"ROOTS AND WIRES" remix: POLYRHYTHMIC TRICKS AND THE BLACK ELECTRONIC

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By Erik Davis

How does one orient oneself within electronic culture? Our first impulse, metaphorically at least, is probably to try and *see* it more clearly. We seek to read the signs of the times, to look forward, to focus on the fluctuating horizon. But I fear that the clarity we expect from sight, the bird's eye view of the mappable field, can no longer be relied on to illuminate the network of relations that surround us. Instead, I suspect we might do better to prick up our ears, to *sound* the sensorium that engulfs us. In other words, electronic culture is a space to plumb, an immersive sea we discover through the dive. But to sound also means to listen, and to listen to the now means to listen, at least in part, to the sounds and music emerging from electronic machines.

I am not just talking about listening as an act of sensation, but as a fundamentally different mode of engaging the world, one that tugs against long-standing habits of perception, knowledge and experience. According to Marshall McLuhan, whose tendencies towards technological determinism by no means undermines his continuing relevance to electronic culture, "visual space" became the dominant mode of Western consciousness following the Italian Renaissance.

McLuhan argued that Renaissance perspective not only provided a powerful new representational mode of organizing the visual field, but also engendered a very specific form of subjectivity. He associated this subjectivity with the point-of-view produced by the techniques of perspective painting, but he also related it to print technologies and to some formal properties of the printed book. In essence, he argued that the self we inherit from the Renaissance is a visual self.

Renaissance perspective thus serves as an analogy for a much more general phenomenon: the power to create a distinct, single point of view that organizes thought and perception along linear lines. We know this space from Descartes and from William Gibson's cyberspace: a homogenous field organized by an objective coordinate grid that simultaneously produces an apparently coherent individual subject who maintains control over his or her unique point of view. Not only do we conventionally overlay this panoptic grid onto the far more ambiguous visual field our nervous system constructs on the fly, but we have embraced it as the dominant conceptual image of space itself. McLuhan related visual space to print technologies—and print culture—because, he argued, these technologies inculcate within us a habit of organizing the world as a field of objects distributed in a largely linear, atomized, and sequential fashion. Central to the concept of visual space is the axiom or assumption that "different" objects, vectors, or points are not and cannot be superimposed; instead, the world is perceived as a linear grid organized along strictly causal lines.

McLuhan contrasts this construction of visual space, and the kind of subjectivity associated with it, with what he calls "acoustic space." Acoustic space is the space we hear rather than the space we see, and he argued that, in contrast to print technologies, electronic media were submerging us in this acoustic environment. Simply put, acoustic space is the space we *hear*: multi-dimensional, resonant, invisibly tactile, "a total and simultaneous field of relations." Where visual space emphasizes linearity, acoustic space emphasizes simultaneity—the possibility that many events can occur in the same holistic zone of space-time. Unlike visual space, where points either fuse or remain distinct, blocks of sound can overlap and interpenetrate without necessarily collapsing into a harmonic unity or consonance, thereby maintaining the paradox of "simultaneous difference".

Acoustic space isn't limited to a world of music or sound; the environment of electronic media, visual as well as aural, itself engenders an acoustic mode of organizing and perceiving information and experience. Still, our increasingly aural orientation helps explain why music, and especially electronic music, plays such a crucial role in sounding the acoustic space of techno-culture. On both academic and popular levels, electronic music has articulated and generated an impressive number of soundscapes, atmospheres, and immersive environments that call to themselves metaphors of space far more readily than metaphors of time.

This secret sympathy between electronics and space also marks the imaginal realm, a dimension easily as important as more technical or purely musical domains. As a particularly convenient example, you can trace the changing fortunes of Leon Theremin’s eponymous electronic

instrument, which the Russian inventor first developed in the early twenties. Theremin felt that the eerie glissandi of his instrument belonged in the concert hall, and the theremin's first great practitioner, Clara Rockmore, played a conventional repertoire. But the instrument would not find its cultural home until its use in the soundtracks of UFO movies from the 1950s forevermore linked its synthetic vocal tones with outer space, cosmic communication, and the uncanny.[1]

In the 1960s, the connection between electronic music and space became more explicit, with the popular success of composer Morton Subotnick's "Silver Apples of the Moon" and the early use of the Moog on the hippie-exploitation album *Cosmic Sounds* ("Must be played in the dark"). In the heady days of the counterculture, the outer space of *Forbidden Planet* and the inner space of human subjectivity, expanded through drugs or mysticism or other good vibrations, became fused within the nebulous category of the *cosmic*, with its extraterrestrial emphasis on virtuality, disorientation, and transport. The progressive rock tradition, always friendly to electronics, later helped spawn "space music," an often cheesy genre that looped together analog synthesizers, astronomical images, and the ancient dream of booting up altered states of consciousness through vibrating and resonating sounds. Later, many New Age musicians and psychedelic trance producers would consider the synthesizer as a trans-dimensional biofeedback device; by generating invisible landscapes through mostly invisible circuits, these machines seemed to lead listeners *within*, into disembodied states of consciousness that mirrored the emptiness of deep space.

