensively with direct microphones and room microphones at various locations in the room. We used quite a lot of dynamics for the close mics and tube microphones for the rooms and overheads. The room mics were able to record the sound of the PA as well, so the drums had a bit of an unnaturally large sound as it was being amplified while we were recording it.

KO: Given that you recorded to tape, how heavily was the album edited? What digital tools got used during tracking and mixing?

- DB:** There were probably on average five or six edits between performances on each song. Sometimes less, sometimes more. There were some digital tools used during mixing, but it was mostly an analogue record. Everything was recorded on tape and mixed at Larrabee North Studios on an SSL J series console.
- KO:** Did the band track instruments at the same time? If so, how much of what's on the finished record did you keep from the scratch tracks?
- DB:** The only thing kept from band tracks was the drums and the occasional small guitar part. Everything else was overdubbed.
- KO:** How did your choice not to use a click track impact the vibe of *Ænima* overall?
- DB:** Click tracks are useful for some purposes and I use them often. In the case of Tool, they write and play as a unit and move the tempo accordingly, so they prefer not to use a metronome. It works for them, but does not work for every band.
- KO:** In Silverchair's *Across the Night: The Creation of Diorama* DVD, it seems like you and Daniel [Johns, composer] had the type of relationship where you weren't afraid to bounce ideas off each other. Was it like that with Tool? Were they open to your creative ideas?
- DB:** I have to have a connection with every band I work with and ideas flow between me and the band all the time. If that is not happening, then we shouldn't be working together.
- BO:** *Ænima* is one of those albums that just has a unique sound to me. Like 311's *Transistor* and The Magnetic Fields' *Distortion*. These are albums that have such a distinct sonic signature that you could hear a lost B-side and instantly know which album it belonged to. What are some of these sonic signatures throughout *Ænima* that make it unique?
- DB:** I think it's mostly the band and where they were. Danny's kit and playing style, Adam's [Jones, guitarist] Silver Les Paul and Diezel/Marshall/Mesa combination of sounds, Justin's [Chancellor, bassist] discovery of the Wal Bass and the Demeter Pre Amp that we used with his amp sound to create the tone. Maynard's use of vocal techniques and sounds—all of it defined that record and its uniqueness.
- KO:** Had you heard any of the *Ænima*-era demos before you got involved? The song structures sound pretty similar, but they lack a certain mystique compared to the final record. What do you think accounts for that?
- DB:** I would like to think it had something to do with my input, but I believe it was the chemistry between us at the time. Records are a snapshot of where a band is creatively at one time, and this one just hit a special time for them.
- BO:** I remember reading somewhere that Tool was committed to making all of these otherworldly sounds using only guitars, bass, and drums (in addition, of course, to a handful of obvious keyboard parts). Every time I read about Adam Jones's setup, I still cannot compute how such normal tools were used to get such otherworldly tones. What was the balance between his "rig" [guitar/pedals/amps] and recording/production techniques in generating those amazing tones?

- DB:** As with all musicians, the sound comes from the player and his/her approach and sound. Adam has a great attention to detail as to how he gets sounds from his guitar, both with the parts and the execution. We used normal pedals and amps, but it's how he plays them that makes the difference. I think he, and indeed all the band, are some of the best musicians I've ever worked with.⁸
- BO:** The acoustic drum sounds throughout the album stand out to me because they sound the least "processed" of anything—almost like you're just there in the room with Danny Carey's amazing kit and technique. Such crisp drum tones always bring to my ear a "prog" aesthetic reminiscent of King Crimson, Rush, and the like. Can you tell me about any thought that went into keeping Danny's drums so clean and/or giving the album a "proggy" drum sound?
- DB:** Like I said before, we put direct mics and electronics through the PA and pumped it back into the room. It was in order to make the electronics more part of the kit during the recording and not have them sound just dry and up front. I just try to make the drums fit with the songs. For me it always starts with what the song tells you it needs both arrangement-wise and sonically. I treat the drums as I do with all instruments. They have to fit together to make a cohesive song.

