

Rhythm and the Performance of Organization

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Rhythm is a form of discourse central to social organization. This essay weaves together a variety of anecdotes, ethnographic analyses, labor histories, and critical theories around the central theme of rhythm in order to hear the relationships between organization, epistemology, consciousness, and body without positing one of these elements as foundational. This approach expands and complicates the understanding of what constitutes "organization" and calls for a greater accounting in communication theory of the role of physiological structures in human social life.

Charlie is a factory worker at the Electro Steel Corporation. He tightens two nuts on square pieces of metal that pass by him on a moving belt, a task for which he is equipped with two wrenches, one in each hand. Charlie has difficulty keeping up with the pace: itching, sneezing, and a bee distract and put him behind. When the foreman yells at him to keep up, Charlie appears to want to protest but he cannot—the line doesn't stop and he would only get further behind. When the lunch whistle sounds, the line slows and then stops but Charlie cannot. His body jerks out of his control, synchronized with the now-absent rhythm of the moving line. Charlie's body has been subordinated to the rhythm of the machine.

In the afternoon, the president of the company orders the line's speed increased to its maximum setting. Charlie eventually goes crazy from the pace of the work. In his insanity, he jumps onto the line and enters the interior of the machine. As he goes through the machine's interior gears he continues to tighten any nuts and bolts within his reach. His fellow workers reverse the line and get him out. Extracted from the machine (at least literally), Charlie continues to try tightening anything resembling a nut—the noses of those around him, the breasts of a coworker, the buttons on the president's secretary's dress.

Still "out of control," Charlie begins turning knobs, pulling levers and spinning wheels at the control station, creating explosions and generally wreaking havoc in the factory. The other workers turn off the line in order to chase him, but he keeps turning it back on so they have to return to their tasks. Charlie dances, leers at and chases after women, evades his coworkers and supervisors, and appears to take great joy in his disruption of the factory's operation. Eventually Charlie is caught and taken to the hospital to be cured of a "nervous breakdown."

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Charlie, the “little tramp” in Chaplin’s 1936 film *Modern Times*, works in an organization that operates in and through a particular kind of rhythmic order: machinic, absolutely uniform, imposed on its workers from the top by means of the seemingly supra-human force of the automated assembly line. In this organization, by means of this form of order, Charlie’s body is instrumentalized as an extension of the machine. He is made the object of a rationalized system of production by means of a certain kind of scientific knowledge and the imposition of a particular kind of rhythm. While the company’s interests primarily focus on his body—his labor, the material transformations it enacts—his consciousness is unavoidably affected. The “stress” of the speed and unrelenting nature of the line’s rhythm drive Charlie “crazy,” ending his (body’s) usefulness as a docile instrument of production (Foucault, *Discipline*).

Charlie’s predicament can be analyzed in terms of false consciousness, the appropriation of his labor, the inhumane ethic of his employer, the excessive repression of his sexual drives, the panoptic surveillance system in the factory, or as “A story of industry, of individual enterprise—humanity crusading in pursuit of happiness” (the ironic suggestion of the film’s subtitle). Alternatively, I examine Charlie’s situation and others like it by hearing rhythm as a central component in organization.

This exploratory essay uses rhythm as a way to hear the relationships between forms of organization, epistemological assumptions, modes of consciousness, and bodies. I hear “organization” as the enactment—the *performance* in Victor Turner’s sense of “bringing to completion” or “accomplishing”—of order in human social life.¹ If organization enacts order, epistemology is the underlying assumptions that legitimize that order.² This “order” is a culture’s means of identifying, differentiating, and relating objects, sensations, events, and processes in the world—whether “artificial” or “natural,” material or ideational, secular or spiritual.³ I explore the ways these orders penetrate and influence not only culture and society, but consciousness, experience, and physiology. One form of order is rhythm, in the broad sense of patterns through time, particularly aural patterns. I hear rhythm as one means of performing organization. What are the implications of hearing rhythm as central to organization? What happens if we hear rhythm as a kind of discourse, knowledge, and power?

Discursive formations, as described by Michel Foucault, provide a set of rules to distinguish truth from falsity. Rhythmic sensibilities, similarly, distinguish order from chaos; rhythm is one of the basic dividing lines between music and noise. I argue that rhythm is a discourse, that its performance is constitutive of an “order”; therefore, rhythm and the forms of music licensed by a particular rhythmic sensibility are no less important to the maintenance of a social formation than “truth.” Rhythm is a kind of knowledge, and knowledge is a kind of power. Just as “subjugated knowledges” operate against and outside any particular discursive formation, there is more than one kind of rhythm—rhythms that discipline, control, reproduce an order, and rhythms that subvert, resist, enact a different order. My task here is to begin to hear the ways “scientific” (rational, capitalist, totalizing, modernist) power/knowledge formations use and enact rhythm, to specify the affiliations between those formations and a particular rhythmic sensibility. Making these connections audible not only

adds to a critical understanding of the mechanisms underlying certain forms of domination, but extends an awareness of the transformative potential of non-dominant and resistant rhythmic sensibilities beyond the sphere of the "merely" aesthetic.

