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RHYTHM AND RACE IN  
MODERNIST POETRY AND SCIENCE

# Introduction

## Phonoscopic Modernism

The reason people marvel at works of art and say: How in Christ's name did he do it?—is that they know nothing of the physiology of the nervous system.

—William Carlos Williams, *Spring and All*

The title of my introduction derives from the *phonoscope*, a device invented in France at the turn of the twentieth century to monitor the rhythmic changes in the metabolism of a person as he or she speaks. Strapped to the throat of the speaker, who also held a tube in one nostril, the phonoscope registered the vibrations of the vocal apparatus, producing a picture of sound—hence *phono/scope*—in the form of a wavy line incised onto a metal drum cylinder (see figure 0.1). This cylinder provided the phonologist with a chart of the sound of a particular language as spoken by a particular person. The thesis of the present study is that these pictures—and more importantly, the body of scientific work that produced them—motivated many of the formal innovations of Modernist poetry.

In this introduction's epigraph from *Spring and All*, William Carlos Williams puts his literary finger on the more general subject of this book, which is the idea that human physiology has something critical to do with the aesthetic imagination. In what follows, I examine how theories of poetic rhythm during the Modernist period paralleled and in some cases were informed by contemporary theoretical and experimental work done on the rhythms of the human body. In an article published in *The American Journal of Psychology* for July 1913, Christian Ruckmich, an experimental psychologist at Cornell University, distinguished two issues involving the study of rhythm in the first decade of the century: theories of rhythm had proliferated to the point where they required critical reassessment, and

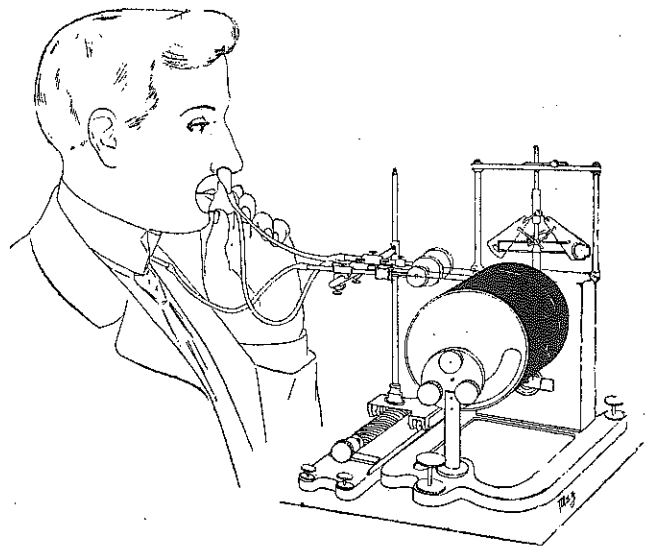


FIGURE 0.1 PHONOSCOPE.

Source: Rousselot, *Précis de Prononciation Française*, 1913.

the topic of rhythm had migrated into a myriad of other disciplines and discourses:

The experimental investigation of the perception of rhythm has grown so extensive and, at the same time, so indefinite in scope that the writing of an introduction which shall be adequate to the general problem is now altogether out of the question. The subject of rhythm has been carried over into many fields both inside and outside of the science of psychology: within, it has been related to attention, work, fatigue, temporal estimation, affection, and melody; without, it is frequently mentioned in connection with music, literature, biology, geology, gymnastics, physiology, and pedagogy. (Ruckmich, "The Role of Kinaesthesia," 305)

As Ruckmich demonstrates here, the first half of the twentieth century witnessed a profound interest in the subject of rhythm, an interest that transgressed discursive boundaries and linked scientific fields and the arts in unusual ways. By 1913, as Ruckmich claims, rhythm had become an

issue critical to disciplines as diverse as gymnastics, literature, biology, and geology, as well as to the nascent field of psychology. His essay in fact marks the midpoint in a period of intense "experimental investigation of the perception of rhythm" that occurred in the United States and Europe between 1890 and 1940, during which time a great deal of theoretical work was done on rhythm and on its possible applications to various psychological, sociopolitical, and cultural situations. Ruckmich's call for a "complete study of rhythm" was echoed by European and American writers from many different disciplinary backgrounds who agreed that the time had come for a science of rhythm to be formulated: in his "Bibliography of *Rhythm*," published in the next issue of *The American Journal of Psychology*, Ruckmich cites more than two hundred entries. Because at the time rhythm was generally conceived to play an important role in most natural, social, psychological, and physical processes, and to be a critical component in the structures of mind and body, the political uses to which it could be put were issues of intensive speculation. As a unique production of the early-twentieth-century machine age—in which, Ruckmich intimates, it was destined to play a major role—rhythm was ready by 1913 to become deployed as its own comprehensive "field."

The year 1913 was also when Ezra Pound published "A Few Don'ts" in *Poetry* magazine, announcing his credo of "absolute rhythm" and initiating a century-long debate on poetic rhythm—from the Imagists of 1912 to the neo-romantics of the 1990s, twentieth-century poetry movements have risen and fallen according to their definition and handling of rhythm, which for many poets has represented what W.B. Yeats in 1902 termed "the principle part of the art." The controversies over free verse that preoccupied the literary establishment in the 1910s and 1920s—and led to the momentous departures from previous practice in the innovations of literary Modernism—are still raging in the debates between post-Language poets and New Formalists at the beginning of the twenty-first century. Just as the "critics" William Carlos Williams parrots in 1923's *Spring and All* task him for "taking away rhythm" (*Imaginations*, 88), so Amittai Aviram, writing seventy years later in *Telling Rhythm: Body and Meaning in Poetry*, accuses "modern poets" of "abandoning rhythm altogether," and Language poets of "making poetry simultaneously arrhythmical and meaningless" (235). Competing notions of rhythm have been the flash points for many of the controversies involving poetry in the twentieth century.

In what follows, I read the innovations of Modernist poetics against the period's more general understanding of rhythm as it was theorized in the fields and disciplines mentioned by Ruckmich. My thesis is that the innovations in prosody and form that characterize much Modernist poetry are based on a now forgotten set of ideas about rhythm—ideas that are themselves the products of the “field” of rhythm studies described by Ruckmich as emerging in the middle of the century's second decade. I term this field “Rhythmics” and its practitioners “Rhythmicists,” although such a discipline never finally officially jelled and its advocates hailed from fields as different from one another as geology and music. Furthermore, not only was this general area of study forgotten, but, according to Pound, who took a great deal of interest in it, it was always *hidden*—at one point, he describes it as an *unrecorded stratum of the tone of the time, which went into literature as its subject*. The recovery of this “stratum” is important because it exposes certain notions of rhythm that underwrote much of the most significant poetry of the century. By remaining blind (or deaf, as it were) to the pressure that Rhythmics exerted on the poetry of the period, we miss a critical dimension of its history: to writers like Pound and Yeats, rhythm bore ideological significance. Because they were the originators of some of the most influential ideas about rhythm during the period and both wrote a great deal about rhythm, I focus on these two writers in this book's first four chapters.

In the final chapter, I examine William Carlos Williams's rejection of the theories of rhythm that inform the writing of his contemporaries—particularly Pound, whose “rhythmus” Williams attacks at several points in his career. Williams advocates doing away with the term “rhythm” altogether and substitutes for it an idiosyncratic theory of “measure” that I argue opens up a sense of poetic form as *allegory* that becomes critical to postmodern poetry. While the scope of this study is too narrow to cover later developments in theories of rhythm and measure, I indicate possible directions for future investigation.

*Rhythm and Race in Modernist Poetry and Poetics* follows on the insights of a number of recent reassessments of Modernist culture and society. Like Anson Rabinbach in *The Human Motor: Energy, Fatigue, and the Origins of Modernity*, I examine “a vast, though largely forgotten literature . . . that appeared at the end of the nineteenth century, and by the beginning of the twentieth, proliferated into a scientific approach” (5); likewise, I con-

centrate on “the intellectual and political implications of certain scientific concepts as they emerged in a zone between the specific concerns of the natural sciences and larger questions of social and political significance” (13). I focus on one aspect of that more general science of work that is the topic of Rabinbach's book, which mentions none of the work on rhythm (with one exception) that I examine here, although it concerns itself with issues to which such work was pertinent—e.g., ergonomics, the study of fatigue, and the general charting of the dynamics of the human body that characterizes early scientific Modernism. A number of the Rhythmicists were members of that “international avant-garde of fatigue experts, laboratory specialists, and social hygienists,” who at the turn of the century “created a new field of expertise in which science and politics intersected” (8), but who remain beyond the purview of Rabinbach's study. My interest is in how this work on rhythm specifically informed or paralleled developments in poetics, another topic that Rabinbach, who writes a more general social history, for obvious reasons ignores.