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1 Significantly, the action of the theremin brought up spatial issues of proximity and distance: to control pitch, the player moves her hands towards or away from a vertical antenna that is generating a weak electromagnetic field.

Electronic space also emerged within the more Afrofuturistic dimensions of black American music. The wailing guitar on the first track of Jimi Hendrix's *Axis: Bold as Love* not only mimicked a flying saucer, but carved out space by panning between stereo channels (thereby zooming between "the rooms behind your minds"). On albums like *Cosmic Tones for Mental Therapy* and *We Travel the Spaceways*, Sun Ra led his iridescently costumed Intergalactic Jet-Set Arkestra from big band to free jazz and back; with bizarre albums like 1964's *Other Planes of There*, Ra also pioneered the use of synthesizers in jazz. With less eminence and more flash, George "Starchild" Clinton psychedelicized and technologized funk music with Parliament-Funkadelic. Besides fusing high-production values with fat and greasy riffs, Clinton brought flying saucers onstage, and created an elaborate comic-book mythos of Clone Funk Afro-nauts, Maggot Brains and Mothership Connections.

I'll call this Afrofuturistic dimensions of electronic space – which I'll explore for the remainder of this paper—the Black Electronic, a term I've dubbed the term from the British cultural theorist Paul Gilroy. Gilroy uses the phrase the "Black Atlantic" to denote the "webbed network" of the African diasporic culture that penetrates the United States, the Caribbean, and, by the end of the twentieth century, the UK. Gilroy considers the Black Atlantic a modernist countercultural space, a space that, for all the claims of black cultural nationalists, is not organized by African roots but by a "rhizomorphic, routed" set of vectors and exchanges: ships, migrations, creoles, phonographs, European miscegenations, expatriot flights, dreams of repatriation. The image of the criss-crossed Atlantic ocean is essential for Gilroy's purpose, which is to erode the monolithic

notion of roots and tradition by emphasizing the "restless, recombinant" qualities of Afrodiasporic culture as it simultaneously explores, exploits, and resists the spaces of modernity.[2]

The Black Electronic characterizes those electro-acoustic spaces that emerge from the historical-cultural context of the Black Atlantic. Though the roots of these spaces do indeed lie in West Africa, I am more concerned here with their decidedly rhizomorphic behavior as they wire up that acoustic dimension that David Toop has called, in a somewhat different context, the twentieth century's "ocean of sound."[3] In particular, I want to explore one specific zone within the Black Electronic: the remarkable acoustic spaces that emerge when the polyrhythmic sensibility found in traditional West African drumming encounter those electronic instruments, at once musical and technological, that record, reproduce, and manipulate sound. Though the linkage of rhythm with musical space may seem somewhat counter-intuitive, I'd like suggest that West African polyrhythm carves out a unique and powerful dimension of acoustic space by generating a "nomadic" space of multiplicity that unfolds on the fly. In other words, polyrhythm does not so much generate acoustic space as show us how one might move through it. Polyrhythm impels the listener to *explore* a complex space of beats, to follow any of a number of

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2 See Paul Gilroy, "The Black Atlantic as a Counterculture of Modernity," in The Black Atlantic, (Harvard, 1993), 1-40.

3 I share with Gilroy -- who takes a position he calls "anti-anti-essentialism" -- the sense that the lived realities of culture and history act as a powerful restraint on the loopier postmodern arguments for radical constructionism. Rhizomes are not roots, but they still conform themselves organically to the actual shapes of the land they encounter.

fluid, warping, and shifting lines of flight, to submit to what the old school hip hop act A Tribe Called Quest calls "The rhythmic instinction to yield to travel beyond existing forces of life."

Drumming Up Polyrhythmic Space

The Fon tell that one day the supreme being Mawu-Lisa decided to appoint a chief for her children, the divine brood who rule the world. She proposed a contest: whoever could come before her and simultaneously play a gong, a bell, a drum, and a flute, while dancing to the music at the same time, would win the position. The most aggressive deities all tried their hands and failed. But the agile boy Legba, her youngest and most spoiled child, performed the task with ease.

Legba is a messenger god, an opener and closer of gateways, the West African equivalent of Hermes-Mercury or the great Hindu lord Ganesh. But he is first and foremost a linguist. In the beginning of things, Mawu-Lisa gave her seven children different realms of the world to rule—earth, sea, animals, etc. She also gave them each a language separate from her own. But she allowed Legba to remain with her and to act as her linguist, a translator and relayer of information between her and her children. It is this ability to shift and translate between different codes and points of view—what Robert Pelton describes as Legba's "metaphysically fancy footwork" – that enabled the god to balance the competing claims of the various instruments and beats. Communication of any sort takes place within a dynamic and unstable network of forces,

disruptions, and contrary points of view. As the first myth above suggests, the "manyness" of polyrhythmic ensembles can capture this zone of shifting boundaries, where the greatest dancers not only follow the beat of a different drummer, but the beats of many different instruments at once. And it's with this *at once* in mind that I would like to look at the rhythms that underlie West African music, a "system of beats" whose deep aesthetic, philosophical, and even spiritual dimensions now subtly undergird electronic space.