MUSIC, ORDER, AND ENTRAINMENT

Jacques Attali defines music as the imposition of order onto noise, "as noise given form according to a code" (25). The kind of order—and hence what will count as "music"—varies from one social formation to another. For Attali, the order present in music is intimately related to the larger social order and its organizations, such that the connection between music and power is an ever-present theme. Music both represents and enacts the imposition of order, the channeling of human energies and drives, and is therefore a tool for maintaining a social formation. Attali writes:

Listening to music is listening to all noise, realizing that its appropriation and control is a reflection of power, that it is essentially political. . . . With noise is born disorder and its opposite: the world. With music is born power and its opposite: subversion. . . . All music, any organization of sound is then a tool for the creation or consolidation of a community, of a totality. (6)

The basic message of music, according to Attali, is that order and harmony exist, while any particular music either affirms the status quo or subverts it through the production of "noise."⁴

The connections between rhythm (as one component of a musical order) and power are made evident in a variety of examples. Jane Goodall recalls the chimpanzee who began banging two empty kerosene cans together and within two weeks became the troupe's dominant male (Hart). Siegfried Kracauer analyzes how the popularity of chorus lines in the 1920s functioned to make the homologous and repetitive nature of factory work tolerable by transforming it into an aesthetic. During the 1920s, 1930s, and 1940s, numerous studies were undertaken to understand the effects of music on factory production and other tasks such as typing (e.g., Kerr). More recently, the producers of muzak have used "applied science" to increase productivity and consumption and otherwise control people's moods (Yelanjian; Jones and Schumacher). While other qualities (tone, harmony, instruments) are crucial to these uses of "functional music," most analysts and critics hear rhythm as a central component.

An important phenomenon occurring in and around rhythmic patterns is entrainment. Christian Huygens formulated the law of entrainment from his observation that two rhythmic patterns or devices (such as two pendulums) placed in close proximity quickly lock-up: within a very short time their rhythms become "entrained." The menstrual cycles of women living in close proximity, for example, often become synchronized. The members of Kodo, a Japanese folk arts performing company best known for their drumming, use long-distance running not only to synchronize the rhythms of the individual (breathing, heartbeat, hands and feet) but to entrain the group into a common rhythm. The proper performance of their highly complex drum compositions requires that the drummers breathe as one.

The power of entrainment to channel and coordinate human energies is demonstrated in the close link between rhythmic music and work. One of Kodo's compositions, for example, is developed from a traditional Japanese fishing song, used to synchronize the fishermen's efforts as they pull at oars and haul in their nets. In the Carribean, groups of African men digging ditches use songs to coordinate the swinging of their hoes, both to avoid injury and to maximize their productivity. On the Hebrides Islands off Scotland, the women of a community manually massage newly-woven wool cloth in order to soften it. Sitting at a table with an unwound bolt of cloth, they "waulk" the wool, simultaneously massaging and circulating it around the table, synchronizing their collective activity by singing.⁵

A central part of socialization processes is the entrainment of bodies, daily routines, and aesthetic sensibilities with the rhythms of culture. These rhythms may be intimately linked to the rising and setting sun or to mechanical representations of time (the 9 to 5 grind). They may be linked to the seasons (planting, harvesting, gathering, hunting), the moon and tides (fishing, sailing, harvesting seaweed), somatic functions (eating, defecation, urination, menstruation, gestation, sleeping), organizational calendars (quarterly reports, yearly audits, the weekend, the school year), or cyclical economic change (energy prices, tax deadlines and refunds, holiday shopping). They are linked to the rhythms of speech and the process by which people become habitualized to producing those rhythmic patterns physiologically. And they are linked, of course, to the musical sensibilities of particular cultures.

Entrainment as Power

Mickey Hart, percussionist for the Grateful Dead and philosopher of rhythm, tells two stories about children, entrainment, and power. The first took place at a summer camp for underprivileged children from the Oakland ghetto. He brought a truckload of percussion instruments to the camp, set them up, and invited anyone who wished to join him. About twenty-five kids showed up.

It's interesting how long it takes people to entrain. These kids locked up after about twenty minutes. They found the groove, and they all knew it. You could see it in their faces as they began playing louder and harder, the groove drawing them in and hardening. It lasted about an hour. These things have life cycles—they begin, build in intensity, maintain, and then dissipate and dissolve. When it was all over everyone started laughing and clapping. They were celebrating themselves and they were also celebrating the groove. Although they had no words for it, they knew that they had created something that was alive, that had a force of its own, out of nothing but their own shared energy. (238)

The second, similar story involves a group of mentally-handicapped children as a part of a program to build self-esteem.

I'd filled different tables with different instruments, rattles on one table, concussion sticks on another, then demonstrated the sounds of each and let the kids choose the one that most appealed to them. At first they were tentative, almost fearful. But the sight of me, acting crazier than any of them, beating on my hoop drum and making animal yells and obviously having a hell of a good time, overcame their resistance. Within five minutes we were a percussion orchestra; within fifteen minutes we'd

entrained. Just a brief linking up, but they all felt it, because they all stopped and looked around bewildered. It was amazing to watch. They went from noisy ecstasy back to their old condition in seconds. They no longer trusted the instruments. (Hart 236)

In the context of Attali's argument about music, order, and power, these responses take on additional significance. They each represent a partial awareness of the flip-sides of rhythm, entrainment, and "organization" in general. One side is communal action, group identification, collective strength. The other is Attali's sense of music as power, a top-down form of control, Taylorism, Foucault's "discipline":

What the ordinance of 1776 defines is not a time-table—the general framework for an activity; it is rather *a collective and obligatory rhythm, imposed from the outside*; it is a "programme"; it assures the elaboration of the act itself; it *controls its development and its stages from the inside*. We have passed from a form of injunction that measured or punctuated gestures to a web that constrains them or sustains them through their entire succession. A sort of anatomo-chronological schema of behavior is defined. The act is broken down into its elements; the position of the body, limbs, articulations is defined; to each movement are assigned a direction, an aptitude, a duration; their order of succession is prescribed. *Time penetrates the body and with it all the meticulous controls of power.* (Foucault, *Discipline* 152: emphasis added)

Time is not simply set up as a structure, as in a time-table. In discipline, as with Charlie, time invests the body through rhythm and entrainment. What remains to be elaborated is what sense of time, what kind of rhythm.