Hillel Schwartz's essay “Torque: The New Kinaesthetic of the Twentieth Century” is an excellent general introduction to the range of issues I address in this book; Schwartz mentions in passing several of the scientists I examine, although, again, his study involves neither poetry nor the role Rhythmics played in racial discourse. Mark Antliff's *Inventing Bergson: Cultural Politics and the Parisian Avant-garde* explores many of the issues that I treat in the present study from the perspective of France and Italy; Antliff's work focuses more particularly on the reception and distortion of the philosophy of Henri Bergson in France—and partly in England—before WWII, and its impact upon French and Italian painting of the period. Mark Seltzer's *Bodies and Machines*; Cecilia Tichi's *Shifting Gears: Technology, Literature, Culture in Modernist America*; and Stephen Kern's *Culture of Time and Space, 1880–1918* also examine the impact of modern technologies and ideologies on Modernist aesthetic forms, but none of them cover the lost science of Rhythmics or its effects on theories of poetic rhythm.

Both of the terms in the first half of this book's title—*rhythm* and *race*—are controversial. Presently neither is at all well understood; both are the subject of competing conjectures, theories, and superstitions. Both of the terms have long and complicated histories during which they have been variously used, abused, and misused; both are referentially unstable and fundamentally ambiguous. In the present day, “race” is scientifically

untenable as a biological category; it is a term fatally bound to the science fictions of the last two hundred years. It is also a word used often and with a variety of meanings during the Modernist period and is, of course, one of the driving master narratives of the twentieth century. Pound, Yeats, and Williams—and nearly every other contemporary poet—all use the term “race” unsystematically and in a myriad of contexts. The word as it is used during the period can mean anything from “the human race”; to particular national, cultural, or ethnic groups; to people who simply share a language. When dealing with what Yeats means when he says “race,” one treads a treacherous critical ground that is neither well mapped nor well understood but that is nonetheless passionately contested by critics and readers who jealously guard this or that version of the poet. Was Yeats a fascist, a nationalist, a eugenicist, a deluded mystic visionary, or simply a gadfly, out to do nothing more than ruffle the politically correct sensibilities of his age? Since Allen Ginsberg forgave Pound his anti-Semitism, should we? Was Pound “merely” a “suburban” anti-Semite? How fascist are the *Pisan Cantos*? At what point in their composition did they become so? What difference does it make?

As interesting as these questions are, they are not the subjects of this book, which is about ideas of rhythm and poetic form. I use the term “race” because and when the poets do, and I do not submit it to a great deal of critical scrutiny. I do not call Yeats a racist—I don’t think he was one, although my opinion on the matter is not important here—but I am interested in how he uses the term to think about poetic rhythm. As I hope to show, the fact that he employs both “race” and “rhythm” in a remarkably loose and elastic fashion is important—after all, for Yeats, rhythm is *supposed* to be ambiguous or, as he puts it, to “waver” and to “escape analysis.” With Pound, one is perhaps on more solid ground; he is the familiar and congenial racist of a generation or so ago, brutally casual in his references to “niggers” and “yids.” I in no way mean to trivialize his commitment to Italian fascism or to exonerate him of the vile comments he made regarding Jews and other people in his radio speeches or in the pages of his poetry. Again, I am not out to map the contours of his particular brand of racism; I wish to understand his theory of rhythm.

This second term of my title is also difficult: the literature on poetic rhythm is extensive, unruly, and has been forever mired in controversy.<sup>1</sup> Stretching from Plato and Longinus to the current day, it has been bedev-

iled historically by two crucial factors: a slackness in terminological rigor and a fatal susceptibility to metaphor. T. V. F. Brogan writes in the entry for “Rhythm” in *The New Princeton Encyclopedia of Poetry and Poetics* (ed. Preminger and Brohgan, 1993) that “rhythm is surely the vaguest term in criticism” (1068); even the basic meanings of the terms “rhythm,” “meter,” and “measure” are still a matter of contention for linguists, poets, and literary critics.<sup>2</sup> Unlike “race,” rhythm is a real thing, a scientifically measurable phenomenon, even if, as Robert Wallace puts it in *Meter in English: A Critical Engagement*, “things are [currently] a mess” (in Baker, 297). Many present-day writers lament what they see as a major decline—among contemporary students, readers, and most critically among poets themselves—in knowledge about, and even interest in, poetic rhythm. Some blame the excesses of “free verse,” construed in any number of ways; others see the cultural “loss of rhythm” as an index of a more general change in the sociopolitical environment.<sup>3</sup>

The vagueness of the term is compounded by the fact that over the centuries, poetic rhythm has been correlated to everything from the periodic cycles of nature—the change in seasons; the movement of the sun, moon, and stars; the tides—to the human stride, the pulse, the breath, and the “attention”; and from divinely inspired, cosmic social orders to political democracy and even anarchy.<sup>4</sup> Rhythm has been classified as alternately organic or artificial; as oppressing or liberating; as registering the body or echoing the machine; and as being either absolutely critical or completely unnecessary to poetry. In many ways it is the ideal ideological cipher, since it can so easily signify; what rhythm “means” depends on who is using it and in what context.

In this study, I exploit both the term’s looseness and its susceptibility to metaphor. Neither Pound nor Yeats ever actually defines the term, and its very ambiguity and suggestiveness are in fact critical to their theories. Brogan gives a basic definition of rhythm in *The New Princeton Encyclopedia*: “A cadence, a contour, a figure of periodicity, any sequence of events or objects perceptible as a distinct pattern capable of repetition and variation” (1066–67). This is certainly something like what Yeats and Pound have in mind when they speak of rhythm, although what they find important are its other nuances—that the sense of rhythm is hooked up to the heartbeat; that poetic rhythms indicate phases of history and culture; that they can induce trancelike states and have political force. Brogan goes

on in his encyclopedia entry to discuss rhythmic “regularity”: “Rhythmic series are patterns of organization in which markers (such as stress) are deployed at intervals either regular or close enough to reinforce the expectation of regularity” (1067). Indeed, the issue of rhythmic expectation is critical to Pound’s and Yeats’s theories, given that both poets develop notions of “inaudible” or “hidden” rhythms—that is, rhythms that the reader or auditor is not supposed to be able to hear or see but instead is supposed to intuit. “Expectation” becomes a matter of the *unconscious*, which allegedly does register these rhythms—and it is here that Yeats and Pound locate the affective power of their poetry. Parsing inaudible rhythms is part of the challenge of analyzing the prosody of High Modernist poems.

At this point, I should make a few comments regarding methodology. Techniques for scanning poetry have proliferated in the last twenty-five years, along with what Richard Cureton terms “‘approaches’ to English verse rhythm, each with relatively distinct assumptions, methods, textual foci and critical results.” In his very useful work, he selects the fifteen approaches “responsible for most of the achievements (and limitations) in our understanding of the rhythm of English texts” (*Rhythmic Phrasing*, 7).<sup>5</sup> Cureton describes the theories of the various temporalists, phrasalists, intonationalists, generative metrists, metrical phonologists, and independent prosodists such as Derek Attridge and Donald Wesling, and he proposes a sophisticated methodology for registering the rhythms of verse from a reader-based perspective; his is only the latest of many attempts to integrate the various recent approaches to poetic rhythm.

For the present study, I stay with what Cureton calls “foot-substitution prosody,” “the oldest and still most dominant approach to English verse rhythm derive[d] from classical scansion” (*Rhythmic Phrasing*, 7), coupled with my own prose descriptions of the ways the poets use sound features in conjunction with thematic meaning. My purpose here is not to develop new graphic means for registering poetic rhythm but to investigate how what the poets thought they were doing affected the decisions they made about the rhythmical shape of their work. Pound, Yeats, Williams, and most other Modernists worked very much within and against “rhythm derived from classical scansion”; in trying to re-create the context for their innovations, I feel it wisest, with some exceptions, to stay close to the terms of their practice as they understood it.

The study of a subject that during the period in question was, in the words of Ruckmich, simultaneously *extensive* and *indefinite in scope* has led me to concern myself less with the direct influence of science on poetics—although I do take advantage of moments when the two overlap—than with their *confluence*, for the arts and sciences in the Modernist period were “promiscuous,” as Rabinbach puts it (*Human Motor*, 22). I isolate moments in this complicated history in order to highlight the issue of rhythm itself, which often is ancillary to some other topic under consideration, as Ruckmich’s list demonstrates. For reasons that I will explain below, rhythm tends to be treated as an issue of crisis in the scientific and sociological literature of the period, and this is no less true of its poetry: while rhythm naturally is always *formally* present in Pound’s or Yeats’s poems, it is less frequently the *subject* of them, generally also becoming so at moments of social, political, psychological, or aesthetic crisis. For instance, Pound treats rhythm as the subject of his poetry primarily in his poems from the Imagist period, during which time he is working to “break the heave of the pentameter”; and then in the *Cantos* written after World War II, as a response to the traumas of the fall of fascist Italy in the *Pisans*; and finally as a means to realizing the “paradise” envisioned in *Rock-Drill* and *Thrones*. Not coincidentally, the figure of the French phonologist and inventor of the phonoscope, Abbé Jean Pierre Rousselot, whose work on rhythm Pound admired, appears at just these critical junctures. In the *Cantos*, when rhythm becomes the subject, rhythmic “figures” like Rousselot—or Miscio Ito, the Noh dancer—appear as subject rhymes. These appearances determine in large measure where it is that I direct my attention.