It must be said that the West has a rather repellent history of reducing African and Afrodiasporic culture to its rhythms. At the same time, we should not let Hollywood images of savage and frenetic drumming (or the more subtle distortions that emerge with over-generalized discussions such as my own) obscure the profound and pivotal role that rhythm plays in West African aesthetics, social organization, and metaphysics. Nor should the evident psycho-physiological power of drums and their intimacy with dancing bodies obstruct their more abstract, conceptual, or virtual powers. As I hope to make clear, West African drumming can serve as an excellent analog for a variety of pressing technocultural discussions about distributed networks, the philosophy and perception of multiplicities, and the emergent properties of complex systems.[4]

Though I prefer the looser and more playful term *polyrhythm*, traditional West African drumming is perhaps more accurately described as *polymetric*. The meter is the standard unit of time that divides European music. In most symphonies or ensembles, all instruments basically follow the

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4 Along these lines see Ron Eglash, "African Influences in Cybernetics, " in *The Cyborg Handbook*, ed. Chris Hables Gray, (Routledge, 1995), pp. 17-28.

same meter; the shared rhythm is counted evenly and stressed on every main beat. Musicologists thus call Western rhythm *divisive* because it is divided into standard units of time. But the traditional rhythms of West African music are considered *additive*, a term which already gives us an indication of their fundamental multiplicity. The music's complex percussive patterns bubble up from the shifting and open-ended interaction between many different individual drum patterns and pitches. As Chernoff puts it, "in African music there are always at least two rhythms going on."[5]

In order to notate this music, which is traditionally passed on mnemonically and orally, Western musicologists are forced to assign different meters to different instruments—hence, polymetric. Written down, the measures that organize the repetitive beat sequences associated with each instrument can be of variable lengths and time signatures. Neither the bar lines nor the main beats associated with each instrument coincide, but instead are staggered throughout a music whose rhythmic motifs are constantly appearing and disappearing. Individual musicians thus practice what is called *apart-playing*, maintaining a definite distance between their beats and those of the other drummers, a differential “space” which refuses to collapse or fuse into a unified rhythmic point. In turn this produces permanent conversations or cross-patterns between each drum, a dialogue which is also a complex *dimension* of difference introduced between elements that are themselves often simple and repetitive.

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5 John Miller Chernoff, *African Rhythm and African Sensibility*, (University of Chicago, 1979), 42.

Though this description is overly schematic, we can nonetheless understand that polyrhythm has little to do with pure repetition. As Deleuze and Guattari point out in "On the Refrain," their crucial chapter on aesthetics from *Mille Plateaux*, "It is the *difference* that is rhythmic, not the repetition, which nevertheless produces it: productive repetition has nothing to do with reproductive meter [my emphasis]. [6]" Even to call West African drumming "polymetric" is already to define it from a perspective it eludes. As Deleuze and Guattari write, "Meter, whether regular or not, assumes a coded form whose unit of measure may vary,…whereas rhythm is the Unequal or the Incommensurable that is always undergoing transcoding. Meter is dogmatic, but rhythm is critical: it ties together critical moments, or ties itself together in passing from one milieu to another. It does not operate in a homogeneous space-time, but by heterogeneous blocks. It changes direction."[7]

But what exactly constitutes these "milieus" within an actual polyrhythmic ensemble? "Every milieu is vibratory," Deleuze and Guattari write. "In other words, a block of space-time constituted by the periodic repetition of the component. Every milieu is coded, a code being defined by periodic repetition."[8] It seems clear: each specific milieu is a block of space-time produced by the exacting repetitions of each individual drum. Polyrhythmic communication thus

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6 Gilles Deleuze and Felix Guattari, *A Thousand Plateaus*, trans. Brian Massumi, (Minnesota, 1987), 313.

7 Ibid.

8 Ibid.

unfolds as an interdimensional play of milieus—a mutating array of slices, splits, folds and fusions; an acoustic hyperspace. "One milieu serves as the basis for another, or conversely is established atop another milieu, dissipates in it or is constituted in it. The notion of the milieu is not unitary: not only does the living thing [the dancer/listener] continually pass from one milieu to another, but the milieus pass into one another; they are essentially communicating. The milieus are open to chaos, which threatens them with exhaustion or confusion. Rhythm is the milieu's answer to chaos."[9]

With the ancient mediation of the drum, this potent play between chaos and rhythm carries us outside of theory and into the dance of multiplicity that characterizes our experience of unfolding through an unfolding world. Polyrhythmic music provides a primary and unusually intuitive avenue, not just to conceptualize, but to train our bodyminds to cross and combine heterogeneous spaces, chaotic ruptures and zones of communication directly into our bodyminds. As we weave ourselves into polyrhythm's fibrillating tapestry of molecular beats and percussive patterns, we taste a kind of wisdom, not the reflection in repose we conventionally imagine, but the wisdom of networked differences, whether social, ecological, or spiritual. In humanistic terms, we are shown how the action of standing apart from others can actually support the entire group, and how novelty is not so much an imposition of creative individual will as a kind of active remix of other beings and energies.

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9 Ibid.