TAYLORISM AND FORDISM: RHYTHM AND THE CONTROL OF PRODUCTION

In his historical analysis of the changing sense of time required by industrial capitalism, E.P. Thompson distinguishes "task orientation" from "timed labor." Under task orientation, typical in many pre-industrial contexts, the rhythms of work appear to be "natural," motivated by observed necessities: twice-daily milkings, ploughing, harvesting, and so on. However, when someone is employed to do these same tasks the attitude toward labor under the task orientation appears wasteful. With wage labor, time becomes money: having purchased the labor power of a worker, the employer becomes interested in transforming labor power into actual labor.

Moved into the context of industrial capitalism, this interest in transforming purchased labor power into labor becomes intensified. Richard Edwards identifies this interest as the primary motivation behind capitalist moves to control the workplace, transforming it into a "contested terrain." Henry Ford nicely summarized the position of the capitalist: "The idea is that a man must not be hurried in his work—he must have every second necessary but not a single unnecessary second" (82). As Foucault puts it, "Time measured and paid must also be a time without impurities or defects. . . . Precision and application, are, with regularity, the fundamental virtues of disciplinary time" (*Discipline* 151). Labor needs to be squeezed of all its potential and fit into the rhythms of industrial production—rhythms relatively divorced from the seasons, weather, traditional holidays, drinking patterns, blood sugar levels—rhythms "without impurities or defects."

Bernard Doray, in his study of Taylorism and Fordism in France, traces the disciplinary technologies utilized to achieve this efficiency and regularity. Initially, upon gathering workers together in manufactories to appropriate their labor, the attempts to regularize work rhythms were of the order of Foucault's "time-tables": external programs arbitrarily imposed upon the workday and enforced with fines or other punishments. These programs took the form of establishing the length of the workday, the times work would begin and end, and fines to be levied for particular violations.

The table system represents an important leap in the disciplinary technologies related to the control of work rhythms. Previously, the production process had remained fairly compact or unified—in other words, a worker could generally carry through with most if not all the steps in production and hence still be connected with the results of their labor. The table system was the first step in fragmenting production. The production process is divided among, for example, 10 workers sitting along a table. Each worker completes one or a small series of operations and passes the materials to the next person until the product is complete. The work could now be synchronized: the differentiation of tasks allows for the equivalence (non-differentiation) of time. This enhances the ability of foremen to spot "problems" in the workforce, in that a person who worked too slowly could easily be identified and the output of two or more "tables" could be directly compared. However, the table system shares with the previous "time-table" approach the means of enforcement: penalties by the employer or their agents. The enforcement of the rhythms of work is still personalized and therefore readily perceived as arbitrary in its judgments and exercise.

As with the table system, Taylorism instrumentalizes the worker and fragments the production process. The core of Taylorism is not the infamous time and motion studies per se, but the divorce of knowledge from practice. Throughout *The Principles of Scientific Management*, Taylor bemoans the fact that most tasks were done according to "rules of thumb" passed down from one generation of workers to another and further developed through the individual worker's experience.⁶ "Practically in no instance have they been codified or systematically analyzed or described" (Taylor 32). Two assumptions enable the substitution of this "rule of thumb" knowledge with "scientific" knowledge. First, "there is always one method and one implement which is quicker and better than any of the rest" (Taylor 25)—Foucault's pure use of time. Second, no matter what the task—from handling pig iron to working with complex metal-cutting machines—the worker best suited to carry out the task in practice is incapable of understanding the science behind the task. The purpose of time and motion studies is to make absolutely uniform the specifics of what is to be done, how the task is to be carried out, and how long each movement should take. Such uniformity would prevent the ability of workers to get away with the intentional slowing of work—the "soldiering" which so incensed Taylor.

According to Edwards, however, Taylorism failed to accomplish the fundamental goal of the capitalist: the transformation of purchased labor power into labor. Workers continued to "soldier" and, quite simply, "fought [Taylorism] to a standstill" (103). Taylorism did, however, introduce the advantages of keeping

knowledge about the production process out of the province of the workers, resulting in the continuation if not an increase in the fragmentation of labor processes under Fordism. As Ford himself put it, "The man who places the part does not fasten it. . . . The man who puts in a bolt does not put on the nut; the man who puts on the nut does not tighten it" (83). The vast majority of work became unskilled and the complete alienation of the laborer from their labor was achieved.

Fordism advanced from the groundwork laid by Taylorism in several ways. For my purposes, however, a simple but accurate description is that Fordism is Taylorism with an assembly line (for more detailed accounts, see Doray, and Edwards). Taylorism rationalized the labor process and instrumentalized the worker's body but failed to solve the control problem. The assembly line was needed to accomplish that. Doray explains that the table system imposed a uniform discipline on workers yet remained "an expression of living labour": work originated from the workers, and them alone, albeit under the constraints of punitive discipline.

With the mechanized assembly line, matters are very different. Its pace is set in advance, and it is external to the workers: it is an expression of a machine-system. From this point of view, the line is far from being an automated handling device; it is part of a homogeneous system, and a means of incorporating the activity of men into that of machines. (65)

An assembly line "gears" living labor to its own rhythms and those rhythms are uniform. Workers must not only work as fast as the line; restrictions on their workspace and movements means that they must also work as slow as the line—only one pace is allowed.