Hence, I read a restricted although elastic subject matter through a highly selective set of poems and prose fragments. The general tendency of the Modernist arts and sciences, it can be argued, was to isolate and to fragment, a tendency that goes some way toward accounting for the treatment of rhythm as its own discrete subject during the period. My project here is to bring this “indefinite” subject of rhythm into higher definition by isolating and foregrounding it and, by doing so, to gain insight into what motivates the writing of the poetry—both in the sense of what moves the author to write the poem in the first place, and then in how the poem itself, as a composition in verse, moves.

The controversy over whether poetic rhythms “mean” anything in particular is of course not new: writers from Longinus to Wordsworth have

speculated on how poetic rhythm functions and what it means. What is new during the Modernist period is the role that the science of human physiology plays in the discussion. The body was the object of a great deal of scrutiny during the late nineteenth and early twentieth centuries, but presently no study of rhythm as the object of this scrutiny exists. The issue of the “meaning of rhythm” is complicated further when it becomes the issue of the “meanings of rhythms”: as I demonstrate below, scientists went to great lengths to catalogue individual rhythms and to align them with particular national and racial profiles. The general idea—much simplified here—was that the circumstances of modernity compromise or even destroy organic human senses of rhythm; that the recovery of such senses of rhythm is essential to the maintenance of a healthy civilization; and that poetry can assist in and even motivate such a recovery.

In tracing a single subject or idea through a poet’s work, one creates a kind of parallel text, one with its own peculiar—even myopic—integrity; such a study produces a minitreatise standing apart from the main body of work that nonetheless intersects it in critical ways. As such, it can open a narrow but illuminating window onto a poet’s practice. Consequently, in the present study I do not so much work to round out the portrait of the poet at work as I seek to disintegrate it. In this, my project goes against the grain of much of the critical work done on Modernist poetry in the past twenty years: I am not concerned here with how the “poem in process,” in the history of its revisions, reveals ideological fault lines invisible in the poem as finally published, but with the poem as product, with what can be said of the formal case of its “final” versions, keeping in mind the difficulties for Modernist texts that this approach implies.<sup>6</sup> Isolating the issue of the meaning of rhythm in the works of Yeats, Pound, and Williams yields a telling, if static, picture: for these poets—and generally for the artists, philosophers, and scientists of the period—the subject of rhythm remained inextricably bound to issues of body, nation, and race and never drifted far from political subtexts. These writers criticized the poetry of their own time—as well as that of the past several hundred years of European literary history—for being fatally deficient in rhythmic technique, a situation that they sought to remedy by listening closely to the body, which was marked, as they understood it, by certain inalienable characteristics. Rhythm, as I will demonstrate below, became the key suture point for issues of the body, identity, history, and poetry.

My study begins where most others end: because many of the theories I unearth here are ultimately untenable, most critics end up declaring them fallacies and consigning them, more or less unexamined, to the dustbin of history. In *Rethinking Meter*, Alan Holder dismisses what he terms “the cosmic connection,” a linking of meter to the rhythms of the universe” (121), as well as that other “dubious staple of prosodic criticism, one that might be called ‘the cardiac connection’”: “The latter would have it that iambic meter (though there is no reason why it need be pentameter) corresponds to the systole-diastole movement of the heart and the consequent reflection in our pulse-beat” (126). Stephen Cushman similarly casts a cold eye on “what we might call a ‘physiological fallacy,’” that is, the idea that

the physiological organization of the body regulates the prosodic organization of the verse. A line is a certain length because breathing takes a certain amount of time; accents recur regularly in a line because heartbeats recur regularly in the chest; lines are indented from the left margin because the eye has trouble moving to the left. Of course prosody can represent physiology, suggesting the rhythms of respiration, pulse, eating, speaking or walking (as in “Sunday in the Park,” *Paterson*, Book Two), but we cannot assign bodily functions a causal role in relations to prosody.

(William Carlos Williams, 80)

While Cushman is no doubt correct that prosodists no longer believe the origin of poetic rhythms to be cardiovascular (although one might be surprised at how common an idea this still is), it is precisely within the context of this *misunderstanding* that a politics of poetic form was made possible for Modernist poetry. Corroborated by the science I examine below, the “physiological fallacy” of the period linked poetic rhythm explicitly to body systems (pulse, heartbeat, respiratory rates, metabolic “tempo,” etc.) that were understood to inscribe racial, national, and cultural identities. Thus while everyone knows that “heartbeats recur regularly in the chest,” scientists of the period held that a black African person’s heartbeats recur at different intervals than those of a Native American, whose heart beats to a different tempo than a white European’s—that, ultimately, the difference between a German and a French pulse could be measured and registered—and that hence these different “peoples” “naturally” generate

and respond to different aesthetic rhythms. One Nazi ideologue whom I discuss below even suggests that it would be foolish to export the songs of the *Alpenländer* to other regions of Germany, because the rhythms native to the people of the southern mountains would ill fit the pulse rates of their cousins from the plains of Prussia. Given an especially pernicious twist in the logic of Rhythmics, the notion that Jewish rhythms are especially alien to the Aryan body goes almost without saying and came to play a role in Nazi social policy.

In other words, the “physiological fallacy” carries real ideological weight, for while Pound and Yeats are controversial for their reactionary political views, they have generally been lionized for their groundbreaking innovations in poetic form. The tension generated in such writing between objectionable politics and dynamic form has consistently haunted the critical reception of their poetry. This study addresses itself to the troublesome intersections in these writers’ works between authoritarian politics and theories of poetic rhythm.<sup>7</sup> But in order to examine that intersection adequately, it is first necessary to expose the unrecorded “stratum” that Pound insists was a crucial layer of “the tone of the time.” I turn now to the experimental and theoretical work done on rhythm during the first half of the century.

### Thaddeus Bolton and the Omnipresence of Rhythm

A person constitutionally established as  
a deposit of pure reason  
leans with rhythm  
—Lyn Hejinian, *The Cell*

In this section, I trace a certain range of thinking about rhythm as it was generated by an array of scientists and philosophers culled from a much longer list: the point is not to cover every detail of the debate about rhythm, race, and society as it evolved during the first half of the century but to indicate its general dimensions as well as several of the more problematic directions in which it developed. Like other “fields,” Rhythmics had its classic texts to which later theorists responded. A conversation was carried on among practitioners of the nascent science, and ideas

and theories of rhythm were advanced, tested, modified, developed, and discarded. Because both Yeats and Pound at various times affiliated themselves with authoritarian and even fascist parties or principles, I examine the role Rhythmics came to play in fascist discourse—particularly as it was articulated in Nazi Germany, where it took its most systematic form. Finally, I look at points where Rhythmics crossed over from other disciplines into contemporary discussions about poetics and the extent to which the new “science” of rhythm was important to poets and critics at the time.

In many ways, Thaddeus Bolton’s essay “Rhythm,” published in *The American Journal of Psychology* for January of 1904, marks the beginning of Anglo-American investigations of rhythm; it is frequently cited in later works from a broad range of disciplines.<sup>8</sup> Bolton comprehensively maps a newly emerging theoretical terrain: like a hitherto undetected grid of associations underlying the structures of reality itself, rhythm rises to the surface of phenomena to reveal skeletal blueprints of time, space, and consciousness. In a series of experiments using machines like the Wundt chronograph and E. C. Sanford’s apparatus, made of an electric tuning fork and a Helmholtz resonator (see figures 0.2 and 0.3), Bolton proposes to “regard

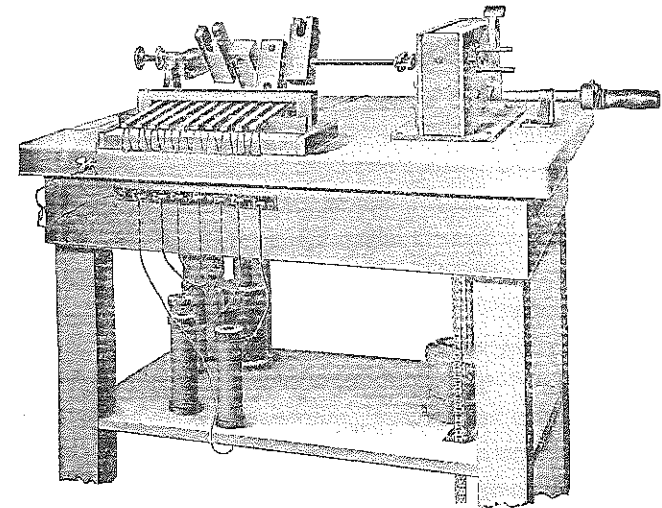


FIGURE 0.2 WUNDT'S CHRONOGRAPH.  
Source: Bolton, *American Journal of Psychology*, 1894.