III. Analysis of Selected Passages

Analysis: Drums

Bottrill's production techniques and drummer Danny Carey's unique playing style contribute to the signature percussion timbres heard throughout *Ænima*, which are consistently crisp, resonant, full, and powerful. Carey's technique contributes an overall "proggy" sound to the album.⁹ The fast tom runs and polyrhythms recall progressive rock drummers such as Bill Bruford of King Crimson (whom Bottrill also produced), whose cited influence on Carey and the rest of the band cannot be overstated.¹⁰

Two factors account for *Ænima*'s signature drum timbre: 1) Bottrill's re-amplification of the drum mics back into the live room during recording; and 2) Danny Carey's playing style and equipment choices. Drums are typically recorded in-studio with close mics on each of the drums and ambient microphones to capture the balance of the kit in the room. For *Ænima*, Bottrill ran an additional feed from each of the individual drum mics (as well as the output of the electronic percussion module to be discussed shortly) simultaneously through a large PA system in the drum room. The close mics pick up not only the sound of the drums themselves, but also the amplification of those drums through speakers several feet away. This results in a natural reverb and delay that enhances the drums without sounding artificial (*pace* Phil Collins's 80s-era digital reverb sound).

It goes without saying that Danny Carey's equipment and playing style contribute to this sound. At 6'5", his thunderous playing is reminiscent of Jon Bonham's. Yet despite his size and manner of attack, Carey insists on using thin, responsive drum heads.

"I hit pretty hard and I like using thin heads in the studio, so we were changing heads between every two or three takes—and always between songs—and it's just another chore you have to go through. But to get the live, bright sound I like, that's just something I have to do."¹¹

We hear this liveliness in Carey's sixteenth-note-triplet tom fills in the 7/8 drum solo of "Forty-Six & 2" (4:33–5:04). Bottrill's use of panning here is notable. The low toms on Carey's right side of the kit are panned hard *left*, and the high toms vice versa. On these long fills that traverse Carey's kit from left to right, hearing the sound move gradually from the right to left speaker—especially on headphones—presents a wonderful simulacrum of the live concert experience.

Carey's electronic percussion parts are not programmed in a drum machine, but are rather performed live, in real time, on his Simmons SDX sampler and trigger pads. Unlike easily recognizable factory presets on popular drum machines such as the Roland TR-808 and TR-909, Carey captures many of his samples himself, including the metal dumpster and breaking glass in "Hooker with a Penis" (3:23).¹²

We hear, in the long introduction to "Eulogy" (0:01–2:08), Carey's other use of the Simmons pads: simulating ethnic percussion. A syncopated sixteenth pattern on simulated claves establishes clear 4/4 meter. After four bars an unrelenting dotted eighth enters to create a 3:4 grouping dissonance.¹³ These dotted eighths are high, with an indefinite pitch, a sharp attack, and a quick decay—a natural source is less than obvious. Finger cymbals begin punctuating the downbeat of every bar (0:23). Both a cabasa (0:47) and castanets (0:58) provide a counter rhythm against the claves. After a thunderous acoustic kick drum articulates every downbeat from 1:09 onward, a bongo pattern emerges in the left channel, with its echo in the right channel delayed exactly a dotted quarter note, adding to the overall 3:4 feel.

Analysis: Guitar

Whereas the band's first two albums, *Opiate* (1992) and *Undertow* (1993), relied on big, heavy, hard-rock guitars, Bottrill and Jones often treat *Ænima's* guitars as background textures to support other instruments or vocals.

When pressed about what production techniques led to these otherworldly sounds, Bottrill is characteristically modest, placing the credit squarely in Jones's hands. But there is a tension in Jones's equipment choice. On the one hand, Jones's recording chain—a vintage Gibson Les Paul through a trio of Diezel, Mesa, and Marshall amps—is holy grail territory for a hard rock record. On the other hand, *Ænima* is far from a guitar-vanity album. Even the biggest riffs have more of a synth-y softened edge than do traditional guitar records.

We identify two main shades of Jones's playing and Bottrill's production style on *Ænima*. For the sake of brevity, we'll refer to these two guitar timbres as <sludgy> and <textural>. In all such cases, the efficacy of the <sludgy> chorus timbres is relative to their subduction in the previous verses. For example, "Hooker with a Penis" opens with a small, caterwauling guitar before transitioning to a thick slurry of <sludgy>, chaotic, distorted riffs. There's nothing subtle about these <sludgy> chorus parts. They dominate this track and a few others—namely the singles. It is in these <sludgy>, wall-of-sound riffs that Jones's playing technique—perhaps more so than Bottrill's production—links most audibly to the recorded timbres.

Since most of the songs are in drop-D tuning, Jones can voice any power chord whose root lies higher than A_b2 (6th fret, E string) closer to the nut, on the A string. But particularly in the album's singles, Jones does *not* do this, playing distorted power chords unnecessarily high on the neck. This results in a richer, thicker tone. That is to say, he sacrifices economy of motion for a particularly full power chord timbre.