Power and control are thus transferred from the supervisor to the line itself. Social violence is displaced into the technological field:

The line established a technological presumption in favor of the line's work pace. Struggle between workers and bosses over the transformation of labor power into labor was no longer a simple and direct personal confrontation; now the conflict was mediated by the production technology itself. Workers had to oppose the pace of the line, not the (direct) tyranny of their bosses. (Edwards 118)

The means of control is no longer personal but structural, technical. *The rhythmic control of production has been reified by its materialization in the machine.* Time-tables are obsolete, redundant because "power was made invisible in the structure of the work" (Edwards 110). The worker—at least the part of the body involved in production—is objectified. The machine "infiltrates the space-time of living labour, reifies it, and incorporates it into its own system" (Doray 82). With the assembly line, the cyborg as a productive entity is born.⁷ Machinic, rhythmic uniformity has been achieved. The worker either operates within the rhythm of the line or is replaced.

Attali argues that musical forms will correspond with the larger social order and, in particular, the dominant mode of production. The parallel between the rise of capitalism and the movement of music out of the community and religious ritual and into concerts, in which music became both a commodity to be purchased and a spectacle to be observed by a passive audience, was no

historical accident. Similarly, practically simultaneous with the first use of the assembly line were the beginnings of the mass distribution of recorded (i.e., uniform, commodified) music and the initial experiments with “functional music” to increase factory production.

If rhythm can be used to create collective, coordinated action, it can be used to impose such coordination, as with Taylorism and Fordism. However, if specific rhythms can be used to impose order onto bodies, to discipline them, alternative rhythms can be anti-disciplinary. Music and rhythm can disrupt, propose an alternative order. In the 1920s, during the heyday of Fordism and the early years of functional music, jazz was being attacked as an evil influence, a cause of crime, suicide, nervousness, and “cannibalistic rhythmic orgies.” It was African, barbaric, animalistic, even the result of a communist plot to undermine Christian civilization. “It tends to unseat reason and set passion free” (Anon., qtd. in Merriam 243). A different rhythm—that is, a rhythm from a different rhythmic sensibility, a different form of order and social organization—has a profound effect on the body. Hence, the attacks on jazz (and, later, rock and roll) as “jungle music,” as too overtly sexual. In short, they were too rhythmic—that is, they had the wrong kind of rhythm, they *performed* the wrong kind of bodily organization.

Jazz and rock originated, at least partially, from antagonistic elements within a highly stratified and heterogeneous social formation (L. Jones). Because they arose from the experiences of Africans forcibly brought to North America and contained traces of African music and spirituality, the music and dance of jazz and rock were embodiments of “theories of the flesh” (Madison) alien to mainstream Euro-Americans. However, having developed within an American context and drawn from European musical traditions, jazz and rock were not simply “alien” expressions, but manifestations and enactments of a *struggle* over the forms of organization by which the energies of bodies would be channeled. Rhythm and music, therefore, became primary sites of social struggle. For example, Euro-Americans appropriated African-American forms of dance, such as the (fluid, horizontal, sensual) Lindy Hop, and disciplined them, resulting in a dance like the (jerky, vertical, rigid) Jitterbug. These rhythmic forms were performances of conflictual organizations in North American industrial society (Cleaver). Music and dance were sites for a dialogue, both antagonistic and cooperative, between Euro-American and African-American theories of the flesh: that is, between different epistemologies, rhythmic sensibilities, forms of order and organization.

ORDER AND RHYTHMIC SENSIBILITIES: WEST AFRICAN POLYRHYTHMS

One culture’s rhythm is another’s noise. A culture’s rhythms—which are not limited to “music” in the narrow sense—are both representations and performances (enactments, completions) of that culture’s means of organization. Think of the dominant western conceptions and valuations of rhythm. Rhythm is composed of equally divided, discrete units of time. It must be counted evenly and the stress placed on the main beat. Audience members at, for example, a symphony performance must be very quiet, physically passive. The conductor,

standing in front, directs the musicians, keeps the beat that everyone must "get with." The percussion section is generally hidden in the rear and can spend much of the time quietly counting, flipping through pages and pages of pauses in anticipation of the ringing of the triangle, the clashing of the cymbals, the roll of the tympani. Harmony, after all, is far more important than rhythm. "It is the progression of sounds through a series of chords or tones that we recognize as beautiful" (Chernoff 42). Rhythm is merely a necessity, allowing the coordination needed for the "real" music to occur.

Confronted with the polyrhythms of West African music, many Europeans resort to phrases such as "completely incomprehensible," "I would become lost and disoriented," "syncopated past comprehension," and "the music is so monotonously repetitive that it just dulls the senses." John Chernoff's analysis of *African Rhythm and African Sensibility* demonstrates the immense variability, not just in the speed and time-cycle of rhythms (e.g., 12/8 as opposed to 3/4 or 4/4), but of fundamentally different senses of rhythm and how they affect what it is possible to conceive of as "order."

West African polyrhythmic music focuses on the complex interweaving of contrasting rhythmic patterns. These patterns often sound incomprehensible to western listeners who cannot identify what *the* rhythm is.⁸ There seems to be no main beat, which is confusing for a western sense of rhythm as a single, unifying force. African rhythms are not only multiple but incomplete, Chernoff argues. If it sounds like there is something missing it is because there is—the listener (usually a dancer) must maintain the missing rhythm that completes the polyrhythmic "tapestry." The listener must be actively engaged in making sense of the music. You don't *keep* the time, you *complete* it.