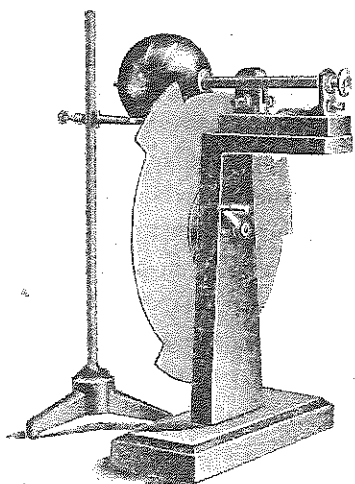


FIGURE 0.3 SANFORD'S APPARATUS.  
Source: Bolton, *American Journal of Psychology*,  
1894.

rhythm as the manifestation or the form of the most fundamental activities of mind" by discovering "to what extent it underlies mental activity, and, as preparatory to this, what part it plays in physiology and nature"; his essay explores rhythm under a number of rubrics, including "Rhythms in Nature," "Physiological Rhythms," "Attention and Periodicity," "Rhythmic Speech," and "The Emotional Effects of Rhythm Upon Savages and Children." He begins on a grand note: not only do "natural phenomena very generally, if not universally, take a rhythmic form," but "light, heat, sound, and probably electricity, are propagated in the form of waves." Certain "cosmic rhythms . . . may be shown to underlie in a measure and be the cause of many other rhythms in plant and animal life"; these have "stamped their impress on all living organisms in the most striking manner." Thus the natural world, according to Bolton, syncopates to mutually informing pulses that interweave the textures of time and space as well as the organisms that inhabit them (146–47).

It is upon human consciousness, however, that Bolton finds cosmic rhythms to leave the most profound impressions—"although we find that these cosmic rhythms have stamped themselves upon the organism more or less permanently, they have wielded a far mightier influence upon the minds of men" (148). Such rhythms "have given rise to the most elaborate and beautiful systems of mythology and worship that the world has ever seen," and because they structure annual cycles and other time se-

ries, they are deeply embedded in senses of religious and national identity. Both social and antisocial behaviors are informed by cosmic rhythms, for crime, insanity, and suicide "show a periodicity which corresponds with the year" (148–49).

The human microcosm also pulses to a variety of rhythms: under "Physiological Rhythms," Bolton asserts that "no fact is more familiar to the physiologist than the rhythmic character of many physiological processes." Pulse, respiration, walking, speech, the circulatory and nervous systems, and cycles of growth and fatigue are all fundamentally rhythmic, and "it may be safely said that the nervous action in general, and especially of the lower and vasco-motor centres, is rhythmical" (149–54). From anus to brain, the body is permeated by rhythms: arteries "undergo continuously rhythmical contractions and dilations of their walls"; the lungs operate rhythmically; "the brain send[s] out rhythmic impulses at a constant rate"; and "when the spinal cord of a dog, cat or rabbit was cut, rhythmical contractions of the spincter ani and of the vagina appeared." As Bolton formulates it, the body is a complex web of interpenetrating rhythms instantiated in a larger environment itself mobilized by tempos, pulses, cycles, and other periodic sequences.

These physical and physiological rhythms also affect the mind, as we hear in "Attention and Periodicity": "The most casual observer will discover that his attention is discontinuous and intermittent. It manifests itself in a wave-like form. It is a series of pulses" (155). "Attention" here becomes the critical integer in a calculus involving the organs of perception and the brain; integrating in the act of perception, eye and mind produce an equation, the solution of which is delivered in units of attention. "This periodicity in attention . . . is called retinal rivalry," according to Bolton, who suggests here that mental activity is profoundly circumscribed by the character of the physical organism: a "rivalry" between consciousness and body produces the "time" of attention. Bolton suggests that eventually these "series of pulses" will be measurable into "units of consciousness"; ultimately, then, the study of rhythm can lead to methods of mind control, for if the rhythms of the attention can be calculated and consciousness itself quantified into measurable units, new sciences of hypnosis, manipulation, and social management may be made possible.

The foremost function of the periodicity of attention is the primal, basic phenomenon of mental "grouping":

The conscious state, accompanying each wave of attention, groups together or unifies all the impressions that fall within the temporal period of the wave. . . . This rhythmical grouping is due to the unifying activity of the mind. . . . Each succeeding wave groups a like number of elements, so that the series is conceived in the form of groups.

(quoted in Swindle, "On the Inheritance of Rhythm," 183-84)

This propensity for the attention to group impressions contributes to the most important function of speech ("all vocal utterances are primarily rhythmical" [Bolton, "Rhythm," 156]), which is to increase the "mental span" or "the carrying power of the mind." Poetry is the privileged site for best exercising such linguo-mental facility: in order to answer the question of "how the mental span becomes so enormously increased as to grasp such a poem as Wordsworth's 'Intimations of Immortality from the Recollections of Childhood' or Milton's 'Paradise Lost,'" Bolton describes a series of complex rhythmical coordinations:

In the first place vocal utterances are related as regards time, that is, the same sound may occur at regular intervals, in which case the series thus formed might be termed a *rhythmic* series—a series which may become rhythmical. In the next place this series might be made up of louder and weaker sounds alternating with each other. The series would then be composed of groups of sounds and might be called a *rhythmical* series. This is a rhythm in speech. If now the louder sounds in each group were given different intensities, these smaller groups might be brought into larger groups still. In this way the mental span may be made to extend itself over a very large number of simple impressions. The principle is very clear, and one will see at a glance that if intelligible sounds were used and qualitative changes employed, the mental span might be almost indefinitely extended. (157)

Bolton makes three important points here: first, more complex rhythmic patterns are based on simpler ones, which may ultimately be traced back to fundamental principles like *recurrence* and *repetition*, in the same way that mental rhythms may be traced back to physiological ones; second, perception is compelled by the presence of rhythm to group smaller units into ever larger ones; and third, the presence of rhythm can exercise

the "span" and "power" of the mind, particularly as regards memory and mental capacity. Later Rhythmists will explicitly design programs to utilize the rhythms in speech and attention to stimulate the "conscious evolution" of the mind.

The terms Bolton employs suggest the vocabularies of political science: a coincidence that in 1894 is perhaps unintended, but one that in the following decades will be actively exploited:

The conscious state, accompanying each wave of attention, groups together or unifies all the impressions that fall within the temporal period of the wave. . . . Each succeeding wave groups a like number of elements, so that the series is conceived in the form of groups.

(quoted in Swindle, "On the Inheritance of Rhythm," 183-84)

Rhythm, then, produces a "state" in which "units of conscious attention" form into groups systematized into ever-larger bodies; this state then grows in power until its "span might be almost indefinitely extended." Since the social state is the aggregate of its private subjects, each a "conscious state" unto himself, the sequence of rhythmical coordinations as it is outlined above can—and will—be projected onto the body politic to produce what could hardly be a better description of the totalitarian polis. This ability to travel so easily from one discourse to the other is characteristic of Rhythmics, and it provided a theoretical means through which to blend psychology and politics—to politicize the body while "embodying" the state.

The political uses of rhythm as an agent of social control are suggested in "The Emotional Effects of Rhythm Upon Savages and Children":

There is no more striking fact in the whole field of rhythm than the emotional effect which rhythms produce upon certain classes of people, savages and children. Attention has already been called to the psychological phenomenon of accompanying the changes of intensity in a series of sounds by muscular movements. So strong is its impulse in all classes of people that no one is able to listen to music in which the rhythm is strong and clear without making some kind of muscular movements. With some people these movements tend to increase in force until the whole body becomes involved and moves with the rhythm. The accents

in the rhythm have the effect of summated stimuli, and the excitement may increase even to a state of ecstasy and catalepsy.

(Bolton, "Rhythm," 163)

Several issues raised here become important for later theories of rhythm as an agent of social and political manipulation and for its role in poetry. The idea that lower classes of people, uncivilized nations, and children are particularly susceptible to the influence of rhythm later plays a role in theories of rhythm as an instrument of pedagogy, as a force in the management of labor, and as an indicator of national and ethnic identity. The notion that rhythm stimulates involuntary muscular movement will figure in theories of work,<sup>9</sup> child rearing, and military science and state building; and the idea that rhythm can alternately stimulate states of ecstasy or catalepsy ultimately contributes to the machinery of fascist propaganda and formulations of social policy regarding music. After all,

a highly civilized people is not easily affected by mere rhythms. A simple tone is not so expressive as it is to the lower classes of people. The negro preacher often resorts to recitative speaking to produce the desired emotional state in his hearers, which is generally known as the "power."

