

Germany has a very long classical music tradition.
- Ralf Hütter of Kraftwerk, 2004

The DJ plays your favorite blasts,
Takes you back to the past –
Music’s magic! (poof)
- Afrika Bambaataa, “Planet Rock” (1982)

“Tomorrow’s Music Today”
- Advertising slogan for the Fairlight Computer
Music Instrument, ca. 1983¹

PRELUDE: The Great Liberation, or, Is there Life after Death?

The “death of (European) classical music” may seem a somewhat tired, even irrelevant trope with which to start an essay in the present venue—which is, after all, devoted to the study around the globe of (clearly quite healthy) popular music. Certainly there is no consensus among critics and scholars as to the survival of the literate, “cultivated” tradition of Western music as the twenty-first century advances, and even if there were, why should anyone doing popular music studies care, other than to register a small but real sense of satisfaction at avoiding what looks like a losing horse in the music history championship stakes? It oughtn’t matter much to the study of popular music whether, as partisans within the classical world indignantly retort, audiences for the symphony and opera are actually holding steady; whether, as classical record label executives report, the latest crossover hit has temporarily stabilized their bottom line; whether, as contemporary classical composers now hasten to assure us, they really *do* care if you listen.²

And indeed, these material-cultural issues are of little import for the discussion that follows. What cannot be ignored is the fundamental epistemological crisis that besets Western music as it

¹ Hütter interviewed by Sergey Chernov, *St. Petersburg Times*, 972, 28 May 2004; Fairlight slogan as quoted in Holmes 1996-99; “Planet Rock” lyrics as transcribed by the author.

² The reference here is to Milton Babbitt’s infamous article in *High Fidelity*, often anthologized under his preferred title, “The Composer as Specialist,” but which appeared in 1958 with the more journalistically *apropos* editorial title, “Who Cares if You Listen?”. For the revisionist soul-searching to which I refer above, see Ziporyn 1998.

heads into what more than one commentator has labeled its “post-classical” era (Horowitz 1995).³ I have argued elsewhere that the incipient collapse of our paradigmatic cultural hierarchy of music, along with its canon of “classical” masterworks, was easily discernable as European musical culture careened toward the millennium, ushering in a fundamental (and salutary) “de-centering” of its musical world-view. As I pointed out then, under the somewhat whimsical rubric “Why You Need a Musicologist to Listen to Beck,” one of the most disorienting consequences, ripe for scholarly study, was the collapse of the classical canon’s *segregating* function, its ability not only to keep the “low” music out, but to keep the high-art classical music of the European past safely walled in, where mass culture could mostly ignore it, occasionally gesturing at it from afar, whether to resist (“Roll Over, Beethoven”), parody (“Bohemian Rhapsody”), or appropriate (“A Whiter Shade of Pale”) its snob value, along with (at times) its sounds and structures (Fink 1998, pp. 142-56).

The story of ORCH5 is, accordingly, set within the de-centered world of Western music during the slow twilight of its classical canon. It will lead us from Düsseldorf to Detroit, and from avant-garde German modernism to Afro-centric hip-hop. It is a story of technology, of machines fetishized, appropriated, mistrusted, misused. It also turns out to be a ghost story, the story of what happens to a particular fragment of classical music after it stops being classical, when it is not quite dead, but, as Buddhists might put it, in the *bardo* realm halfway between death and new life. The classic description of the bardo appears in what is popularly known as “The Tibetan Book of the Dead”: the actual title, though, is (roughly) the *Book of the Great Liberation, through Hearing, in the Bardo Realm*. This is, accordingly a story of death—but there will also be an attempt at post-canon hearing, and at least some intimation of the great liberation(s) to come. Reincarnation, what Pythagoras called “the transmigration of souls,” is not an exotic, foreign concept; it has always been deeply woven into the European musical consciousness, brought to us by the same mind to

³Kyle Gann, who once published a wicked and witty parody of the perennial “death of classical music” article (as a hard-boiled detective story) in his column at the *Village Voice* (Gann 1997), has titled his web log (and associated radio station) simply “Postclassic.” (The web log is hosted by www.artsjournal.com, and the (highly recommended!) radio station, winner of a Deems Taylor award, is streamed on www.live365.com.)

which we mythically attribute the foundational observations of Western music theory. The story I have to tell is of musical reincarnation, of the transmigration of *tones*. It is a tale of the afterlife of “classical music,” transmigrated through digital technology, the commodity form, and myriad fortunate cultural misreadings of a single famous chord.

It is the story of the classical ghost in the hip-hop machine.

Kastchei the (Digitized) Immortal

ORCH5 is low-resolution, 8-bit digital sample, a very early one, perhaps the first one to become famous. It was digitized around 1979 by David Vorhaus, a computer programmer and classically-trained electronic musician. The file appeared on Disk 17 of the 25-or-so eight-inch floppy disks that made up the sampled sound library shipped with each *very* expensive Fairlight Computer Musical Instrument. (In the United States, the going rate for a Fairlight Model IIx in the early 1980s was over \$25,000; see Holmes 1996-99.) The Fairlight CMI, originally cobbled together in 1979 by two Australian inventors out of the ruins of the Quasar, a failed analog modeling synthesizer, was the first commercially available electronic musical instrument that, in addition to generating musical sounds through analog/digital synthesis, gave its owner the ability to sample pre-existing sounds into digital memory, process them, and play them back through a keyboard. It is thus the single evolutionary starting point for an entire phylum of ubiquitous (and much cheaper) digital samplers, including the Akai S-series (1984) and the Ensoniq Mirage (1985), so crucial to the rise of sample-based hip-hop.