To demonstrate just how polyrhythm mobilizes philosophical and ethical considerations, I want to turn to John Chernoff's indispensable *African Rhythm and African Sensibility*. In the following extensive sample, which I have cut and spliced from various points of his book, the author, self-consciously writing from a Western perspective, unfolds a sort of pragmatics of polyrhythmic listening. Though the philosophical aspects of his discussion are only implied, I ask you to listen as well for these overtones:

> The effect of polymetric music is as if the different rhythms were competing for our attention. No sooner do we grasp one rhythm than we lose track of it and hear another. In something like Adzogba or Zhem it is not easy to find any constant beat at all. The Western conception of a main beat or pulse seems to disappear, and a Westerner who cannot appreciate the rhythmic complications and who maintains his habitual listening orientation quite simply gets lost...The situation is uncomfortable because if the basic meter is not evident, we cannot understand how two or more people can play together or, even more uncomfortably, how anyone can play at all...We begin to 'understand' African music by being able to maintain, in our minds or our bodies, an *additional* rhythm to the ones we hear. Hearing another rhythm to fit alongside the rhythms of an ensemble is basically the same kind of orientation for a listener that apart-playing is for a musician—a way of being steady within a context of multiple rhythms...Only through the combined rhythms does the music emerge, and the only way to hear the music properly, to find the

> beat...is to listen to at least two rhythms at once. You should attempt to hear as many rhythms as possible working together yet remaining distinct.[10]

Because listeners are forced to adopt any of a number of possible rhythmic perspectives—cognitive patterns which reorganize the acoustic space that surrounds them— Chernoff rightly insists that they are "*actively engaged* in making sense of the music."[11] We must *enter into* polyrhythm; by selecting particular rhythmic clusters, and cutting and combining them with other beats, our bodyminds generate a sense of coherent flux within a space of multiplicity, a kind of balanced line of flight that constantly criss-crosses a shifting and unstable terrain. Listening and dancing to polyrhythm, we sample the phenomenon of emergence, as fluid lines arise from the complex and chaotic interaction (or communication) of numerous smaller and simpler repetitions and individual beats.

In addition to the layering of repetitive beats, West African drumming also introduces the crucial improvisational figures unfurled by the lead drummer. Playing over and against the stacked repetitions of the other musicians, the lead drummer improvises not so much by spontaneously generating new patterns as precisely cutting and splicing the rhythms of the other drums. As Chernoff writes, "The drummer keeps the music moving forward fluidly, and by continually changing his accents and his beating, he thus relies on the multiplicity of *possible* ways to cut

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10 Chernoff, scattershot citations.

11 Ibid, 50.

and combine the rhythms."[12] The lead drummer's lines thus emerge from a space of multiplicity that could be said to constitute the ensemble's virtual dimension.

And what the lead drummer deploys most forcefully is the cut or break. These intense, almost violently syncopated "off-beat" lines criss-cross and interfere with the other rhythms, pushing and pulling at the dancer-listener's precarious internal sense of the beat. Though these assaults can be quite intense, they should not go too far: "A musician should deliver not too many and not too few off-beat accents because people can get thrown off the beat, and a certain point either their orientation to the rhythms will shift or they will begin hearing the separate rhythms as a single rhythm."[13] Making an analogy with nonlinear dynamics, we could say that the lead drummer must maintain an open field of competing rhythmic attractors. The game is to push the beats to the edge of bifurcation without allowing them to settle into a singular basin of attraction. For listeners that means remaining constantly open to productive chaos: to the disorienting surprise of beats struck earlier than expected, or to the little voids that open up when beats are unpredictably dropped out—an experience Chernoff brilliantly likens to missing a step on a staircase.

While it's fruitful to speak of polyrhythmic experience in the language of the dance, we should also remember that the body so mobilized may be entirely virtual. As Richard Waterman points

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12 Ibid, 112.

13 Ibid, 100.

out, "African music, with few exceptions, is to be regarded as music for the dance, although the 'dance' involved may be entirely a mental one."[14] And I'd like this figure of the "mental dance" to lead us into electronic space, into the simultaneously premodern and postmodern spaces opened up by the tactile yet disembodied machine beats of the Black Electronic.

Dubbing the Drum

Among the pantheon of the Black Electronic's mental dancers, alongside Sun Ra, George Clinton, Jimi Hendrix, Grandmaster Flash, and Derrick May, stands one Lee "Scratch" Perry, perhaps Jamaica's most inventive reggae producer and one of the leading architects of dub music —the mutant spawn of reggae produced entirely in the studio from prerecorded rhythm tracks. Explaining the esoteric correspondences between rhythm and the body, Perry once wielded out the roots cliché that "The drum is the beat of the heart." But the bass, he said, "is the brain."[15] More than just subverting the common cultural association between bass frequencies and the base moves of the hips, Perry was suggesting that drums and bass make *head* music, with all the resonance that term conjures up—abstraction, drugs, interiority, virtual worlds. As Perry put it

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14 Cited in Chernoff, 50.