These African rhythms are not separate, discrete, independent entities; each rhythm defines the others. As a consequence, it is extremely difficult for any one musician to play their part unless the whole ensemble is playing. In this form of organization, rhythm is something to be responded to, not something to "get with." In this sensibility, "time" is not a single, objective phenomenon as in western music and culture. "The establishment of multiple cross-rhythms as a background in almost all African music is what permits a stable base to seem fluid" (Chernoff 52).⁹ The listener in African music must become a participant (most commonly through dance), must be able to actively mediate the rhythms. "The music is perhaps best considered as an arrangement of gaps where one may add a rhythm, rather than as a dense pattern of sound. In the conflict of the rhythms, it is the space between the notes from which the dynamic tension comes" (113–114).

Chernoff also argues that this rhythmic sensibility is an enactment of a communal sensibility:

In the model of community presented in an African musical event, integrity is ideally a combination of diverse rhythms which must remain distinct, and the power of the music comes from the conflicts and conversations of the rhythms, from vivid contrasts and complementary movements. The music is judged in terms of the success of each performance, that is, by how well the formally established relationships of the rhythms are continually open to fresh and vital participation. (160)

For example, according to Chernoff the best improvisations by “master drummers” in this tradition are designed to draw attention to other parts of the ensemble more than they seek to emphasize their own rhythmic lines. Style is a matter of communal integration as much as a highlighting of the individual.¹⁰ Whether Chernoff’s seemingly utopian model is an accurate description is of less concern (to me) than its ability to help in *conceiving alternative ways of performing organization through different rhythmic sensibilities*.¹¹ If we can begin to imagine different types and functions of rhythm, perhaps we can imagine a different sense and/or valuation of order and different types of social organization.

These different rhythmic sensibilities, forms of organization, and senses of what constitutes order are inseparable from epistemological systems. To uncover the connections between the western rhythmic sensibility discussed above, the form of organization epitomized by Fordism, and the sense of order embodied in western epistemology, I turn to Nietzsche. Nietzsche distinguishes between the will to truth, which characterizes the dominant western epistemology since Plato, and the will to power.

The will to truth relies upon certain presuppositions; most importantly, it casts the world, objects and truths as both singular and stable—as self-identical *beings*. Aristotle’s principles form the basis for science and logic: A cannot be not-A; something cannot be affirmed and denied at the same time. The principles of identity and noncontradiction serve to stabilize the world, fix it, categorize it, make it predictable. “‘Truth’ is the will to be master over the multiplicity of sensations—to classify phenomena into definite categories” (Nietzsche 280). Only by fixing objects, by insisting that they remain singular and self-identical, can the syllogism hold its validity, can science predict—and therefore control—events. Sensations—which often indicate that the world is multiple and ever-changing—must therefore be denied.

The will to truth, Nietzsche argues, relies on a fundamental falsehood—that the world is characterized by *being* instead of *becoming*—and is more accurately identified as the will to *control*. Knowledge, within a western epistemological frame, “is possible only on the basis of belief in being” (Nietzsche 281). The knowing subject makes the world identical, coarse, and simple, and thereby comprehensible and calculable. Platonism submits (the world) to a totalizing discourse. Is it any surprise that the dominant western rhythmic sensibility is based on discrete units of time, a single rhythm, and uni-formity? That it is motivated by the desire to achieve coordination through the top-down control of a large group of people, whether musicians or factory workers?

An epistemology and ethics based on an understanding of the world as a fluid multiplicity, a becoming, would be characterized by the will to power: the affirmation of difference, multiplicity, change. Whether the corresponding rhythmic sensibility would correspond to an African one as described by Chernoff, I cannot say. But a model of a polyrhythmic sensibility that allows for “a stable base to seem fluid,” that seems dialogic rather than monologic, seems much closer and can provide a basis for alternative conceptualizations and performances of organization.

RHYTHM AND CONSCIOUSNESS

More than epistemology is involved here—mind and consciousness are implicated as well. Ethnomusicologists and others have long been interested in the connection between rhythm and consciousness. In many cultures (some claim all), rhythm, often produced with drums, is utilized as a tool to visit the spirit world, to journey, to trance, to heal—in short, to enter “non-ordinary” states of awareness. From the Dionysian rites to the healing ceremonies of the !Kung, rhythm is used to alter consciousness.

At a physiological level, drumming can be heard as an “auditory driver.” The ear is a direct receptor for the brain. Drums scatter sound across a wide range of frequencies, causing the sound to decay rather quickly. These short, sharp pulses spread across the spectrum of sound our ears pick up, in a sense “overloading” the hearing mechanism and inducing trance by altering normal brainwave patterns: quite literally, brain wave patterns entrain with the external rhythms, altering the physiological foundation for conscious awareness (Neher).

These physiological approaches would seem to indicate that certain rhythms have an intrinsic ability to alter human consciousness in certain ways. However, Gilbert Rouget’s cross-cultural study of *Music and Trance*, as well as the position on order I have been developing through Attali and Foucault, would indicate that the effects of certain rhythms would be culturally relative. This does not have to deny the role of physiology, however; biogenetic structuralism (Laughlin et al.) provides a framework for theorizing a close, interactive relationship between physiology, consciousness, and social forces (e.g., language and rhythm).