In the chorus of “Stinkfist” (1:10), for example, Jones voices the power chords E2–C3–D2 all on the lowest string, traversing frets 2–10–0 (respectively). Jones could have merely moved up one fret and one set of strings between E2 and C3, which would have resulted in a brighter, thinner sound. Similarly, unnecessarily <sludgy> power chord voicings can be heard in the choruses of “Eulogy” (2:38), “Jimmy” (2:26), “Forty-Six & 2” (2:07), and “Aenema” (2:04).¹⁴

The quieter sections of “Forty-Six & 2”, on the other hand, represent the <textural> timbres on the album. If you’re not listening for Jones’s guitars, you may overlook them before the first chorus. The effect is primarily the result of Bottrill’s mixing mastery, producing guitars in such a way that they can be woven into the framework of the song without calling attention to themselves. In the intro to “Forty-Six & 2” (0:12–0:36), for example, Jones’s only contribution is the staccato, palm-muted <2232232> rhythmic counterpoint against Chancellor’s bass melody.¹⁵ At 0:46, Jones’s <textural> playing—sparse pads and arpeggios—adds interest to the eight-bar vamp section just before Keenan’s vocal entrance. It is only in the bar before the chorus that the guitars become perceivable as such, rich, dry and full, as they support Keenan’s vocal crescendo into the chorus. This textural-sludgy cycle repeats until the drum solo near the end of the track.

Analysis: Bass Guitar

Justin Chancellor met Tool’s then-bassist Paul D’Amour a few years before *Ænima* came out when his band, Peach, opened for Tool on their *Undertow* tour. Of the lasting influence, Chancellor says:

[D’Amour]’s definitely an inspiration. When I joined Tool, the band already had a few songs written, and I wanted to get Paul’s sound and style—I loved it.¹⁶

Just prior to the *Ænima* sessions, D’Amour recorded the demos we analyze in Section I (“Stinkfist,” “Eulogy,” “Pushit,” and “Aenema”). However, D’Amour quit the band in 1995, just before tracking. This is when Justin Chancellor got the offer to join Tool, and recorded all of the bass tracks on *Ænima*. The primary bass timbre that we experience on *Ænima* is Chancellor’s signature sound, which we’ll refer to as <growly> for short. In *Bass Player* magazine, Shiraki and Bradman wrote:

Whether he’s grooving in tandem with Danny [Carey, drummer], doubling a melody with Adam [Jones, guitarist], or reacting to Maynard’s angst-ridden lyrics, Justin’s thick midrange tone, guitar-style techniques, and elastic versatility are the most grounded components of nu-metal’s loftiest band.¹⁷

To hear Chancellor’s <growly> sound on *Ænima* is to hear where he finally comes into his own as a player. This is somewhat difficult since D’Amour and Chancellor have at least two things in common as bassists. Firstly, both are guitarists by training, who approach the bass with guitar-playing techniques, including the use of a pick (rather than fingers) and the extensive use of distortion, flanger, echo, and other effects pedals. Secondly, Chancellor not only emulated the “sound and style” of D’Amour’s demos when he re-recorded these four tracks on *Ænima*—comparing the demos with the final product reveals that he actually copied the parts nearly note-for-note.¹⁸

Chancellor's <growly> bass tone comes from a change in equipment made just before the recording of *Ænima*. He started rehearsals with an Ernie Ball Music Man StingRay bass (coincidentally, the same bass used by D'Amour in the demos), but switched to the British-made Wal bass just before going to tape. Chancellor describes the Wal as "powerful," "punchy," and, relative to the Music Man, "it needed to push out a little stronger."¹⁹ Bottrill credits Justin's "discovery" (a friend from the band Failure let him borrow it) of the Wal bass, along with his Demeter preamp and Mesa Boogie amp, as the signal chain that results in *Ænima*'s unique bass sound.

Comparing two tracks—"Eulogy," originally demoed by D'Amour, and "Forty-Six & 2," composed by Chancellor—illustrates how both the Wal/Demeter/Mesa signal chain and Justin's unique playing style affect the sound of *Ænima*.

Chancellor's bass part on "Eulogy" is based entirely on D'Amour's demo. After the second chorus (5:08 in the studio version), the bass timbre is at its most isolated. Low, undulating, and syncopated, the bass introduces this new riff alone for four bars before being joined by the drums, <textural> guitar, and Maynard's soft voice. In D'Amour's demo, we hear a heterogeneous tone, in which a prominent high-end pick attack is fully separated from the round, full, and fat bass sound.²⁰ Chancellor's recording of this same riff with the Wal/Demeter/Mesa chain results in his signature <growly> timbre. We now hear that same high-end pick attack (remembering both players are guitarists), but it's integrated homogeneously into his growly, throaty, distorted tone.