15 Video documentary, "The History of Rock: Punk," PBS.

when discussing his preference for mixing tracks without vocals: "the instrumental is formed in the mental."[16]

Of course, Perry's instrumentals were also formed in the machine, and it's this imaginal network between the machinic and mental realms that opens up both the disembodied architectures of cyberspace and the more abstract dimensions of the drum. West Africa's polyrhythmic ensembles can already be seen as deploying a kind of abstract machine, their enormous intensities engineered with a notable coolness, precision, and craft. As Chernoff writes, "A drummer avoids 'rough' beating because the *precision* of play is necessary for maximum definition of form...the truly original style consists in the *subtle perfection of strictly respected form*."[17] This crisp and cool sensibility informs the Black Atlantic's unique reconfiguring of the physically alienated or "mental" labor necessary to engineer electronic musical spaces, and goes a long way to explaining why, as Andrew Goodwin perceptively notes, "we have grown used to connecting machines and funkiness."[18]

The image of the funky machine undermines the usual associations of black music, which has long carried the burden of representing the folk-cultural body within Euro-American society.

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16 Interview, *Grand Royal*, issue 2, 69.

17 Chernoff, 112.

18 Cited in John Corbett, *Extended Play: Sounding Off from John Cage to Dr. Funkenstein*, (Duke, 1994), 19.

This body is either demonized as primitive or lionized as an authentic and natural corrective to an abstract West identified with mind and machines. Besides eliding the fact that, as Gilroy argues, the African Diaspora is actually integral to the West, this opposition tends to erase the extraordinary *technological* sensibility of modern black music's musical, aesthetic, and even mythic imagination. This sensibility, rooted in the abstract dynamics of the drum, seemed fully capable of creatively engaging the conditions of industrial and informational economies as they emerged. Chernoff reports the legend that once some African stevedores, who had their own songs for loading and unloading boats, "first understood the machine to be the white man's music."[19] The author also tells of visiting a customs office in Ghana where a bureaucrat hammered out rhythms on his typewriter, even continuing to “play” the shift key as he searched for the next phrase to type.[20]

Here I'd like to trace the connection between machines and funkiness to 1970s Jamaica, when record producers and engineers created dub reggae by manipulating and remixing prerecorded analog tracks of music coded on magnetic tape. Though Lee Perry became one of dub’s most surreal experimenters, he did not invent the form. That honor goes to Osbourne Ruddock, aka King Tubby, an electrical engineer who fixed radios and other appliances in Kingston in the 1950s and who built his own sound system amplifiers to get the big bass sound. A musical genius, Tubby was also a gearhead, a tinkerer, an experimental geek. After discovering that he

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19 Chernoff, 35.

20 Cited in Michael Ventura "Hear that long snake moan," in *Shadow Dancing in the USA* (Tharcher, Los Angeles, 1985), 123

could remix (or “version”) the backing track of a popular tune into a new piece of music, Tubby played these "dub plate specials" to enthusiastic crowds at his Home Town Hi-Fi dances, where Tubby would stand behind his customized mixing console, tweaking the beats on the fly while the DJ U Roy "toasted" over the rhythms.

In the studio, dubmasters like Tubby would saturate and mutate individual instruments with reverb, phase, echo and delay; abruptly drop voices, beats, and guitars in and out of the mix; strip the music down to the bare bones of drums and bass and then build it up again through layers of distortion, percussive noise, and electronic ectoplasm. As the trend spread, Tubby stayed ahead of the game by working with top producers like Bunny Lee and Lee Perry while endlessly tinkering with what Prince Buster called the "implements of sound." Tubby constantly toyed with his four-track console, jury-rigging echo delay units and created sliding faders that allowed him to bring tracks smoothly in and out of the mix. He also just played tricks with the machine, generating his famous "Thunderclap" sound by physically hitting the spring reverb unit, or using frequency test tones to send an ominous sonar through the depths of dub's watery domain, calling into being a deeply spatial sensibility.

At a time when roots reggae was proclaiming a literally religious mythos of folk-cultural authenticity, dub subtly called it into question by dematerializing and eroding the integrity of singers and song. There is no original, no motherland outside the virtual, no roots that are not at the same time rhizomes remixed on the fly. Yet by improvising and mutating repetitions of prerecorded material, dub added something distinctly uncanny into the mix. Dub's analog

doppelgangers, spectral distortions, and vocal ghosts produced an imaginal space no less compelling in its own way than the virtual African Zion that organized so much reggae's Rastafarian longings. And for all its unmistakable Caribbeanisms, dub's concerns with warped analog spaces, electromagnetic noise, and technologically-mediated disorientation also recall the galactic explorations of German progressive rockers in the early 1970s. Dub too is a kind of *Kosmiche Musik*. As Luke Erlich wrote, "If reggae is Africa in the New World, dub is Africa on the moon."[21]

But while the space of dub is certainly "out" in both the extraterrestrial and Sun Ra sense of the term, its heavy use of echo also produces a sense of enclosure, an interiority that, along with a variety of moist and squooshy effects, conjures up distinctly aquatic surroundings. With dub we do not find ourselves in the incorporeal deep space of SF soundtracks and acid rock, but in a kind of "out" inner space, a liminal womb. This unresolved spatial tension not only explains the druggy or even mystical qualities of the music (qualities rooted in psycho-physiological effects that erode the experiential division between interior and exterior), but also explains why 70s dub so powerfully anticipates the virtual spaces of today's electronic media—spaces which seem at once extensive and implicate (or implied), intensive and unfolded, inside and out.[22] As Jeff Salamon wrote in Art Forum, "one might hypothesize that entering dub's vertiginous expanses is

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21 Cited in Corbett, 23.