Biogenetic structuralism and neurophenomenology¹² can be used to understand how the body is “cultural all the way down” (though not *only* cultural). Leonard Hawes reviews these scientific understandings of the brain to demonstrate how cultural patterns are, literally, inscribed in our neural pathways. Early in the developmental process, the neurons in the brain are undifferentiated. Through cognitive development, some neural pathways are grooved and reinforced—canalized—through activity while others atrophy from lack of use. Hence, to take one example, language patterns (involving certain neural patterns) become inscribed at the neurostructural level. Not uncoincidentally, biogenetic structuralism uses the term “entrainment” to describe the process by which neurons link and combine into complex networks in response to environmental influences (Laughlin et al.).

Following this model, our bodies are entrained at the level of biology and consciousness into a particular set of orders through the performance of organization, e.g., rhythmic patterns. Exposure to radically different performances of order and rhythm would seem to require alterations at the levels of both biology and consciousness. These alien orders would go against the grain, as it were, of the existing patterns of canalized synaptic pathways that form the neurological foundation for consciousness, perception, and experience. Laughlin et al. argue that a “model” (their term for a particular neurognostic structure) can—within the constraints of the “genetic envelope” (hard-wired genetic limitations)—be reentrained, adapted to changing environmental conditions to become isomorphic with external stimuli. Hence, various levels of

organization—from the cellular to the synaptic to the organismic to the social, from the biological to the phenomenological to the cultural—can be entrained, exhibiting varying degrees of isomorphism.

The parallels between descriptions of the neural system as “grooved,” “hardened,” “canalized” and Hart’s description of “the groove drawing them in and hardening” can be attributed to coincidence, common cultural metaphors, or an interchange of metaphors between different discourses (e.g., science and music). Or they can be heard as isomorphic structural relationships between a social ritual of rhythmic entrainment and the entrainment of neural structures. Neurons become involved in hierarchy after hierarchy of neural networks and “those networks function as living *organ-izations*” (Laughlin et al. 52). These networks provide the foundations for human subjects who, in turn, organize themselves socially. These organizations, to complete the bio-social dialectic, create stimuli that entrain, disentrain, and reentrain neural networks.

Rituals and other organized social activities can be used to alter consciousness through “autonomic driving”—a conditioning (entraining) and activation of “non-ordinary” neurological structures that provide the neurochemical basis for non-ordinary states of consciousness (Laughlin et al.). In African and Carribean possession cults, such as those found in Haiti, rhythm—produced by drums, bells, rattles, clapping and dancing—brings on the possession of the dancers by *orishas*, divine beings. The celebrants dance and as the possession begins, they begin to stumble. This period of uncoordination is understood as the transition phase between the human and divine states. In the terms of biogenetic structuralism, the neural pathways are being disentrained from their “ordinary” state and reentrained into their “non-ordinary” (i.e., divine) state. Both behavior and consciousness are thereby altered. The neurological model of “possession” is learned and remains dormant until activated through environmental stimuli—in this case, specific ritualistic rhythms. (Perhaps Chaplin intuited a similar process when he had the monotony and increasing speed of the line drive Charlie “crazy.”)

Similarly, Rodney Needham notes that percussion accompanies various transition events (rites of passage) in every known culture: birth, death, initiation, marriage, sacrifice, declaration of war, accession to office, harvest, etc. He hypothesized a connection between percussion and transition but had no explanation for the link. Biogenetic structuralism provides one such explanation: rhythm as a powerful tool for entrainment, transformation, reorganization. Ritual inscribes itself onto our neural pathways. Cultural patterns are, often literally, drummed into our heads.

Knowledge, experience, consciousness, and identity are products of a dialectical interplay, in this case between neurological structures and various social and physical environments. At any point, a dialectic exists between existing models (neurological structures, the product of previous models and environmental factors) and the environment. *This perspective recognizes the absolute importance of enculturation while also hearing the body as an active player in the process.* The mind is not a blank slate passively inscribed with cultural patterns; and hard-wired, a priori biogenetic structures are not deterministic.

IMPLICATIONS

Rhythm is one important factor underlying or influencing, as well as connecting, social organization, epistemology, consciousness, and physiology. The socio-economic structures of a given social formation are embodied in and performed through various organizations—the family, the workplace, religion, ritual, entertainment, and so on. These organizations provide, impose, and produce order, one form of which is rhythmic (patterns through time). These rhythms become encoded in the pathways of the brain and nervous system. Neural pathways provide the biological basis for consciousness; the harnessing and repression (canalization) of the body's drives constitutes the subject.

The dominant forces within any social formation will be imperfect in their entrainment of subjects for at least three reasons. First, they must contend not only with the limitations of the plasticity of human organisms but, if the body-society relationship is understood dialectically instead of as a simple determination, they must also engage in a constant struggle against the body and its drives as an *active* force. Second, in our complex—that is, multicultural, fragmented, stratified—society, subject-positions are *over*-determined, creating the possibility for gaps and contradictions in subjectivity. Subjects are entrained into a variety of rhythms which may not exist harmoniously, creating conflict, chaos or simply cancelling one another out like two off-set wave patterns. Third, rhythm can be used as a counterhegemonic force, creating alternative pleasures, neurognostic structures, modes of consciousness and subjectivities.

Think, for example, of what may happen to a subject immersed in the rhythms of another culture. Mickey Hart recounts the effect of West African rhythms on European bodies in this way:

Just before enlisting I had discovered the music of Babatunde Olatunji, the Nigerian drummer who lives in New York. . . . Whenever I played this music at one of Raphael's parties, the room would transform. It was as though the rhythm of the drum was calling something up from these sleek cosmopolitan bodies that had been asleep. (91)

The performance of a different order produces a different subject and state of awareness. Energies, previously repressed or channeled toward certain ends, can be released and redirected. Hence the attacks on jazz and rock by the ideological allies of Fordism.