Kim Ryrie and Peter Vogel, the inventors of the Fairlight, considered its digital sampling capability a technical hack, a clever shortcut on the way to their ultimate audio workstation. Digital conversion allowed them to implement complex tools for sound synthesis while bypassing processor-intensive tasks too difficult for its parallel pair of primitive Motorola 8800-series microprocessors. Nobody really took sampling *per se* seriously at first: company apocrypha identifies the first sound

sampled for melodic playback as the barking of an employee's dog. But early Fairlight users singled out the CMI's sampling power as a key differentiator, and soon company brochures touted the system's ability "to incorporate literally ANY type of sound – not only classical and modern instruments but sounds of the world; sounds reflecting the full spectrum of life, from the subtlety and force of nature to the sounds of civilization and synthesis" (Fairlight 1983). This is why Fairlights began shipping with floppy disks full of sampled sounds. Many of these soon-to-be famous samples had been somewhat casually appropriated by an adventurous first generation of users. Vorhaus, an orchestral double-bass player as well as founder, with members of the BBC Radiophonic workshop, of the British electronic "pop" group White Noise, was a typical early adopter of the Fairlight; he brought his classical training very much to bear as he contributed to what would become the standard set of samples included with every new CMI.

ORCH5 was just one of a series of ORCH samples that Vorhaus and others culled from (one assumes) a quick troll through their classical record collections. The orchestral samples provided with the Fairlight feature short snippets of full-orchestra chords from the symphonic literature, usually just a single attack, often pitched (TRIAD), but also percussion-dominated (ORCHFZ1), occasionally looped to provide a pulsating pattern capable of sustained use (ORCH2). ORCH5, the most famous of these, is almost certainly sampled from Igor Stravinsky's ballet *The Firebird*; as I have verified myself using digital sound processing, the loud chord that opens the "Infernal Dance of All the Subjects of Kastchei," pitched down a minor sixth (and also slowed down, since digital technology did not in 1979 yet allow independent manipulation of frequency and sampling rate), can be made to match with tolerable precision an iteration of ORCH5 on the pitch C₄ easily obtainable from several internet websites devoted to the mysteries of the Fairlight CMI.⁴ It's not hard to fathom why Vorhaus picked this spot: the piece is famous, the sound is impressive, and, crucially, in every one of Stravinsky's three suites from the ballet, this forceful blast is neatly isolated at the beginning of a

⁴ Audio samples of the Fairlight's sound library, including ORCH5 can (as of late 2004) be accessed at Holmes 1996-99. See also the larger downloads of sound banks from the Hollow Sun website (<http://www.hollowsun.com/vintage/fairlight/>).

movement, framed by complete silence on one side and only a low *pianissimo* rumble on the other (Example 1).

Here, as classical music steps into the bardo realm, is where a musicological ear is of use; the Russian provenance of ORCH5 gives rise to some quite strikingly ironic overtones, mostly pitched at frequencies that require at least some music-historical training to perceive. The sampled chord in question was notated in 1909, quite close (as Horowitz 2005 argues) to the absolute apogee of classical music culture in the West. It is the creation of the Western composer most famously and consistently fascinated with the use of recording technology to fix and transmit his music to future generations; and yet, Stravinsky would undoubtedly have been horrified that the first digital sample to enshrine, as pure information for all time, a fragment of “classical music,” happened to preserve this particular chord from this particular work. Long before his own death in 1971, Stravinsky had become hagridden by *The Firebird*; he often wished in print and conversation that the piece, an inveterate request every time he proposed to conduct or record, would just go away. For most of Stravinsky’s life, *The Firebird* was, to him, already dead; audience fetishization of his first concert success simply got in the way of an ongoing creative life. As musicologist Joni Steshko argues, Stravinsky’s two re-orchestrations of the ballet suite are not just practical (the first, in 1919, to reduce the orchestra to generic proportions; the second, in 1945, to re-establish copyright): they impose a programmatic “dehydration” (the word was Olin Downes’s, in an exchange following on a concert review to which the composer had bitterly objected) on Stravinsky’s lush original that shows the composer so increasingly out of sympathy with his old creation that he seems to be attempting to exorcise—or at least tame—an unwelcome ghost from his past (Steshko 2000, pp. 230-49).

Vorhaus appears to have sampled either the soggy 1910 suite or its 1919 reduction, *not* the 1945 “dried-up” version of the ballet; but the limitations of his 8-bit analog-to-digital conversion process produced a brittle, grainy sample whose frequency spectrum is shifted noticeably towards

the upper registers of the orchestra.⁵ This has the paradoxical effect of making the sample sound both “old” (because its low fidelity cannot capture the full range of the orchestra, as in the pre-LP era), and “new” (because the sound itself is noticeably devoid of “romantic” lushness). As it happens, Stravinsky’s successive re-orchestrations of the ORCH5 chord had a similar bass-filtering (and thus modernizing) effect: by 1919, in search of a dryer, lighter sound, he had replaced two of the harps with the ringing sound of the piano’s top octaves, asked for the bass drum to be struck with a leather mallet, and instructed the timpanist to use his hardest wooden stick. In the final 1945 version, his remixing went even further, with a xylophone glissando and a new snare drum roll producing a distinctively dry, crackling spray of dissonant upper partials. In effect, Stravinsky had been down-sampling his younger self long before Vorhaus captured the dried-up digital remains of *Kastchei the Immortal* on an eight-inch floppy disk.