22 This ambiguity can be captured in one simple query: Is the Internet exploding or imploding?

good training for exploring [virtual realities], where depth perception and a mastery of the intricate layers of nested windows will be invaluable."[23]

While the almost psychedelic qualities of dub can be attributed to its "spacey" effects, and perhaps to the role of ganja in both its production and consumption, the heady pleasures of the music arise at least as much from its trippy polyrhythmic play—a play that unfolds possibilities latent within the reggae beat. Strictly speaking, modern Jamaican dance music adheres to the same 4/4 beat that drives the vast majority of Western popular music. But when dub hit the scene, reggae's "dread ridims" were already unusual in accenting the second and fourth beats of the measure and in "dropping" the initial beat, all of which produced the music's unmistakable snaky pulse. An even more crucial element of reggae rhythms is the pivotal role played by the bass guitar. Back when Jamaica's sound systems—basically mobile discos—were playing American R&B in the 1950s, the techies gave their American grooves an unmistakable Jamaican twist by severely amplifying the bass, transforming R&B's low end into a veritable force of nature. This is the kind of bass that does not just propel or anchor dancers but saturates their bones with near cosmic vibrations. The rock steady music which morphed into reggae anchored the beat with the bass guitar rather than the drum kit. This deterritorialized the drums, allowing musicians to explore more polyrhythmic percussive play outside and around the main beat. As Dick Hebdidge points out, by the end of the 70s, drummers like Sly Dunbar were playing their

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23 Jeff Salamon, "Dub and Dubber," Art Forum, Summer 1997, 35.

kits like jazz musicians, improvising on cymbals, snares and tom toms to "produce a multi-layered effect, rather like West African religious drumming."[24]

Dub translated this rhythmic complexity into an abstract electro-acoustic space, using technology to further destabilize the beats and to stretch and fold the passage of time. While stripping the music down to pure drums and bass, dubmasters also thickened the mix with extra percussion and what the producer Bunny Lee called "a whole heap a noise." More importantly, dubmasters introduced extended counter-rhythms by multiplying chunks of sound (voices, guitars, drums) through echo and reverb, producing stuttered pulses which split off from the main beat and generate cross-rhythms as they stray and fade into the virtual void. Dub is not strictly polymetric, as it rarely sustains such staggered apart-playing for very long. At the same time, by abruptly dropping guitars, percussion, horns and keyboards in and out of the mix, dubmasters teased the rug out from under the listener's habitual rhythmic orientation toward the 4/4, creating a subtle virtual analog of the tripping, constantly shifting conversations of West African drums.

Quite like master drummers, many dubmasters would improvise their studio mixes on the fly. This should not surprise us, for West Africa's polyrhythmic ensembles already anticipate the breakdown of the distinction between the mechanical labor of the recording engineer and the creative labor of the musician —a distinction that organizes much popular music production and that dub and later electronic dance music dissolves. One can see polyrhythmic ensembles as an

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24 Dick Hebdidge, *Cut'n'Mix*, (Comedia, London, 1987), 82.

assemblage of various distinct rhythmic tracks whose molecular beats are remixed, cut, and spliced through the cool mediation of the master drummer, his apparently spontaneous and chaotic cuts introducing noise that becomes signal, feeding back into and enlivening the ensemble's "total and simultaneous field of relations."

By giving flight to the producer's cybernetic imagination, dub created room within Afrodiasporic culture for a cyborg mythology grounded in technical practice. Here's Lee Perry again, explaining his almost animistic relationship to the machine:

> The studio must be like a living thing. The machine must be live and intelligent. Then I put my mind into the machine by sending it through the controls and the knobs or into the jack panel. The jack panel is the brain itself, so you've got to patch up the brain and make the brain a living man, but the brain can take what you're sending into it and live.[25]

Here we are on the imaginary border between the premodern and the postmodern, between roots and wires, an imaginary mobilized by Perry's whole persona and astounding career. Claiming at various times to be "Inspector Gadget," the "Super-Ape," or "The Firmament Computer," Perry also pioneered the use of phasers, drum machines, and the borrowing of existing records to "scratch" in a patch of sound. Aesthetically exploiting the electromagnetic play between information and noise, Perry integrated signal degradation directly into his thick and spongy

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25 Interview in David Toop, *Ocean of Sound* (Serpent's Tail, London, 1995), 113.

polyrhythmic textures—as the producer Brian Foxworthy points out in *Grand Royal*, "Tape saturation, distortion and feedback were all used to become part of the music, not just added to it."[26] Perry would also plant records and tape reels in his garden, whirl like a dervish behind his SoundCraft mixing board, and blow ganja smoke directly onto the tapes rolling through the battered 4-tracks at his Black Ark studio. As Perry told Toop about the Ark, "It was like a space craft. You could hear space in the tracks."[27]

This kind of surreal Afrodiasporic science-fiction also appears on the cover art of much dub. Mad Professor's *Science and the Witchdoctor* sets circuit boards and robot figures next to mushrooms and fetish dolls, while *The African Connection* shows the Professor—significantly wrapped in European safari garb—reclining at a West African tribal dance, the jungle trees housing bass woofers and tape machines while the sacred drums nestle EQs. *Scientist Encounters Pac-Man at Channel One* shows the Scientist manhandling the mixing console as if it were some madcap machine out of Marvel comics.