(164)

The reactions of "savages" (usually Native Americans and Africans) to rhythm figure importantly later in the century in experiments attempting to establish racial and genetic difference, and "although children are not allowed to go into ecstasies," according to Bolton (165), they are nonetheless powerfully affected by the rhythms that generally structure the environments of nursery and school and inhabit fairy tales and games involving early motor skills (163–66). Even the machine rhythms of industrial and agricultural environments can infiltrate the senses to become a shaping force on the intellect:

A kind of rhythm is also observed in the noise of millwheels. The winnowing machine and feed cutter, such as are found upon many farms, produce a rhythmical sound which few persons fail to observe. Long association in early childhood with such rhythms stamps them upon the mind so firmly that they become a mental habit.

(205)

Thus all natural and psychological phenomena and processes, from the smallest of physical units, the microscopic cells in the nerve endings of the body, to the cycles of cosmic temporality—the very space-time continuum itself—pulse to interpenetrating and mutually informing rhythms. Rhythm is the omnipresent measure, informing and fusing substance and time, from which each body and every event is knit. And it is here that the issue becomes critical, for while each body has its own characteristic rhythm, it is nevertheless permeable by other rhythms—rhythms inhere in bodies as essential structural components but may also be used upon other bodies to effect deep structural change. The fact that rhythm is at once component and tool will eventually generate a virulent species of paranoia: if bodies and minds are indeed as vulnerable to alien rhythms as Bolton suggests, to what extent can human agency effect any real control over them?

### Mapping Rhythmic Bodies

A substantial body of experiment and theory had been generated toward answering the forgoing question by the time Ruckmich published the essay cited earlier (1913). However, the essential nature of rhythm and the range of its effects still remained largely a mystery. Ruckmich cites Bolton and Ernst Meumann, whose "Untersuchung zur Psychologie und Aesthetik des Rhythmus," published in *Philos. Studien* in the same year (1894) that Bolton's "Rhythm" appeared, calls for "a comprehensive description of the psychical phenomena of the inner life, which we call rhythmical, and a reference of those phenomena to the action of general psychical factors, as well as the investigation of the conditions which make rhythm possible" (Ruckmich, "The Role of Kinaesthesia," 314)—a call that had not as yet been answered, according to Ruckmich, because of "a dearth of analytical observations systematically controlled and obtained from trained and practised subjects." In his work, Ruckmich subjects the bodies of such subjects to intense scrutiny as he tries "to detect, if possible, any movement of exposed parts of the body, or any change in breathing" (304) when they are exposed to metronomes ticking at various speeds. The purpose of these experiments is to map the body's rhythmical topography while monitoring the effect upon it of rhythm generated by an outside source, in an

attempt "to secure as faithful a description of consciousness, under these conditions, as practice and training on the side of the observers would permit" (315). Again, the nature of human attention is critical to this project; Ruckmich quotes W. Wundt, who writes that "we have every reason to consider the movements of locomotion as the natural origin of rhythmic perceptions. Consciousness is rhythmically disposed, because the whole organism is rhythmically disposed" (308). This is followed by comments from some twenty-three other scientists and theorists to the effect that consciousness is fundamentally structured and powerfully informed by rhythms located either in the body or in the outside environment.

One of the writers Ruckmich cites, James Burt Miner, points out other critical directions in the study of rhythm: echoing Bolton, he focuses in "Motor, Visual, and Applied Rhythms" (1903) on "the main fact of rhythm—the unitary feeling of the group," introducing into the discussion the notion of *pleasure*. He quotes C. R. Squire's 1901 study, "A Genetic Study of Rhythm":

The great pleasure which children find in rhythm is due to the efficacy of rhythm to set up vibrations in other organs of the body, and the consequent harmonious activity of the several bodily organs. The affective tone increases in proportion as the summation of excitation increases, till a state bordering on ecstasy may be reached.

(Miner, "Motor, Visual, and Applied Rhythms," 20)

Rhythm is pleasurable because it acts to synchronize the otherwise dissociated organs of the body; a species of harmony is produced that, as it increases in intensity, can inspire ecstatic states, particularly in children. Miner ultimately reduces such pleasure to involuntary muscular tensions and movements that are stimulated by rhythm; the muscles and nerve ends of the body spontaneously syncopate with rhythms in the environment, and this syncopation is then perceived by the mind as rhythmic: "The perception of grouping is thus not the direct result of the sensations from the outer world, but is read into the objective series. The 'outer' sensations are not actually grouped, but appear to be grouped. Rhythm thus arises as a time or intensity illusion" (13). Thus the impression of rhythm is a species of illusion generated by consciousness as the result of involuntary muscular contractions; rhythmic stimuli can be used upon the body

to compel the mind to "perceive" groups. Miner goes on to give "a genetic explanation of rhythm":

The purpose of rhythm in mental evolution might well be said to be the aid it affords in making automatic the perception of like events in series. A mental act which becomes automatic allows us to increase the range of contemporary activity. 'Economy of attention' or increased 'span of consciousness' are certainly results worthy of survival. . . . The most pleasurable rhythm is that in which the kinaesthetic sensations . . . are reinforced by sensations accompanying the regular body rhythms, i.e., when the two coincide. Genetically rhythm arose with the coordination of regular movement sensations and more rapid serial sensation. Biologically it was fostered because serving the purpose of economy. (19–20)

Miner exploits a potent complex of ideas here: again, the body is foregrounded, in that pleasure in rhythmic stimulus is firmly grounded in its coincidence with organic bodily rhythms and is felt most forcefully in muscular tensions and movements, which in turn contribute to the evolution of consciousness by promoting a species of perceptual automatism. As mental acts torqued by the "perception" of rhythm become automatic, the "economy of attention" is freed and the mind *expands*. Miner conflates the vocabularies of psychology and economics here: if production and production-level workers can be automatized through the agency of rhythm, then time, capital, and mental resources may be freed up for expansion—both in economic and in psychological registers. What is generated in both cases is "interest." The economic principle at work here—that is, capital converted into automatic production frees up other capital for investment—also mobilizes the intelligence: automatized by rhythmic perceptions, the mind is free to increase its "economy of attention." According to Miner, economy is the end of biology, and the ability to perceive rhythmically constitutes the foundation of all human *speculation*.

The idea that work itself is made possible through the agency of rhythm is not entirely original with Miner. Karl Bücher's remarkably popular *Arbeit und Rhythmus* (1896), an exhaustive study of the role of rhythm as the major structural component of human work, argues that rhythm is grounded in the physiology of the human motor and thus fundamentally informs human labor:<sup>10</sup>

Bücher assumes with Aristotle that rhythm is natural to man and is based on the physiological and motor rhythms of circulation, respiration, walking, swinging the arms, etc. Work will naturally tend to be performed in a rhythmical way, and where this rhythm can be objectified, it will relieve the attention of workers otherwise obliged to concentrate on their task.

(Diserens, *The Influence of Music*, 121)

Or, as Bücher himself puts it, "rhythm originates in the organic nature of the human being. As the element which most economically regulates energy needs, it appears to govern all natural activities of the animal body" (Bücher, *Arbeit und Rhythmus*, 414),<sup>11</sup> and although his study concerns itself mainly with the use of singing and other rhythmic accompaniments in the organization of work among primitive "Naturvölker," he ends his book with a chapter entitled "Rhythm as a Principle of Economic Development." Here he describes the gradual complication of society—and in fact the division of labor as such—as a "social evolutionary process" made possible by the development of ever more sophisticated work rhythms:

Here also the employment of rhythm has undoubtedly increased productivity, and this through progressive development has given to work the occasion to develop an ever-increasing division of labor. Although, of course, not this alone. But it also must be said, that the great technological advancements of the last century and current "Machine-age" wouldn't have been possible without the long preliminary evolution of the division of labor and the collecting together of similar occupations, the rhythmization of affable work at concentration points. (414)

For Bücher, the entire domain of work, from microlevel human body to macrolevel industrial corporation, is structured by the rhythms that fundamentally inform twentieth-century "machine-age" social fabrics and facilitate labor just like "lubrication keeps the machine going" (422). And while he waxes nostalgic for preindustrial handicraft economies—maintaining that a species of labor alienation has ensued as a consequence of the non-physiologically based machine rhythms of modern work—he also claims that large-scale, totalizing labor rhythms can be of "the greatest benefit for a person, so long as he can determine the tempo of his bodily move-

ments": "This uniformity is sufficient to allow the rhythmic-automatic formation of labor which is already enough to produce a satisfactory effect, in that it will keep the spirit free and concede to the imagination space to play" (422).