How much of the original juice could possibly be left?

Stravinsky Joins the Zulu Nation

ORCH5 led a quiet life for about two years. Only wealthy or well-connected pop musicians had access to a Fairlight CMI, and the complexities of programming its intricate waveform editor and its quirky music sequencing module (the famous “Page R”; see Holmes 1996-99) made harnessing Fairlight samples the province of methodical experimenters with big budgets, lots of time, and notably progressive tastes. When ORCH5 showed up in their work, the temporal and acoustic distance it encoded, the grainy, slowed-down, “half-dead” sound of a classical orchestra taken out of context, often worked towards a kind of Orientalist exoticism. This is how Kate Bush used the sample in the title track of her 1982 album *The Dreaming*: blasts of ORCH5 under heavy reverb lance through the chanting, didgeridoos, and pounding drums of the song’s fadeout, the whole a spooky

⁵ It is not possible for this author to tell exactly which *recording* of Stravinsky’s *Firebird* was sampled by Vorhaus. One could, of course, ask him, but I refrain as a matter of principle: to ask Vorhaus to identify the recording would be to open huge swaths of the hip-hop world to the possibility of copyright infringement lawsuits. In the hip-hop world, this is called “snitching.” Joseph Schloss, in his recent study of hip-hop producers, refuses for this reason to transcribe into musical notation any of the chopped and looped samples he discusses (Schloss 2004, pp. 12-15; 120-30).

musical depiction of Australia's aboriginal "dreamtime" under attack by industrial modernity ("Bang!' goes another kanga/On the bonnet of the van..."). Other early Fairlight owners, especially in Europe, used its sampling capability to reactivate the subversive agenda of the "historical avant-garde" (Huyssen 1986) within popular dance music. Presumably this is why Anne Dudley released her essays in Fairlight-enabled sound collage—where ORCH5, jostling for space with the sound of chainsaws, breaking glass, and motorcycle engines, functions as pure alienation-effect—under the retro-Futurist moniker "The Art of Noise." (Dudley—or Trevor Horn, her main collaborator—may well have known first-hand from Vorhaus whence the sample came; in any case, the final moments of their 1984 hit single "Close (to the Edit)" wittily close the loop, mixing ORCH5 back into a congeries of sampled orchestral blasts from Stravinsky's *Rite of Spring*.)

But in late 1982, Stravinsky and Vorhaus started hanging with a blacker, funkier crew; ORCH5 joined the Zulu Nation. "Planet Rock," an interracial collaboration between pioneering hip-hop DJ Afrika Bambaataa and dance producer Arthur Baker, was a massive R&B hit; it remapped the sound and practice of hip-hop, defined several new musical genres, and spawned hundreds of imitations. Bambaataa himself immodestly claims at least *six* genres of dance music were born when "Planet Rock" launched the style that he himself called "Electro-Funk," and which would be known simply as "electro": "the Miami Bass to the Latin freestyle, Latin hip-hop, to the house music, hip-house, techno" (Fricke & Ahearn 2002, p. 315). Baker agrees: "I knew [it was a historic track] before we even mixed it. I knew before there was even a rap on it. I went home the night we cut the track and brought the tape home and I said to my wife at the time, 'We've just made musical history' " (Brewster & Broughton 2000, pp. 242-43).

Bambaataa and Baker didn't just make hip-hop history; they also made world-famous a particular orchestration of ORCH5. African-American musicians have been asking other musicians to "hit them" for decades; but "Planet Rock" is the first time that the hit came down in the form of a digital sample. Baker (1999) claims technical priority, since Bambaataa knew the beats and breaks he

wanted, but “didn’t know about the studio,” and since it was through Baker’s industry connections that the “Planet Rock” sessions took place in a fully-equipped New York recording space—the kind that had an expensive Fairlight CMI just sitting around ready to transform African-American popular music.

On one level, “Planet Rock” was pure serendipity. Bambaataa and Baker had no idea how to use the machine, no one to show them, nor any time to learn:

It was pretty quick to make because we didn’t have much money. We’d get downtime – night time – sessions. The guy who owned the studio gave us a deal. Maybe it was three all night sessions. We did all the music in one session and a bit of the rap. Then we did the rap. Then we mixed it. (Baker 1999).

John Robie, the keyboard player, hacked around until he figured out how to trigger eight versions of ORCH5 simultaneously, using both hands, on the pitches of a root-position minor triad. The Fairlight IIx, with its eight independently operating audio cards—and which in all other respects seemed to Baker and Bambaataa an un-programmable “\$100,000 of useless space thing”—responded beautifully (Baker 1999).⁶ A hip-hop cliché was born.

But one might ask why the first sampled hit should be so dark, portentous, and *classical*-sounding. Why did Robie filter Stravinsky-by-way-of-Vorhaus through that brooding minor triad? Could it have something to do with the dark synthesizer tune, full of Germanic *Weltschmerz*, that he knew he would be asked to play a few moments later?