When the bass and guitar parts are doubled in octaves in the two choruses, this difference in tone is readily perceivable. While D'Amour's rounded, less-defined tone seems merely to *support* Jones' power chords, Chancellor's throaty attacks are heard clearly underneath it. His heterogeneous timbre therefore leads to a broader heterogeneity between instruments, helping to separate his bass timbre from the guitar even when both are playing the same riffs throughout *Ænima* (see especially "Jimmy" and "Hooker with a Penis").

Where Chancellor had no recorded demo to start with, his timbre reflects his guitar-based performance technique. Both "Forty-Six & 2" and "H." begin with a bass feature that introduces the song's signature riff. Guitarists of all genres, but especially folk and other fingerpicked styles, often let a pedal bass note resonate while playing a melody on the upper strings. Various versions of the "Forty-Six & 2" and the "H." riffs heard throughout the song feature a low D pedal with various melody notes picked above. Playing in multiple registers simultaneously only further exaggerates the aforementioned heterogeneity we hear in Chancellor's tone.

Analysis: Vocals

Vocalist Maynard James Keenan has always had a commanding presence on Tool's albums. On *Opiate*, it's primal and antagonistic. On *Undertow*, it's dynamic and arresting. But *Ænima* demonstrates a sweeter, more vulnerable side at times that marks a stark contrast to the band's previous two records, and offers a necessary counterpoint to the album's soaring refrains, growls, grunts, and screams. His vocal approach on *Ænima* is more dynamic and interesting than ever, and it is on this record that he hones what will become his trademark sound for all Tool records that follow.

The opening track, "Stinkfist," bears all the hallmarks of *Ænima*'s unforgettable vocals. The verses feature an undermixed, nasal tone, which gives way instantly to shouted pre-choruses. Keenan takes a step back in the chorus (perhaps surprisingly given the loud, thick guitars) with a delicate, expressive *sotto voce* that is once again undermixed.

But Keenan's technique is just half of the story. Lyrical themes like transcendence, religion, and disillusionment give the whole of *Ænima* a sense of gravitas throughout.

"H." is one of Keenan's most gossamery performances at this stage in Tool's career. His animation of an emasculated, fragile protagonist ("the snake is drowned... I should have cried then") who ultimately trades his vulnerability for nihilism in the face of death ("I have died/and will die/it's all right/I don't mind") depends as much on shifts in vocal timbre as it does on the quasi-religious imagery used throughout.

Keenan's intimate, bedroom *sotto voce* in verse 1, with frail melismas at the ends of even-numbered lines ("mirror," "wine"), adds sincerity to the text's vulnerability and fragility.

Keenan's syncopated, detached delivery in the second verse shapes the protagonist's drifting thoughts as they stray from line to line. Though the chorus continues this lyrical fragility ("I still feel you/touching me/changing me"), Keenan's devilish delivery, double-tracked with reverse reverb, provides necessary sonic contrast. A nearly whispered middle section draws in the listener with themes of death and acceptance, then rises to a fever pitch when Keenan yells "I don't mind" on a remarkably sustained A4 as the band launches into a bombastic instrumental feature.

Keenan's vulnerability makes this final vocal explosion all the more earnest. It is this facet of his performance and the personae he inhabits that sets Tool apart from comparably one-dimensional, hyper-masculine hard rock acts in the mid-to-late 90s—the very type that Tool might have been associated with if not for the care and production expertise put into *Ænima*. The brilliantly navigated transfer of vocal energies and the characters they animate heard on "Stinkfist" and "H." also help shape the dramatic structures of "Eulogy," "Pushit," and "Jimmy."

IV. Conclusion

In Bottrill's own words, "records are a snapshot of where a band is creatively at one time, and [*Ænima*] just hit a special time for [Tool]." Though our timbral investigation on this landmark record has focused largely on documenting primary sources, physical materials, and production techniques, we ought not overlook the *je ne sais quoi* resulting from the synergistic interplay between competent, inspired musicians. Along with the album's haunting artwork and enigmatic lyrics, each of these are vital components that come together to form more than the sum of their parts.