In other words, by making labor automatic, rhythm liberates the mind for the imaginative work of cultural production:

Rhythm awakens feelings of lust and joy; it is therefore not only a means for lightening work, but also one of the springs of aesthetic pleasure and precisely that element of art for which a sentiment dwells in all people regardless the level of their moral standards. In the infancy of the human race, the economic principle appears to become instinctively influential by means of such rhythm, which (after Schaffle) commands us to aspire to the utmost of life and life's pleasures with the least sacrifice of our life's energy and our lust for life. (422)

Although grounded in the human organism, rhythm becomes spiritualized in Bücher's theory: it not only acts as the primary agent of human evolution, liberating man through ever-increasing psychophysical automation, but stimulates the expansion of intellect and soul by structuring and in fact making possible art and culture. Rhythm is the single element of art to which all people "automatically" relate, based as it is on fundamental physiological factors. And while contemporary industrial culture ignores the rhythms physiologically proper to its workers' bodies, Bücher looks forward to a time when the tempos of machines and humans will be more perfectly integrated: "the hope must not be abandoned, that we may one day manage to link technology and art together into a higher rhythmical unity which will return to the spirit that happy serenity, and to the body that harmonious figure, revealed in the best of the natural peoples" (441). A proper understanding and use of rhythm, then, will permit the establishment of a transcendental medium in which mind and body, labor and culture, industry and art, and subject and state can be totally integrated. Permeated by the sounds of an environment itself constructed of carefully controlled, syncopating rhythms, the automated subject of such a state must necessarily operate under the illusion of being inextricably fused and profoundly incorporated into a highly and systematically organized social body.<sup>12</sup>

Bücher's conclusions about the effects of music and rhythm on the bodies of workers undergo extensive experimental testing later in the century. A glance at the table of contents of Harry Porter Weld's "Experimental Study of Musical Enjoyment," published in *The American Journal of Psychology* in 1912, indicates the range of disciplinary interests eventually brought to bear on studies of rhythm:

#### IV. Results

##### 1. Physiological

- A. Volumetric Change
- B. Heart-rate
- C. Respiration

##### 2. Introspections

- A. Visual Imagery
- B. Auditory Imagery (and Musical Analysis)
- C. Actual or Imagined Motor Reactions
  - a. Reactions to *Takt*
  - b. Reactions to Larger Rhythms
  - c. Muscular Movements and Musical Tempos
  - d. Correlations between Bodily Movements and Movements suggested by the music
  - e. Other Mimetic Movements
  - f. Motor Phenomena of Expectation and Satisfaction
- D. Reactions to Descriptive Music
- E. Emotions and Moods

(245)

Weld goes on to describe a series of experiments designed to measure both physiological and psychological reactions of "auditors" who, carefully fastened to a variety of monitoring devices, are exposed to musics of different tempos, rhythms, and styles. The study is particularly interested in the extent to which volumetric changes in heart rate and respiration, brought on by exposure to rhythms and tempos, trigger visual imagery in the minds of its subjects. (A similar experiment appears in Max Lund's unpublished 1939 Stanford dissertation, "An Analysis of the True Beat in Music," in which the subject's pulse rate was measured against his or her preference for the varying tempos of an adjustable player piano [see figure

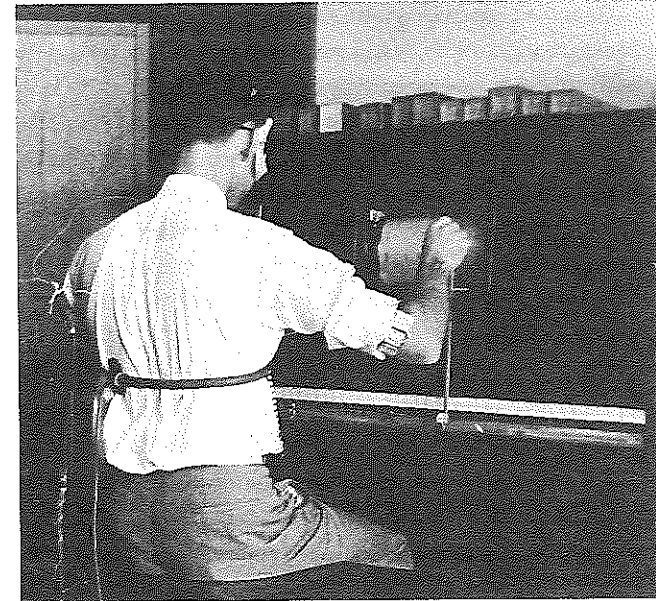


FIGURE 0.4 LUND'S PLAYER PIANO, 1939.  
Source: Lund, "An Analysis of the True Beat in Music."

0.4].) I include Weld's description of the technical apparatus used in the experiment to provide a sense of the mechanical complexity of many of these experiments:

Our method of investigation consisted essentially in playing a variety of compositions in the presence of an auditor, and in obtaining plethysmographic and pneumographic records of such bodily changes in circulation and respiration as may have occurred before, during, and immediately after the rendering of the composition; and, in obtaining detailed introspective descriptions of such mental processes as were present.

2. *Apparatus.*—The apparatus consisted of a Lehmann plethysmograph and two Sumner pneumographs; one of the pneumographs recorded the thoracic, and the other the abdominal movements of respiration. The tracings were recorded by means of Marey tambours upon the smoked drum of a Zimmermann kymograph; the kymograph was so

adjusted that the drum made one complete revolution in five minutes. A time line, marking seconds, was recorded upon the drum by means of a fourth tabour which was actuated by a metronome. (248)

We learn from Weld that, under the influence of strongly rhythmical music, the heart rate increases, respiration becomes irregular, and bodily movements, "real or imagined," are stimulated; when asked to recount their physical sensations and emotional reactions to the music, the auditors describe a range of responses:

Fn. "I swayed, felt as if the whole body were breathing" (this to the phrases). "My head rested on my left hand; my fingers were over my eyebrow; when the melody began, my pulse throbbed; I felt a swaying; I could not listen to the music and inhibit my movements." W. "I caught myself breathing in exact time with the phrases. . . . S. "The rhythm became apparent as the music began; I seemed to swing right into it; I had no tendency to keep time with foot or hands; the thing was in my whole body, hardly perceptible." (264)

Throughout the essay we are confronted by the voices of such auditors engaged in mapping the body and the mind as they interact with and in rhythm, treated here as a lenslike medium through which the observer can accurately survey the human organism. Psychophysical reactions to rhythm provide a topography of the mind-body complex—rhythm can be used literally to *sound* the body in the same way that an oceanographer uses sonar to chart the hidden contours of the ocean floor. Weld's work lets us know that rhythm may be used to *move* the bodies and minds of human subjects, whether they will or no.

### Rhythm, Blood, Pulse, Heredity

The uses to which these new blueprints and profiles of the rhythmical human being might be put were the subject of much debate during the 1920s and 1930s: the titles of two chapters in Charles Diserens's *Influence of Music on Behaviour*, "The Influence of Music on the Sick," and "The Influence of Music on Work," which mentions "possible industrial ap-

plications," indicate something of the range of possibilities (122). But an equally interesting direction in the study of rhythm, and one following from Weld's work on heart rates, is indicated by Ida M. Hyde's "Effects of Music Upon Electro-Cardiograms and Blood Pressure," published in 1927 in *The Effects of Music*. Hyde's purpose is to provide data for use in the "scientific employment of the power exerted by music for specific purposes, as for instance to lessen nervous tension or fatigue, or to arouse emotions" (184), and she concludes that "vocal and instrumental music may be selected that will excite psychological and concomitant cardiovascular reactions the effect of which might inhibit irritability, act as a sedative, arouse optimism, and be used as a valuable agent to scientifically organized labour" (197). But Hyde's experiment has an additional range of purpose, for her "plan was to compare the effects of vocal music and that of different kinds of instruments upon listeners of different native endowment" (184), to which end she includes among her subjects Native Americans, whose blood pressures receive special attention when selections characterized by strong rhythmic elements are played. All too predictably, the "stolid Indian girl" remains unaffected by "the rhythmical 'National Emblem' played by Sousa's band," while for everyone else "it was especially the systolic and pulse pressures and relative velocity of the blood flow that were stimulated to increased activity by the stirring tones," which had a "bracing effect and removed fatigue" (192). When the terms of the experiment are reversed, however, Hyde discovers an opposite set of reactions: exposing her white auditors to "the weird war tones and beating of the drum" of a Native American song, she measures powerfully negative physiological reactions—particularly in two women, one of whom is a convalescent:

But in a convalescent, the tremendous effect was at once a marked decrease, especially of the systolic pressure 110 to 98, and velocity of the blood flow that lasted more than thirteen minutes.

Judging from impressions and records obtained during and after the performances the effect on her was more like a shock. Also on a woman fond of music who had never heard anything of the kind, the sounds produced a shock-like effect resulting in a fall of all of the cardiovascular activities, excepting that a most remarkable increase in the electromotive force of the cardia muscles took place. (192-93)

On the other hand, the males among Hyde's "non-sensitive Indian listeners" respond positively, showing increased diastolic blood pressure and electromotive force for a full eight minutes after the performance:

Here, then, was a type of music that actually had a psychological and physiological effect on the non-sensitive Indian listeners. As soon as the wild war song and sounds of the drum fell upon their ears the man, belonging to an Indian football team, was agreeably surprised. All his records excepting the pulse rate greatly increased during the rendering of the song for at least eight minutes afterward. It seemed, however, that the unexpected performance suddenly robbed the Indian woman of her stolidity and left her in a sort of dazed condition. Her reactions excepting the diastolic pressure fell at once and remained below normal for about eight minutes.