⁶ A technical note: this eight-voice polyphonic mode, in which the same sound is assigned to each one of the machine’s eight audio registers, is the default setting on the Fairlight’s Register & Keyboard Control Page (Page 3). Thus a high level of computer literacy would be required to get the CMI to do *anything else but* simply play eight iterations of the sample in Register A when eight keys were pressed down. The only other “programming” skill one would need to produce “Planet Rock” was the ability to use a lightpen on Page 2, Disk Control, to select a file like ORCH5 from the contents of the floppy disk and load it into the default memory location, which is, of course, Register A. The recording engineer could have shown Robie or Baker how to accomplish this in less than thirty seconds. As so often in the history of electronic dance music (analogous stories could be told about the Roland TB-303 bassline generator and the birth of acid house), using the machine correctly, to make conventional music—the Fairlight, for instance, could be laboriously programmed, using register control and keyboard mapping, to play in real time all the sounds of a jazz or rock combo—was extremely difficult. Using the machine incorrectly, “hacking” it, on the other hand, was easy, and the sounds resulting were often, as in this case, more interesting than the sonic output intended by the machine’s creators. For details on programming the Fairlight CMI, as well as screen shots of its control pages, see Holmes 1996-99.

Eleganz und Dekadenz, or, Kraftwerk throws classical music from the train

That tune is, as everyone knows, a quotation from Kraftwerk's 1977 non-hit, "Trans Europe Express." Using Kraftwerk (not to mention "The Mexican," transcription by British prog-rockers Babe Ruth of Ennio Morricone's big tune from *For a Few Dollars More*) was an attempt to capture in the studio the unpredictable range of Bambaataa's live DJ-ing. Bambaataa liked throwing stuff like Kiss, The Monkees, some calypso, bongo breaks, movie soundtracks, even the Pink Panther theme into a funky set; though the group's appearance reminded him of "some Nazi type of thing" (Fricke & Ahearn 2002, pp. 310-11), he particularly liked the electronic sound of Kraftwerk, an esoteric taste he shared with Baker, and which was partly responsible for getting the white disco producer and the black hip-hop DJ working together (Baker 1999). Standard histories of hip-hop credit Kraftwerk's robotic drum machines with kick-starting electro, and it is clear that Planet Rock's beat is copied verbatim from the track "Numbers" off their futuristic 1981 *Computer World* album. (Copied, *not* sampled: Baker found, for \$20, someone who owned one of the newly-released Roland TR-808 "drum machines" and who was able to program the Kraftwerk beat into it.) But Planet Rock's minor-key ORCH5 and dark synthesizer tune also transmigrate the resonances of the earlier Kraftwerk project, a darker record whose concerns were more political, more historical, and more narrowly European. Bambaataa reports that, given the early 1980s absence of listening booths in used record stores, he picked up vinyl whose cover art and lettering "looked funky" (Fricke & Ahearn, p. 46); it's hard to imagine what would have made him pick up *Trans Europe Express*. Figure 1 reproduces the U.S. front cover of the Kraftwerk LP; its nostalgic glamour seems worlds away from beat-boxes and the Bronx. In fact, the German front cover was a stiff shot of the four members of Kraftwerk in black and white, taking what they called their "string quartet" poses. The album's packaging features carefully staged and colorized pictures that evoke not technological modernity, but ambiguously pastoral images of the 1930s, as when the four members of the group, dressed in darkly conservative wool suits, arrange themselves stiffly and formally around a café table draped with a red-and-

white checked tablecloth, all in front of a painted photographer's backdrop of quaint Bavarian landscape. They might indeed be waiting for a local train—or perhaps something a little less *volkstümlich*, like a meeting of the local NSDAP (Figure 2).⁷

The nostalgia really cranks up, though, with the album's idiosyncratic table of contents, which takes up the entire inside sleeve (Figure 3). Drawn on a background of music staves, using musical notation, even introducing a hand-drawn picture of Franz Schubert, the Austro-German composer we can most easily imagine picnicking with the boys around a Bavarian checkered tablecloth, this guide to the album sets us up to hear it as an extended meditation on classical music, German identity, and—given the psycho-symbolic import of trains and train-trips—*loss*. Thus it is hardly surprising that the entire record is unified both tonally and motivically—not implausible for a pair of conservatory-trained German musicians who worked for a time under Karlheinz Stockhausen, but also, here, an expressive strategy: to use the structural apparatus of European classical music to comment on its decline and death.