It's perhaps no accident that in Jamaican patois, "science" refers to *obeah*, the island's African grab-bag of herbal medicine, sorcery, and occult lore. In his book on the trickster in West Africa, a study in "mythic irony and sacred delight," Robert Pelton also points out the similarities between modern scientists and traditional trickster figures like Legba, Eshu, and Anansi: "Both

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26 Bob Mack, "Return of the Super Ape," *Grand Royal*, 64.

27 Toop, 114.

seek to befriend the strange, not so much striving to 'reduce' anomaly as to use it as a passage into a larger order."[28] We could ask for no better description of the electronic polyrhythmic tricks pulled by the great dubmasters.

It's a Jungle In There

While the torch of golden-age roots reggae has passed mostly into the hands of Waspafarian bands, dub's deeply technological imagination has enabled it to make a rich and multi-layered transition into the cultural science of the digital regime. As the excellent 1995 British music compilation *Macro Dub Infection* argues in both its title and selections, dub came to be seen as a technological virus, it's silly putty beats, active silences, and bubbling, booming bass as nomadic codes that have wormed their way into a host of musical genres: ambient, industrial, trip-hop, two-step, dancehall, techno, pop, jungle, and experimental rock. Indeed, dub helped erode the artificial differences often erected between these types of music, rendering such generic categories increasingly subservient to an open conversation between forms.

In the early and mid 90s, when digital culture reached perhaps the most vital and open-ended phase we have yet to see, one particular electronic contagion stood out in its digital transcoding of the technologically mediated polyrhythmic space that characterize 70s dub: jungle music, aka, drum'n'bass. With its dizzying tempos and nonlinear beats, jungle certainly counts as one of the

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28 Robert Pelton, *The Trickster in West Africa* (University of California Press, Berkeley, 1980), 268.

most aggressively syncopated, even polyrhythmic, dance music forms ever spawned in the modern West. And yet much of it was generated entirely on personal computers loaded with Cubase and a fat folder of sound files. Distorted soul samples and rude boy taunts got layered over smooth R&B chords; giddy high-hats and hyperfast snares teetered on the edge of collapse; machine-gun martial beats and ominous bass lines liquefied your gut like an apocalyptic undertow.

Though a multicultural scene, jungle was essentially the first homegrown dance music to spring directly from Britain's black population, making it perhaps the most significant mutation of the Black Electronic since techno originator Derrick May read Toffler's *The Third Wave* or hip hop producers began to build tracks with samplers as well as turntables. While dub is one definite influence, jungle's roots are, appropriately enough, tangled, and the following sketch drastically oversimplifies this backstory. In the early 1990s, when electronic dance music producers started whipping up the repetitive beats of techno to ungodly velocities, some folks took to speeding up breakbeats as well (breakbeats are the stimulating chunks of rhythmic surprise drawn from other records and that form the bedrock of American hip-hop). The resulting music—known as hardcore, or the more descriptive drum'n'bass—became something like breakbeat's mutant British twin, unfurling a tactile, hacked up mix of drums and bass that foregrounded its own recombinant production like few other genres of dance music. Over time, the bass got thicker and dubbier, so that soon a slow ganja pace chugged along beneath the amphetamine snares;

various cross-overs with the ragamuffin toasts of Jamaican dancehall MCs helped fix the name "jungle" in the public's mind just as the music started seeping out of the underground.[29]

The fact that jungle's maniacal tempos now sound old hat to most listeners of electronic dance music should not allow us to forget how revolutionary they sounded in their heyday. Upon first encountering jungle, most listeners probably suspected that in the Deleuzian contest between chaos and rhythm, rhythm had conceded defeat. Here's Simon Reynolds, describing hardcore for *ArtForum* in 1994: "Sped-up break-beats are reverbed, treated, 'time-stretched,' and overlaid with itchy'n'scratchy blips of sounds that evoke the mandible-rustling telecommunication of the insect world. Polyrhythms are piled on, oblivious of the 'correct' way to organize rhythm: a spastic soundclash of incompatible meters (funky hip-hop breaks, dub reggae sway, Latin rolls)."[30] At the same time, jungle does resemble "correct" polymetric drumming in allowing dancers to satisfactorily hook into and pass between different rhythmic milieus nested within the same cut: one can skank to the slow bass pulse or attempt to articulate the frenetic, unpredictable multiplicities exploding up top.

In other words, while jungle's programmed percussive samples are thickly layered, sped-up, and hyper-syncopated, in most jungle tracks they stumble across downtempo dub lines that ultimately anchor the madness. But in the hands of the music's more aggressive and experimental creators,

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29 For these reasons and others, "jungle" is not a universally accepted terms, and many still prefer the more descriptive "drum'n'bass."