Notes

- 1 We borrow this term from the eponymous symposium held in April 2014 in Aalborg, Denmark. Many conversations that took place there, especially those pertaining to the sonic signatures of various iconic records, were influential in the creation of this essay.
- 2 Considered thusly, the studio itself becomes an instrument. Just as a guitar amplifier is more than a tool to make the guitar louder, the modern studio *colors* the resulting sound, rather than merely recording it.
- 3 For recent methodologies concerning the analysis of timbre in popular music see Eric Clarke, *Ways of Listening: An Ecological Approach to Musical Perception* (Oxford: Oxford University Press, 2005); Mark Slater, "Non-Radical Didacticism in the Streets' *A Grand Don't Come for Free: A Poetic-Ecological Model*," *Music Analysis* 30, nos. 2–3 (2011): 360–395; David Blake, "Timbre as Differentiation in Indie Music," *Music Theory Online*, 18, no. 2 (June 2012), <http://mtosmt.org/issues/mto.12.18.2/mto.12.18.2.blake.php>. Accessed 29 November 2017; Allan Moore, *Song Means:*

- Analysing and Interpreting Recorded Popular Song* (Farnham, Surrey, UK: Ashgate, 2012); and Brad Osborn, *Everything in its Right Place: Analyzing Radiohead* (Oxford: Oxford University Press, 2016).
- 4 Online at www.rollingstone.com/music/albumreviews/aenima-19961205. Accessed 29 November 2017.
 - 5 Online at http://articles.chicagotribune.com/1996-10-03/features/9610030079_1_gin-blossoms-gruesome-guitars. Accessed 29 November 2017.
 - 6 Online at www.allmusic.com/album/%C3nima-mw0000074782. Accessed 29 November 2017.
 - 7 This is especially striking relative to modern, compressed, digital recordings with limited dynamic range.
 - 8 Hardly “normal,” the Diezel VH4 and the Mesa Dual Rectifier used by Jones are exceptionally high-gain amplifiers by any standard. By “normal,” Botrill likely means to impart only that the amps were not modified from their factory specifications in any way.
 - 9 It should be noted that his drum timbre does not remind the ear of ‘70s progressive rock records. The drum construction, microphones, and recording technology of that era sound nothing like Carey’s sonorous toms and thunderous kick.
 - 10 In a 1997 interview for the Belgian television music-documentary series *Soundcheck*, Carey cites the 1980 album *Discipline* as a life-changing record for him, discussing at length the title track’s 5 against 15 polyrhythm as a way forward in his compositional thinking. Online at www.youtube.com/watch?v=knJPCffGyE4. Accessed 29 November 2017.
 - 11 See *Soundcheck* TV interview cited supra.
 - 12 See *Soundcheck* TV interview cited supra.
 - 13 The dotted eights create a second grouping dissonance against the <33334> “double tresillo” pattern heard in the guitar, itself highly effected using a Digitech Whammy. For more on the double tresillo and other metric dissonances, see Nicole Biamonte, “Formal Functions of Metric Dissonance in Rock Music,” *Music Theory Online* 20, no. 2 (June 2014). Online at www.mtosmt.org/issues/mto.14.20.2/mto.14.20.2.biamonte.html. Accessed 29 November 2017.
 - 14 Many thanks to a Frank Nawrot, a student in my “Analyzing Popular Music” course at the University of Kansas, for identifying several examples this thickened guitar timbre.
 - 15 Jones’s <2232232> rhythm is both maximally even (its longer 3-durations are spread out as far as possible) and Euclidean (its 7 accents distribute the 16 subdivisions as evenly as possible). The complexity of the rhythmic counterpoint between the guitar’s accents and the bass’s <233332> Euclidean (but not maximally even) melody derives from the non-overlap in the middle of their ordered beat-class sets: <0,2,4,7,9,11,14> and <0,2,5,8,11,14>. For more on Euclidean and maximally even rhythms, see Brad Osborn, “Kid Algebra: Radiohead’s Euclidean and Maximally Even Rhythms,” *Perspectives of New Music* 52, no. 1 (Winter 2014): 81–105.
 - 16 See Scott Shiraki and E. E. Bradman, “Handy Man, How Justin Chancellor Frames Tool’s Metal Madness,” *Bass Player* (May 2001): 60–67.
 - 17 Shiraki and Bradman.
 - 18 The four demos D’Amour recorded with Tool can be accessed online at www.reddit.com/r/ToolBand/comments/1qeh1t/tool_Enima_demos_1994/. Accessed 29 November 2017.
 - 19 See Paul Southwell, “Tool,” *Australian Guitar* 24 (2001): 36. Available online at http://toolshed.down.net/articles/index.php?action=view-article&id=September_2001--Australian_Guitar.html. Accessed 30 November 2017.
 - 20 Blake has used the heterogeneous/homogeneous dichotomy to describe timbres in rock music, though usually with regards to multiple instrumental sources. See Blake, “Timbre as Differentiation in Indie Music.”