To be fair, this reading of *Trans Europe Express* is conspicuously unsupported by definitive statements from Kraftwerk's creative team, composers Ralf Hütter and Florian Schneider. Artistic pronouncements emanating from their Kling Klang studio, of which there have been many over the years, are in general useless for hermeneutic purposes, since a large part of the group's conceptual aesthetic is based in deadpan irony and DADA-esque media jamming. Some of the interpretive frames placed by Hütter and Schneider around *Trans Europe Express* are patently silly, even offensive, like the notion that since Kraftwerk made “electronic blues,” and classic Negro blues often involve trains, they ought to record a song about the European train network (Bussy 1993, p. 86). Foolishness aside, Kraftwerk and their fans have seen the group's paean to high-speed train travel as congruent with their positive embrace of modernity and technology, a fitting sequel to albums themed

⁷ This may seem a far-fetched reading—but it appears to be exactly what Pascal Bussy meant when he saw Kraftwerk in this picture “almost as if posing as cardboard cut out extras for a scene in the film *Cabaret*” (Bussy 1990, p. 85). The reference can only be to the *mise-en-scene* of the movie's one daytime number, “Tomorrow Belongs to Me,” with its chorus of apple-cheeked brown shirts giving an impromptu, menacing concert in the sunshine of a Berlin *Biergarten*.

around the *Autobahn* (1974) and *Radio-Activity* (1975): “movement fascinates us...all the dynamism of industrial life, of modern life” (Hütter as quoted in Bussy 1993, p. 88). Yet a fundamental incongruity remains. How to reconcile a briskly unsentimental view of industrial modernity with faded images of pre-war *gemütlichkeit*? What do old-fashioned musical notation and a wan little cartoon of Schubert have to do with the futuristic embrace of “musical machines” that eliminate the very possibility of spontaneity or virtuosity? One possibility, not to be followed up here, is the critique of routinized classical music performance that would become explicit as soon as Kraftwerk began using robotic dummies in “live” performance: “The interpreters of classical music, Horowitz for example, they are like robots, making a reproduction of the music which is always the same. It’s automatic, and they do it as if it were natural, which is not true” (Hütter as quoted in Bussy 1990, p. 161).

Internal music evidence seems to suggest, however, that it is not just classical music’s star interpreters who are “dead”; *Trans Europe Express* manipulates its musical material so as to let us hear, if we wish, the death of classical music itself. Consider Example 2D, which transcribes not ORCH5, but the mournful synthesizer melody Baker, Bambaataa, and Robie lifted and made famous in “Planet Rock.” Its minor-key chromaticism and, as we’ll see, its signifying function within the album’s motivic web will justify the slightly portentous label of “*Weltschmerz*” theme. (Within an interpretive community based in European tonal music, the theme’s specific habit of repeated leaps up to the lowered sixth degree of the minor scale will overwhelmingly be read as expressive of pain and sorrow.) With its syncopated chuffing, track-rattling ostinato and sampled screeches of metal on metal, the song “Trans Europe Express” is an onomatopoeic train ride, certainly; but its real expressive significance does not become clear until we hear it as the dark night-time echo, the negation, of an earlier trip taken in broad daylight. “Europe Endless,” the first song on the album, is in many structural ways the expressive double of “Trans Europe Express”: the latter begins in the gloom of dissonant stacked fourths resolving to E^b minor (Example 2C, *left*), and then modulates, via Doppler effect, down a third to C minor; while the earlier track, opening with radiant G major arpeggios,

modulates *up* a third to an even more sunny B major. A motivic transformation clinches the connection: the same rhythm and contour that outline soggy C-minor *Weltschmerz* in “Trans Europe Express” first appear at the climactic moment of “Europe Endless,” at the peak of an endless, rhapsodic prolongation of the dominant and its energy. (The “painful” appoggiatura progression ^b6-5 accordingly starts off as the more sanguine use of the natural fourth scale degree to decorate the major third; see Examples 2A-B.)

Just before that ascent, Schneider murmurs a verdict on European culture: “*Eleganz und Dekadenz*.” The synthesizer theme that Baker and Bambaataa will later borrow is made, over the course of Kraftwerk’s album, to act out that decay; at the end of “Metal on Metal,” the track that follows and extends “Trans Europe Express,” it is buried under dissonant fourths and finally crushed under the wheels of technological modernity. (Bambaataa would have been quite familiar with this process; we know that one of his early-1980s Zulu Nation tricks was layering the fiery rhythms of speeches delivered by Malcolm X over the unbroken thirteen minutes of “Trans Europe Express” plus “Metal on Metal” as they followed one another on the B-side of *Trans Europe Express* (Brewster & Broughton, p. 243).) And, if the album cover’s musical notation and nostalgic imagery are not enough, consider the penultimate track, “Franz Schubert,” in which the decay of the *Europe-Weltschmerz* theme is explicitly linked to the most *gemütlich* of German classical composers. Back in the G major of the album’s opening, the basic theme itself decays, contour and pitch dissolving under massive reverb and delay effects (Example 2E). It sounds like a dream...or a ghost.

Welcome to the bardo realm.

Lost in Space: ORCH5 and the Retro-Futuristic Sound of Electro-Funk

Thus my fundamental hermeneutic leap: if Kraftwerk’s *Trans Europe Express* album is about the collapse of European culture as embodied in the decay of its classical music; and if the appropriation of the *Weltschmerz* theme by Baker and Bambaataa transferred some of that anxiety and gloom into African-American music; then John Robie’s ORCH5 blasts capture, perhaps by accident,

the sad revenant of European classical music in a single digital sound. This is how the classical ghost (Stravinsky, standing in here for Schubert, who is standing in for the entire Germanic concert music tradition) gets trapped in the hip-hop machine.