(193)

Hyde's experiment implies that the rhythmic topography of individuals with "different native endowment(s)" and hence diverse genetic backgrounds or genders will prove to be different. Given a different terrain, an *other* body with a correspondingly different physiological makeup, one should expect different reactions to rhythms: different bodies will necessarily respond differently to rhythmic stimuli. And in a statement that is echoed throughout the period both before and after 1927, Hyde concludes, "those selections of music rendered either vocally or instrumentally that exert a favourable reflex-action on the cardio-vascular system, have also a favourable influence upon muscle tone, working power, digestion, secretions, and other functions of the body" (197). Stimulation of the rhythmic centers of the human organism will *tone* the body into a more efficient working machine.

Hyde's work with music has interesting precursors like "The Genetic Aspect of Consonance and Dissonance," by Henry Thomas Moore, published in 1914 as a *Psychological Monograph* in a series of studies from the Psychological Laboratory of Harvard University; Moore claims that "the actual degree to which any given interval realizes its possibilities of synthesis depends upon the number of times the interval has been attentively heard by an individual *or by his ancestors*" (20; emphasis mine). The idea that one's musical ability and sense of rhythm are genetically inherited is an especially important issue in studies of rhythm during the 1930s. In *The*

*Effects of Music Upon Pulse Rate, Blood-Pressure, and Mental Imagery* (1933), Alec Washco states that the problem is not only to determine said effects, but also "to discover the extent to which musical sensitivity, training, and heredity affect these changes" (5). His exhaustive study, replete with highly detailed graphs, tables, and descriptions of the mental imagery evoked in his subjects' imaginations by different pieces of music, is inconclusive regarding heredity, although the author is very forthcoming about possible uses of his study for "a mental hygiene program," which he begins to outline in the concluding section of his book, "Educational Implications":

The correlation results suggest the possibility of selecting students for musical training not only on the basis of musical sensitivity alone, but also in combination with definite physiological responses of Pulse Rate and Blood-Pressure. . . .

Not only does music create a definite mental state, but these mental states are associated with corresponding physiological responses of Pulse Rate and Blood-Pressure. . . . In view of these facts, it becomes necessary to guide and counsel the immature in the selection of worthwhile, wholesome music.

(244-45)

Thus the quality of the rhythmic sense of an individual indicates identity, aptitude, and difference, while at the same time exterior rhythms may be used upon him or her as socializing forces. The power of rhythm to create "mental states" by stimulating bodily rhythms signals Washco's interest in possible ideological roles for rhythm in social and political policy.<sup>13</sup>

### Rhythm, Nation, Race

Perhaps the most comprehensive, as well as the most influential program for the implementation of rhythm in social, political, and educational policy can be found in the work of Emile Jacques-Dalcroze, whose *Rhythm, Music, and Education*, translated into English and published in 1921, and *Eurhythmics, Art, and Education*, published in English in 1930, collect essays written between 1898 and 1919 that outline the author's theory of "eurhythmics," a pedagogy based entirely on the cultivation of personal and "racial" rhythms through the careful training of young students in highly



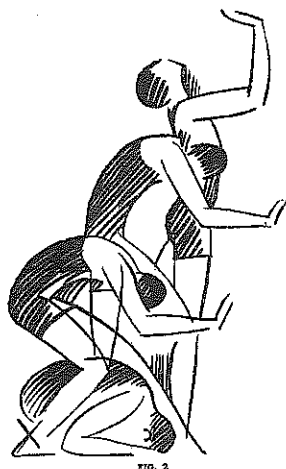


FIGURE 0.5 EURHYTHMICS DANCER.  
Source: Jacques-Dalcroze, *Eurhythmics, Art, and Education*. 1930.

regulated forms of dance and movement (see figures 0.5 and 0.6).<sup>14</sup> Like Washco and Weld, Jacques-Dalcroze is interested in the organic relationships of mind and body: "The object of rhythmic training is to regulate the natural rhythms of the body and, by their automatisations, to create definite rhythmic images in the brain" (*Eurhythmics*, 265): "rhythm is a non-reasoning principle, originating in elementary vital emotions. Only the cultivation of primitive instincts, a clean sweep of our present selves, by a re-training of the nervous system, can give our motor organs the faculties of elasticity, resilience, and relaxation, the free play of which will give rhythm to the expression of our emotional being" (314-15). The author couches the raison d'être for his project in the facts of social trauma and fragmentation in the wake of World War I:

There has been endless discussion as to the inevitable effects on the social and artistic atmosphere of the future of the present unsettled state, in which it is impossible to look ahead and prescribe the necessary measure for the safeguarding of our civilisation and our culture. . . . Thoughts should be brought into immediate contact with behaviour—the new education aiming at regulating the interaction between our nervous and our intellectual forces. Fresh from the trenches, soldiers should be able to continue the struggle in a new guise. . . .

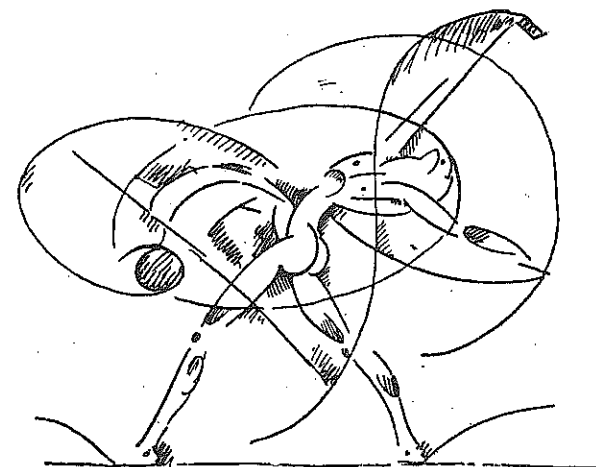


FIG. 45.—Movement of Arms and Trunk.

FIGURE 0.6 EURHYTHMICS DANCER.  
Source: Jacques-Dalcroze, *Eurhythmics, Art, and Education*. 1930.

This will lead to the call for a psycho-physical training based on the cult of natural rhythms, and which, guided by the collective will—working, maybe, subconsciously—will fill an increasingly important part in civilised life. (vii-ix)

Eurythmic training will make possible a human being in whom the mind and body will be totally integrated, and for whom distinctions between will and action do not exist:

A balance of the fundamental faculties of the individual can never be attained unless, from an early age, the organism is habituated to the free play of its forces, an unhampered circulation of the divers currents of its thought and motor powers, and a regular alternation—controlled alike by sub-conscious instincts and conscious will-power—of physical and spiritual rhythms, of which the *ensemble* constitutes temperament. . . . There should be a medium of free exchange and intimate union between the respective organs of corporal movement and of thought. No longer

should our divers functions be isolated by voluntary specialisation. A harmonisation of our nervous system, the stimulation of slack behaviour and spiritualisation of corporal manifestations, should establish a unity in our organism both for preparatory and executory purposes. . . . Our freedom as men of thought and action depends on this unity of the rhythms of thought and life. . . . Therein lies the cure for neurasthenia, and the recipe for the constitution of the "whole man." (309-10)

Eurhythmics will thus be employed in the service of healing the mind/body and subject/object schisms fundamental to Modernist constructions of self; rhythm will act as the suture point for the fusion of mind, body, spirit, and objective reality:

The aim of all exercises in eurhythmics is to strengthen the power of concentration, to accustom the body to hold itself, as it were, at high pressure in readiness to execute orders from the brain, to connect the conscious with the sub-conscious, and to augment the sub-conscious faculties with the fruits of a special culture designed for that purpose. (118)

The "special culture" that Jacques-Dalcroze envisions involves the fabrication of a new human being in a systematically controlled process of evolution: by objectifying natural rhythms, one may utilize them to automatize body and mind and ultimately fuse them in a single, fully automated person—one for whom thought never gets in the way of action; whose body responds immediately to orders; and whose will, intellect, and actions operate simultaneously. The "conscious" and the "sub-conscious" will finally be reunited in a cult of natural rhythm, which "reveals to us the secret of the eternal mystery that has ruled the lives of men throughout the ages; it imprints on our minds a primitive religious character that elevates them, and brings before us past, present, and future" (120). Rhythm thus not only reintegrates the disintegrated modern human being but also reconnects him or her most dramatically to history itself.