Consciousness is not only influenced by "non-ordinary" rhythms, such as those used in shamanic rituals for spiritual journeying, but by "everyday" (common sense) rhythms that are performed in any form of social organization (language, ritual, work, music, etc.). Why would the rhythms and breathing patterns of Western European choral music, the speech patterns of middle-class American English, or the 60 hertz cycle of overhead power lines affect consciousness any less than the African rhythms of Babatunde Olatunji affected Hart's western friends? How can we not be cyborg-subjects (body-machine complexes) amidst ubiquitously mechanized and computerized environments?

Hearing rhythm as a form of discourse and an enactment of social organization carries with it a number of implications, most of which have not been explored by the field of communication in general and performance and

organizational studies in particular. First, opening our ears to rhythm challenges common understandings of what constitutes "organization," pointing to a wide range of divergent cultural forms, from machinery to conversation to music to the workplace, which utilize rhythm to produce a kind of order. Second, rhythm complicates and enhances our sense of the connections between organization and other elements of human life. In particular, the body must be accounted for as an active force and the mind/body distinction problematized on other than a purely philosophical level. Finally, rhythm holds potential for those interested in developing alternative forms of organization as well as making interventions in existing organizations.

ENDNOTES

¹As this definition of "organization" implies, and as will become evident in the range of examples in this essay, I use the term to encompass more than "formal" organizations such as the modern workplace.

²My use of epistemology here builds off of its traditional sense as the study of knowledge. I am following Nietzsche's suggestion that an epistemology is not a description of how things are or of how humans do in fact know, "but an imperative concerning what *should* count as true" (279).

³I am trying to encompass many different ways of "ordering" the world, since a recognition of the fundamentally different senses of what constitutes "order" is at the heart of this essay. I recognize that these categories and oppositions are themselves products of my culture's senses of order, its epistemologies, and its means of organization.

⁴Plato, for example, wrote in the *Republic* that "to change to a new kind of music is a thing we must beware of as risking the whole. For the methods of music cannot be stirred up without great upheavals of social custom and law" (222). As Rouget points out, Plato's "music" (*mousa*) is a broader category than the word denotes for us. Its meanings can include art, science, song, or "persuasive words," depending on the context. However, "music" in the narrower sense is certainly included in his use of the term in this passage, as indicated by the subsequent discussions of acceptable and unacceptable rhythms, instruments, etc. This can be heard as further support for rhythm's status as a form of discourse.

⁵For a more comprehensive and contextualized analysis of this performative event, see Speer.

⁶Taylor's repeated use of "rule of thumb" is interesting given one of the possible historical origins and ideological affiliations of the phrase. In 1866 the legal right of a husband to beat his wife was restricted, giving him the right to beat her "with a stick as large as his finger but not larger than his thumb" (Browne 167). While Taylor disparaged "rule-of-thumb methods" in the workplace, the lack of any irony in his use of the term is astounding given the historical proximity of its literal usage.

⁷Chernoff recounts a legend about some African stevedores who used songs to accompany their work of loading and unloading ships. Upon encountering a machine used by westerners to assist in a similar task, they assumed the machine was the white man's music. Their perception was not the result of a primitive misunderstanding, a lack of awareness of western technology, but of their possession of a different awareness about the role and importance of rhythm in organization: the assembly line was Charlie's work song. In contrast to the singing of the Hebrides wool-makers or the Caribbean ditch-diggers, this song is not only characterized by a machinic rhythm but is imposed on the workers instead of produced by them.

Many of the dominant rhythms in contemporary western culture—and they are quite consistent with the western musical sensibility I outline below—are mechanistic: clocks, work, transportation, entertainment, electrical currents. Many of the dominant rhythms of our lives—our bodies, our organizations, our musics—have become machine-based and machine-driven. We have entrained, to some degree, with the machine, performing or being performed as cyborg-anizations. We have managed to isolate ourselves, as the industrial capitalists so strongly desired, from the rhythms of nature and "community." The extent and implications of such entrainments demand further research by organizational and other scholars.

⁸Tagg provides a specific example of this type of polyrhythm: a metric unit of 24 sub-beats "being consistently used to produce a complex of simultaneous metres like 3/8, 2/4, 3/4, 6/8, 4/4, 2/2, 3/2, 4/2 (and possible additive asymmetric subdivisions of these) on top of each other" (289). Koetting provides a basic overview of African music that demonstrates how many compositions can and must be given a single meter, such as 12/8, while such an identification also disrupts an understanding of any individual rhythmic line. Koetting, drawing on the work of Kwabena Nketia, argues for a single, basic rhythm in much African drumming, and thereby contradicts Chernoff's interpretation.

⁹Interestingly, the English word "rhythm" can be traced directly to the Greek *rhythmos*, derived from *rhein*, meaning "to flow." This sense, however, has been overshadowed by notions of discrete units of time, regular variations between stressed and unstressed beats, etc.

¹⁰Joni Jones's work on African theatre provides a useful complement to the rhythmic sensibility I am working

with here. Her discussion of the importance of improvisation and the narrowing of the gap between (active) performers and (passive) observers not only parallels the model of community described by Chernoff, but serves as an illustration of how the enactment of such a sensibility might manifest itself. In the terms I use here, she works to enact an alternative form of organization, one which is closer to a *community* than it is to a singular and imposed *totality*. For example, her discussion of the implications of improvisational theatre for the notion of a single-authored, scripted text is a nice analog to the roles of the original score, conductor, and monorhythmic base in mainstream western music. A consequence of improvisation, as with polyrhythmic music, is the always open, incomplete, and participatory nature of both performance and community. Finally, Jones not only compares the two different models of theatre, but works through the difficulties and transformative possibilities involved in enacting an African form of organization in a North American context.