Or, should we rather say, is *liberated* by the hip-hop machine? There is an argument to be made that ORCH5, through a complex transmigration of tones, was soon able to stand expressively by itself without the entire structure of feeling I have just outlined, since nobody in the Bronx actually linked it consciously to the death of European art music, about which, presumably, they couldn't have cared less. Baker's original idea for "Planet Rock" was to avoid, for copyright reasons, any direct use of Kraftwerk's tunes (Baker 1999); you can hear the first version of the track, which he actually thought was better than the version the label decided it was perfectly safe to release,⁸ underneath the smooth vocals of his next production, Planet Patrol's "Play at Your Own Risk." That track uses a different synthesizer tune, while a new and funky clavinet riff gives the groove a more soulful feel; but ORCH5, the signature sound of "Kraftwerk in NYC, ca. 1982," remains, now doing all the signifying work by itself. As sonic synecdoche, minor-key ORCH5 began to take on an (after)life of its own: what carried the weight of the decaying European tradition in Düsseldorf or Berlin was taken on quite different, African-American terms in the five boroughs.

The transmigration seems to have proceeded in two phases. In the first, electro producers troped directly off the science-fiction imagery of Bambaataa's "Planet Rock"; ORCH5 was heard within the matrix of the later, more overtly cybernetic Kraftwerk, the orchestral blasts and doom-laden synthesizer lines resonating, after the fact, more with *The Empire Strikes Back* than with Schubert and Weimar fascism. This played perfectly into an Afro-futurist cultural project that Bambaataa consciously took over from Sun Ra and George Clinton, and, as we'll see below, provides a key

⁸ They were wrong, and he was right to worry. Kraftwerk, once they became aware of this appropriation, responded in a distinctly un-postmodern, academic way: they immediately sued Baker and Bambaataa, furious that they had not been correctly footnoted: "If you read a book and you copy something out of it, you do it like a scientist, you have to quote where you took it from, what is the source of it" (Kraftwerk percussionist Karl Bartos as quoted in Bussy 1990, p. 125.)

imaginative linkage to the house and techno music that the Zulu Nation pioneer claimed as the logical consequence of his “electrifying” hip-hop.

Science fiction, presumably, is the intended referent of the *alla breve* minor-key synthesizer tune that begins its methodical climb, punctuated by brassy orchestral “explosions,” at about 2:50 into “Planet Rock” (Example 3A). Although it sounds dark and “serious” enough to be from *Trans Europe Express*, this skeletal scalar ascent was invented expressly for “Planet Rock.” The grainy string-like timbre and plodding tension evoke Kraftwerk’s mordant, robotic version of classical music pretty well—but they also sound a lot like the bombastic pastiches of late-Romanticism that lent excitement to battle scenes in Reagan-era space and adventure epics like *Star Trek* and *Raiders of the Lost Ark*.

This Kraftwerk-meets-John-Williams-on-the-synthesizer trope was easy to imitate, but it demanded appropriate content. The desire to copy that distinctively stiff keyboard sound forced electro producers to emphasize exotic, futuristic topics—the ones that would, paradoxically, justify the sound of dead European music in their grooves—and they rose to the challenge with rap songs based on science fiction, computers, video games, and nuclear annihilation. A constellation of sonic cues assembled itself into “electro”: vocoders applied to the MC for a cold robotic sound; the rigid bounce of electronic percussion, with static-laden snares and the distinctive chiming “cowbell” of the Roland TR-808 well to the fore; long unison synthesizer tunes in regular, unsyncopated rhythms; and, slicing through it all, minor-key blasts of ORCH5 providing a dark cinematic edge.

The spread of minor-key ORCH5 was not just a consequence of digital sampling getting cheaper—it was a precise, deliberate imitation of Bambaataa imitating Kraftwerk. The original Stravinsky chord sampled by Vorhaus was an orchestration of the open fifth A-E, and thus had no modality; only the multiple-voiced version in “Planet Rock” is minor. As Example 3B demonstrates, imitation was often the maximally sincere form of flattery: Larry Johnson and Maurice Starr of The Jonzun Crew changed just enough notes in their version of the “Planet Rock” riff to keep their

“Pack Jam,” a catchy paean to the popular video game Pac Man, from actually infringing copyright. (Baker himself had set the precedent by releasing “Play at Your Own Risk” under the group name Planet Patrol, the title of a popular Atari video game.) “Siberian Nights,” programmed by a young Fairlight whiz named Gordon Bahary (who had worked on one of the first Fairlights in America while helping Stevie Wonder get ready for his *Secret Life of Plants* tour), used a lowered second scale degree to give its riff a Soviet Russian accent (Example 3c); but the combination of high-tech electronic percussion, “classical” sounding minor-key organ solos, and meditations on technologically-enabled cultural extinction (“You got nuclear war, atomic rain/And nuclear winter gonna freeze your brain!”) seems, like “Planet Rock,” nicely balanced between the futurist dystopianism of Kraftwerk and the retro-futurism of George Lucas.

Or should we rather name-check George *Clinton*? The Jonzun Crew’s 1983 album was, appropriately enough, entitled *Lost in Space*. On it, their project to continue the psychedelic Afro-futurism of Sun Ra and Parliament-Funkadelic as reinvigorated by Afrika Bambaataa is made explicit, as “Pack Jam” rubs shoulders with freaky tracks like “Space Cowboy” and “Space is the Place.” Mark Dery argues that “if there is an Afrofuturism, it must be sought in unlikely places, constellated from far-flung points” (Dery 1994, p. xxx). His example is the opening of Ralph Ellison’s *Invisible Man*, in which the “proto-cyberpunk” narrator’s desire to hear Louis Armstrong on five simultaneously spinning turntables prefigures the cut-and-splice adventures of Grandmaster Flash and his “Wheels of Steel.” But what more unlikely constellation than the one just outlined, where sonic ghosts of Stravinsky and Schubert battle each other inside a funky evocation of a video arcade, where Kastchei, the medieval Russian sorcerer, break-dances through the endless Siberian night of nuclear winter?