30 Earlier draft from author.

jungle can induce a remarkably delicious sense of disorientation, as reverbed cymbals and chopped-up snares savagely tug against the bass beat, upsetting the listener's habitual desire to "fill in" the music with a comprehensible rhythm. The stronger jungle tracks also intensify their breaks (the passages dominated by cuts and cross-rhythms) to a degree that shatters the usefulness of the term "syncopation." For these reasons, intense drum'n'bass can produce the same kind of disturbing confusion that West African drumming does; only instead of being threatened by the frenetic chaos of the primitive, they are threatened by the digital chaos of sampled code reiterating itself out of control.

In a sense then, one must learn to listen and dance to jungle's complex and extremely recombinant rhythmic language. Many of the rhythmic units in jungle—such as the Wilsons' "Amen, Brother" sample—are generic and constantly recycled, cut and pasted across the thousands and thousands of tracks that junglists cranked out on their PCs and Amigas. Novelty lies at least as much in the recombinant rearrangement and pacing of these generic elements as in the generation of novel motifs and sounds. I am reminded here of Chernoff's emphasis on the abstract precision of the many patterns that underlie West Africa drumming, and his point that "new forms are built from simple modifications of existing patterns, perhaps through the replacement of a single note."[31] Moreover, new forms are perhaps less important than the fresh rearrangement or pacing of received elements that everyone recognizes. As Chernoff writes, "It is the duration of time that a drummer plays a particular rhythm, *the amount of repetition and the*

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31 Chernoff, 112

way the rhythms change, to which the drummers pay attention, and not so much any particular rhythmic invention."[32]

On the one hand, the junglist's attention to the crafty assemblage of beats made their rhythms more supple and compelling than those found in most other electronic dance music. In their apparently spontaneous articulation and madcap organization, they can seem almost organic. But for a period of time, drum'n'bass also seemed to be on the verge of unfolding some strange new non-Euclidian dimension, as cyborgs like Photek or 4 Hero painstakingly engineered an abstract space-time architecture from nano-beats that seemed to have been spliced and diced in a digital cuisanart.[33]

Jungle shares with dub the visceral root of the bass, as well as the deft deployment of gaps and silences that stretch and rend space-time, opening little voids that cannot help but empty us out of ourselves. But in contrast to the aquatic, resonant, almost meditative zones opened up by dub, the spaces generated by the more intense junglists emerge as a perpetually morphing array of compressed, malformed, and fractured "intermilieus." In part this distinctive mutation in the spaces of the Black Electronic arises from the qualitative distinction between digital and analog modes of production—a difference whose effects are particularly notable in electronic music.

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32 Ibid, 100.

33 As Simon Reynolds points out, the jungle scene hosts such copious and rapid mutations that singling out its stars denies the collective intelligence that drives its recombinant creativity; citing Brian Eno, he says that we should speak not of "genius" but of "scenius."

But the jarring hyperspace of jungle arises at least as much from the music's almost eschatological polyrhythm, its deployment of "heterogeneous blocks of space-time" that cut across the conventional dimensions of acoustic space. These blocks pull against dance music's tendency to conform to a central rhythm, it also compresses that space through intensity and speed, creating little black holes of multiple beats. Perhaps this is what Marshall McLuhan heard when he pricked up his ears and decided that, as electronic subjects, "we live in a single constricted space resonant with tribal drums".[34]

Coda, 2002

Though I have made changes throughout, the bulk of "Roots and Wires" was written in 1994-95 and its conclusion should be read as much as possible in that context. Like many listeners, I found that jungle did not explore the most interesting territories it opened up. The polyrhythmic play hinted at in its earlier iterations gave way to, on the one hand, pleasant cocktails of carbonated fusion, and on the other, a nihilistic tedium that reduced the music's syncopated aggressivity into a jack-hammer monotony better deployed by death metal. Though edgier dancehall carries on the torch of drum'n'bass, the polyrhythmic potential of electronic dance music still remains in many ways untapped. The club remains dominated by the easy sell of four-to-the-floor, while most self-consciously avant-garde electronic music continues to keep the dance – mental or not—at arm's length.

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34 Marshall McLuhan, *The Gutenberg Galaxy* (University of Toronto Press, Toronto, 1962), 31.

The adherence to a central organizing beat is partly the fault of music software: genuine apart-playing is difficult to arrange, since most programs insist upon a single meter and even automate beat-matching. There are promising signs, including the digital beat science of progressive hip-hop and the explosion of electronic dance music in developing countries like Brazil and South Africa, where even the most superficial desire to sample local color will thicken the rhythmic stew. IDM's fragmentation of rhythm into the skittering, textural para-beats made famous by Autechre can also only go so far, as producers—some armed with modular software giving them greater control over loops—realize that adhering to or undermining the beat is not nearly as interesting as allowing it to diversify and reorganize on another level. At that point multiplicity—about which I have spoken too much in this paper—will no longer simply serve as an engine of deconstruction or disorientation, but as a spring-board for new, emergent forms of interconnection, communication and holistic play. And since, as I hope I've shown, rhythm can be a training ground for the soul, such forms may move more than our feet.