¹¹ Chernoff's arguments are certainly open to challenge. Waterman, for example, in his study of contemporary musical forms among the Yoruba, makes clear that the *hierarchical* nature of Yoruba society is legitimated in their music—that multiple rhythms are a performance of communal inequality.

¹² "Biogenetic structuralism" and "neurophenomenology" are names for an approach that integrates anthropology and phenomenology with the advances in the neurosciences in order to theorize the relationship between brain and culture. They emphasize that all experience is the product of cognitive processes and structures which are both *physiological and cultural*. These physiological and cultural structures do not simply interact, but actively form one another. In particular, many of the proponents of these views have focused on the relationship between ritual and consciousness. I should note that Laughlin et al., while maintaining such a dialectical view, give much greater weight than I to hard-wired cognitive structures.

WORKS CITED

- Attali, Jacques. *Noise: The Political Economy of Music*. Trans. Brian Massumi. Minneapolis: U of Minnesota P, 1985.
- Browne, Angela. *When Battered Women Kill*. New York: The Free P, 1987.
- Chernoff, John Miller. *African Rhythm and African Sensibility: Aesthetics and Social Action in African Musical Idioms*. Chicago: U of Chicago P, 1979.
- Cleaver, Eldridge. *Soul on Ice*. New York: Dell, 1968.
- Doray, Bernard. *From Taylorism to Fordism: A Rational Madness*. Trans. David Macey. London: Free Association Books, 1988.
- Edwards, Richard. *Contested Terrain: The Transformation of the Workplace in the Twentieth Century*. New York: Basic Books, 1979.
- Ford, Henry (with Samuel Crowther). *My Life and Work*. New York: Garden City Publishing, 1922.
- Foucault, Michel. *Discipline and Punish: The Birth of the Prison*. Trans. Alan Sheridan. New York: Vintage, 1977.
- Hart, Mickey (with Jay Stevens). *Drumming at the Edge of Magic: A Journey into the Spirit of Percussion*. New York: Harper Collins, 1990.
- Hawes, Leonard. "The Politics of Articulation and Critical Communication Theory." *Communication Yearbook 15*. Ed. Stanley A. Deetz. Newbury Park, CA: Sage, 1992. 582–594.
- Jones, Joni L. "Improvisation as a Performance Strategy for African-based Theatre." *Text and Performance Quarterly* 19 (1993): 233–251.
- Jones, LeRoi. *Blues People: Negro Music in White America*. New York: William Morrow, 1963.
- Jones, Simon C., and Thomas G. Schumacher. "Muzak: On Functional Music and Power." *Critical Studies in Mass Communication* 9 (1992): 156–169.
- Kerr, Willard A. *Experiments on the Effects of Music on Factory Production*. Stanford, CA: Stanford UP, 1945.
- Koetting, James T. "Africa/Ghana." *Worlds of Music*. Ed. Jeff Todd Titon, et al. New York: Schirmer Books, 1984. 64–104.
- Kracauer, Siegfried. "The Mass Ornament." *Critical Theory and Society: A Reader*. Ed. Stephen Eric Bronner and Douglas MacKay Kellner. New York: Routledge, 1989. 145–154

- Laughlin, Charles D., John McManus, and Eugene G. d'Aquili. *Brain, Symbol and Experience: Toward a Neurophenomenology of Human Consciousness*. Boston: Shambhala, 1990.
- Madison, D. Soyini. "That Was My Occupation': Oral Narrative, Performance, and Black Feminist Thought." *Text and Performance Quarterly* 13 (1993): 213–232.
- Merriam, Alan P. *The Anthropology of Music*. Chicago: Northwestern UP, 1964.
- Needham, Rodney. "Percussion and Transition." *Reader in Comparative Religion: An Anthropological Approach*. Ed. William Lessa. 3rd ed. New York: Harper & Row, 1972. 391–397.
- Neher, Andrew. "A Physiological Explanation of Unusual Behavior in Ceremonies Involving Drums." *Human Biology* 34 (1962): 151–160.
- Nietzsche, Friedrich. *The Will to Power*. Trans. Walter Kaufmann and R.J. Hollingdale. New York: Random House, 1967.
- Plato. *Great Dialogues of Plato*. Trans. W.H.D. Rouse. New York: New American Library, 1956.
- Rouget, Gilbert. *Music and Trance: A Theory of the Relations between Music and Possession*. Trans. Brunhilde Biebuyck. Chicago: U of Chicago P, 1985.
- Speer, Jean Haskell. "Waulking o' the Web: Women's Folk Performance in the Scottish Isles." *Literature in Performance* 6.1 (1985): 24–33.
- Tagg, Philip. "'Black Music,' 'Afro-American Music' and 'European Music.'" *Popular Music* 9 (1989): 285–298.
- Taylor, Frederick Winslow. *The Principles of Scientific Management*. New York: W.W. Norton, 1911.
- Thompson, E.P. "Time, Work-Discipline, and Industrial Capitalism." *Past and Present* 38 (December 1967): 56–97.
- Turner, Victor. *From Ritual to Theatre: The Human Seriousness of Play*. New York: PAJ Publications, 1982.
- Waterman, Christopher Alan. *Jùjú: A Social History and Ethnography of an African Popular Music*. Chicago: U of Chicago P, 1990.
- Yelanjian, Mary. "Rhythms of Consumption." *Cultural Studies* 5 (1991): 91–97.