A key aspect of the Afro-futurist imagination lies in a complex identification with the science-fiction Other, with *alien*-ness, on the part of a culture still dominated by the dark legacy of subjugation to more technologically advanced colonialism. From this springs a powerful desire for

the Mothership Connection, a desire to appropriate and unleash the power of alien technology—usually imagined simultaneously as ancient technology—on behalf of the oppressed (Kelley 2002). It only remains for the post-canonic musicologist to point out that, in the sound-world of electro-funk, it is European art music that is cast, consciously or not, in the role of ancient, alien power source. Kastchei is riding the Mothership, and ORCH5 is his talisman, the classical jewel hidden beneath the hip-hop Pyramids. “Music’s magic!” cry the members of the Soulsonic Force, and we know what they mean. It has the power to fill Stravinsky’s *Firebird* up with rocket fuel.

Techno Scratch: ORCH5 Takes a Break

In the second phase of ORCH5’s transmigration, it loses even the vestigial association with orchestral art music afforded by Bambaataa’s “sci-fi soundtrack” trope, and is absorbed completely into the generic musical practice of early-1980s hip-hop. Other NYC DJs and producers heard Bambaataa’s polyphonic orchestral “blast from the past,” those eight sets of grace notes sliding up to the tonic, and imagined not the laser cannons from *Star Wars*, but a new and funky kind of digitized turntable scratch.

The precedent had been set by the first generation of hip-hop DJs. Most of the cutting and scratching of early performers like Grand Wizard Theodore, Kool DJ Herc, and Grandmaster Flash has been lost to posterity, and if one is familiar only with recorded output from the period, the connection between hip-hop beat-juggling and ORCH5 might seem obscure. But a trace here and there allows provisional reconstruction of how sampling Stravinsky could function like scratching vinyl in the Bronx, ca. 1982. Consider the track “Flash Tears the Roof Off,” a 2002 recreation of a classic turntable mix from the early 1980s. In it, Grandmaster Flash (Joseph Sadler) cues up two copies of a famous break from Funk, Inc.’s 1972 soul-jazz record, “Kool is Back.” (This drum break—sampled and played back, probably, on a Fairlight CMI—was made famous among white folk in 1983 when Trevor Horn used it to punctuate his production of Yes’s “Owner of a Lonely Heart.”) Flash pro-

ceeds to execute *the* classic maneuver of Bronx sound system DJ-ing, which he more-or-less invented, alternately rewinding and releasing the records, looping, stretching, and chopping up the short drum fill into an extended dance break. So far, standard hip-hop practice, and hardly worth mentioning, except for a strangely familiar sonic intruder, lurking in the grooves of the record. Unlike the everywhere-sampled breaks in tracks by James Brown (“Funky Drummer”) and The Winstons (“Amen, My Brother”), which start “clean,” the first beat of this drum fill is punctuated by a loud splat from the entire quintet, cutting loose on a funky added-sixth chord. As voiced and swung in “Kool is Back,” this “G⁶” chord sounds enough like ORCH5 that listeners often mistake one for the other: in both cases, members of the ensemble attack early and slide up to meet a sharp, staccato downbeat with heavy emphasis on an open fifth, which then reverberates into recorded space.

I wouldn’t insist on the resonance, were it not for what Grandmaster Flash does with that hit. As he juggles the break, he picks up the “kool” chord attached to its first beat and—intentionally or not—juggles it, too. The sharp *tutti* attack is now the direct result of a turntable scratch, and marks the syncopated downbeats of chopped and sampled breaks. When hip-hop DJs and producers heard ORCH5 in “Planet Rock,” some of them quickly realized that it could be used in precisely the same way, and they began dropping it into tracks filled with sampled breakbeats and digitized techno-scratches to create an up-to-the-minute, “electro-funk” effect. ORCH5, no longer just the sound of science fiction, but also “the hit-before-the-breakbeat-starts,” could then be rhythmically activated through (often faux) scratching and beat juggling.⁹ Used this way, as in Mantronix’s 1985 classic, “Needle to the Groove,” the *Firebird* chord becomes a purely percussive accent, stripped not just of dark, minor-key glamour, but of any tonal function at all. This must be the reason Kurtis Khaleel of Mantronix simply couldn’t be bothered to adjust the pitch level of his ORCH5

⁹ There may have been iterations of ORCH5 or ORCH5-like sounds on DJ records, but I have never seen one. One could, of course, have attempted to scratch with “Planet Rock” itself, but that would have been unutterably lame (Schloss 2004, pp. 114-19).

sample to that of the surrounding track, triggering it instead at a consistent and grating half-step below the tonic. The effect is, to musicological ears, genuinely avant-garde (if probably serendipitous). “Needle to the Groove” recycles most of the aural signs of electro: vocoded chanting; “mechanical” TR-808 drum beats; and, of course the ubiquitous ORCH5 sample, but now on the off-beats, syncopated, within an expressive context that betrays no hint of futurism, Afro- or otherwise. The song’s infectious refrain, spinning out of its self-referential title phrase (“We got the needle to the groove/We got the beats that’ll make you move”), makes it clear that classical music, or at least the fragment of it trapped within ORCH5, had achieved, through systematic musical transmigration, a great liberation.

By the mid-1980s, ORCH5 is thoroughly naturalized within hip-hop, to the point that one need neither invoke the death of European culture nor the incipient descent of the Mothership to use it. It doesn’t have to sound melodramatic and minor, and you don’t even have to put it on the downbeat. It’s just one of the many funky things that can happen when you put the needle to the groove.

POSTLUDE: Strings of Life

At this point it would be possible to follow dozens of tracks towards the present day; but me follow the most direct route, the high-speed techno train that runs between Düsseldorf and Detroit.

Few people in the pop music world of 1982 even knew what a Fairlight was. After the huge success of “Planet Rock” and Baker’s follow-ups, many urban musicians casting around for an ORCH5-like sound settled on what I one might call the “techno minor” triad. A staccato minor chord played through a grainy analog string patch, with its envelope tweaked to provide both a sharp percussive “chuff” at the attack and a pronounced reverb at the release, sounded pretty much like ORCH5, if you weren’t too particular. Techno minor plus beats from a machine was all you

needed to get the sound, as a track with the utilitarian title of “122 B.P.M,” programmed for a production music house by David Linn, inventor of the Linn drum machine, demonstrated.

This is the sound of very early Detroit techno, for instance the group Cybotron, a group of suburban black teenagers who everybody took for “some white guys from Germany.” “Clear,” Cybotron’s first (and only) hit, features rhythmically syncopated repetitions of the techno minor triad over a lopsided *Computer World*-style mechanical beat. When a pyramid of synthesizer tones dissolves into a melancholy tune right out of “Trans Europe Express,” it is clear that Juan Atkins, the brains behind Cybotron, *wanted* to be taken as white and from Germany, and that “Clear” is meant as overt homage to the paradigmatically white German guys who made up Kraftwerk. His relation to “Planet Rock,” Afrika Bambaataa and the Zulu Nation was much more equivocal; “Clear,” and the Detroit techno music that sprung from it, programmatically eliminated all traces of hip-hop from the sound (no rapping, no inner-city accents)—which looks, in retrospect, like attempt to a synthesize a futurist electronic music by filtering out the “Afro” (i.e., the Bronx) in Afro-futurist hip-hop. As the Detroit style matured, the techno minor triad was featured in front of minimalist spiraling keyboard riffs and the rat-a-tatting of the Roland TR-808, as in the classic track “Off to Battle,” a more sophisticated effort by Atkins, now working under the *nom-de-microprocessor* Model 500. (He took the name from the Roland MC-500 Micro Composer, one of the first affordable sequencers.)

In 1997, Derrick May, another crucial innovator of the Detroit sound, released a CD of his early tracks. It was the tenth anniversary of his first major hit, a track often cited as the single inspiration for the global techno scene. In a short track called “A Relic Mix,” he reached back and collected some of the sounds of his early career, most notably the techno minor triad. For the project, he took out of mothballs his 1985-model Ensoniq Mirage, the first 8-bit digital sampler to be priced under \$2000: the sounds are relics twice over, because May, famously, took the Mirage to Detroit’s Orchestra Hall and did some surreptitious sampling during rehearsals, thus making some “very cold, very callous” versions of ORCH5 for himself.

Relics of relics; we appear to have looped back to the beginning, an endlessly decaying Europe of dead sounds and music—music that as May says, “doesn’t necessarily make you feel good about yourself” (May 1990). But May’s ghostly relics, his blasts from the past, whisper of liberation, at least for classical music, in the bardo realm. Ten years before, May, producing under the no non-sense moniker Rhythim is Rhythim, had used orchestral samples to make one of the seminal leaps forward in the Detroit techno explosion, an unsentimental masterpiece of irrepressible energy that is on every dance music historian’s list of the most influential tracks of all time. In it, stabbing tones derived from the sound of an orchestral violin section (the attacks are grotesquely exaggerated, so that each keystroke sounds a little like ORCH5) pile up in irregular, accelerating drifts over a stuttering, vaguely Latin piano riff. It inhabits some of the sound-world of Kraftwerk, but none of its aesthetic: both sampled piano and sampled violins have a nervous, un-quantized intensity—a *swing*, one want to call it—that is continents away from the ponderous, lacquered decay of Kling Klang Studios. The Roland TR-808 and 909 that drive the track forward no longer sound like machine guns, laser cannons, or dot-matrix printers gone mad; instead one hears, congas, djembes, shakers...

If Kraftwerk trapped the classical ghost in their machines; and Afrika Bambaataa let it out of his, to break-dance for a little while; then May offers up his machines to be ridden, hard, by an electronic Orisha. Rhythim *is* Rhythim, after all.

There is nothing decadent about this music.

It manifests a fierce joy, the joy of *starting over*.

May called it—*how unexpected, how perfect*—“Strings of Life.”

(I wonder if Stravinsky would...*ah, who really cares?*)

Robert Fink
Hollywood, CA
1-11-2005
10:15pm