For this "cult of natural rhythms," it turns out, is also a cult of *national* rhythms, since the "rhythm most natural and native to one's being" is intimately bound up with the rhythms of the folk and the nation to which one belongs:

It is obvious that the influence of climate, customs, and historical and economic circumstances must have produced certain differences in the rhythmic sense of each people, which are reproduced and perpetuated in such a way as to imprint a peculiar character on the dynamic and nervous manifestations at the root of every original corporal rhythm. . . . The structure of the human body also varies according to race, and must play an important role in all forms of motor expression. (320)

The author envisions a system of ethnically based eurhythmic training centers, where the members of each race can develop their own "natural" rhythms:

The characteristic musical tendencies of a race come to light in rhythm. . . . It is thus important that each race be given the means, by special training, of externalising the rhythm peculiar to that race. The reduction of racial temperaments to a common level would be disastrous for the intellectual progress of humanity. (Jacques-Dalcroze, *Rhythm*, xiii)

The essay goes on to compare the rhythmical and musical abilities of the "European races," whose muscular capacity, according to one expert, is greater than those in "savage races" (320): "It will be seen from these summary observations that rhythmic and musical instincts vary according to the natural dispositions of races" (333).

Thus while "Dutch children are naturally good singers, less good at hearing, and fairly rhythmic," "extreme mental slowness—combined in males with an excess of self-confidence" impedes the Germans (329-30); and thus "the union of nations, socially so important, should be based on the interchange and balance of temperaments peculiar to the various races" (xiii). Jacques-Dalcroze goes on to discuss rhythm in nearly all of its ramifications: in the future, rhythm will be employed as a device for crowd control and for animating and uniting masses of people; the "genius" is he who has a special knack for expressing the soul of a people by "uniting . . . in a single mighty rhythm the particular rhythms of his contemporaries" (183); rhythm's role in the arts, in education, politics, and psychology, and ultimately its status as the basis of all human culture, are explored here. While Jacques-Dalcroze's sweeping pronouncements echo many of the

observations made by other theorists of rhythm, the difference is the extent to which he recommends "objectifying" rhythm and utilizing it as a very real tool in projects of socialization, nation building, and the creation of a radically affective psychology. His notion that in the future, the socio-political order of the day will involve uniting integrated individuals into large, racially distinct, "automatized" social groups, presided over by geniuses who express a nation's soul by uniting its multifarious rhythms and who implement ideologies grounding these political states in the "natural rhythms" of the cosmos and the race, is uncannily prophetic:

Rhythm is a force analogous to electricity and the great chemical and physical elements,—an energy, an agent—radio-active, radio-creative—conducting to self-knowledge and to a consciousness not only of our powers, but of those of others, of humanity itself. It directs us to the unplumbed depths of our being. . . . Thus it seems to me to be destined—in a far distant future, when sufficient high-minded people can collaborate for the purpose—to create more intimate relations between mental and nervous processes, and to unite all the vital forces of the individual. (118–20)

### Nietzsche, Wagner, Spengler, Jung

Turning to the German world, one finds numerous theories of rhythm, centered around issues of race, language, soil, blood, poetry, and music, in place long before the decades of National Socialism. The nature of rhythm in language is a focal point: speech is formally grounded in racial metabolisms, which give to national languages their particular rhythms. Thus for Nietzsche, the distinguishing characteristic of a language is its tempo, which is generated by the average physiology of the members of the race which speaks it: "What is most difficult to render from one language to the next is the *tempo* of its style, which has its basis in the character of the race, or to speak more physiologically, in the average *tempo* of its metabolism" (*Beyond Good and Evil*, 230). These racial linguistic rhythms inform the quality of a speaker's thought; thus "a German is almost incapable of *presto* in his language; thus also, as may be reasonably inferred, of many of the most delightful and daring *nuances* of free, free-spirited thought" (230) (cf. Jacques-Dalcroze's statement that Germans are impeded by "extreme

mental slowness"). Physiological rhythms, which are transmitted genetically, thus inform the language, and by extension the quality of the thinking, of a race.

Nowhere is this made clearer than in Richard Wagner's anti-Semitic tract "Jews in Music," which outlines a causal chain whereby Judaism becomes "the evil conscience of our modern civilization" (*Wagner on Music and Drama*, 59). Inhabiting alien soil and hence speaking an alien language because they themselves have no native, national ground, Jews have lost their racially natural rhythm. This rhythmic disjunction between their natural metabolism and their adopted language accounts for the fact that Jews cannot make music, for the "life-bestowing inner organism" of music is its rhythm: "those rhythms and melismata of the synagogue song usurp his musical fancy in exactly the same way as the instinctive possession of the strains and rhythms of our folk song and dance made out the virtual shaping force of the creators of our art music." The Jew "merely listens to the barest surface of our art, but not to its life-bestowing inner organism . . . so that Judaic works of music often produce on us the impression as though a poem of Goethe's, for instance, were rendered in the Jewish jargon" (55–56). The rhythms of a folk are its "instinctive possession" and are exercised most dramatically in its song, which "is just talk aroused to its highest passion." Since the Jew can only speak language as an alien, he is

innately capable of enouncing himself to us artistically through either his outward appearance or his speech. . . .

In the first place, then, the general circumstance that the Jew talks the modern European languages merely as learned, and not as mother tongues, must necessarily debar him from all capability of therein expressing himself idiomatically, independently, and conformably to his nature. A language, with its expression and its evolution, is not the work of scattered units, but of a historical community; only he who has unconsciously grown up within the bond of this community takes also any share in its creations. But the Jew has stood outside the pale of any such community, stood solitary with his Jehova in a splintered, soilless stock. . . .

Now, if the aforesaid qualities of his dialect make the Jew almost incapable of giving artistic enunciation to his feelings and beholdings through *talk*, for such an enunciation through *song* his aptitude must needs be infinitely smaller. (51–52)

Jewish attempts to make music, then, result “in motleyest chaos,” a “clatter [that] can only be made at all inciting to the ear by its offering at each instant a new summons to attention” (56). What is missing are “the rhythms of our folk song,” rhythms that inform the German body and thus permeate the German language, and which the Jew, as an alien, nonnative, and soil-less person, can at best only poorly imitate. It is thus in Mendelssohn’s formally masterful but ultimately soulless music, and in the merciless “taunts” in the poetry of Heinrich Heine, that Germans can hear “the mirage of our self-deception” (58): the presence of a formally sophisticated “Judaic” art signals the degeneration of German culture, the profundities of which have become so superficial as to be subject to imitation by a rootless people. This is precisely the critique Pound levels at Jewish “influence” in the arts: for both Wagner and Pound, what is compromised by the presence of Jews is the folk-based rhythm of culture.

According to Oswald Spengler, it is such psychophysical rhythms that distinguish one race from another and account for differences in cultural production that ultimately make races incompatible with and even antagonistic toward one another:

Equally incomprehensible to us is Chinese music: in which, according to educated Chinese, we are never able to distinguish gay from grave. Vice versa, to the Chinese all the music of the West without distinction is *march-music*. Such is the impression that the rhythmic dynamic of our life makes upon the accentless Tao of the Chinese soul, and, indeed, the impression that our entire culture makes upon an alien humanity—the directional energy of our church-naves and our storeyed facades, the depth-perspective of our pictures, the march of our tragedy and narrative, not to mention our technics and the whole course of our private and public life. We ourselves have *accent* in our blood and therefore do not notice it. But when our rhythm is juxtaposed with that of an alien life, we find the discordance intolerable. (Spengler, *Decline*, 228)

Spengler grounds racial difference in the “accent” in blood; cultural production and private life pulse to the rhythms of the physiology of a race, and ultimately the very history of a people is fundamentally informed by the rhythms of its collective metabolism. The phases of the natural life-cycle of a civilization may ultimately be measurable by a close monitoring

of its “pulse” as it is manifested in the rhythmic vigor of its music, poetry, language, and architecture—this becomes, in fact, a central part of the project of Modernist poet-critics like Yeats and Pound.

Finally, Carl Jung’s comments on the dangers of racial “infection” via exposure to an alien culture’s rhythms resonate with Nazi fears about the effects of the presence of Jewish and Negro rhythms in the Aryan body politic. In “Mind and Earth” (1927) and “The Complications of American Psychology,” first published in 1930 as “Your Negroid and Indian Behaviour,” Jung recounts his impressions of racial “infections” he witnessed in America during a 1909 visit:

Another thing that struck me was the great influence of the Negro, a psychological influence naturally, not due to the mixing of blood. The emotional way an American expresses himself, especially the way he laughs, can best be studied in the illustrated supplements of the American papers; the inimitable Teddy Roosevelt laugh is found in its primordial form in the American Negro. The peculiar walk with loose joints, or the swinging of the hips so frequently observed in Americans, also comes from the Negro. American music draws its main inspiration from the Negro, and so does the dance. . . . The vivacity of the average American, which shows itself not only at baseball games but quite particularly in his extraordinary love of talking—the ceaseless gabble of American papers is an eloquent example of this—is scarcely to be derived from his Germanic forefathers, but is far more like the chattering of a Negro village. (*Civilization*, 46)

Due to proximity to the members of another race, an “infection of the primitive” has occurred within the collective racial organism of the white Europeans who colonized the New World. White Americans not only look different than their European ancestors, but walk and talk like the “coloured” peoples among whom they live. They also *laugh* like them—a fact that Jung suggests indicates a particularly profound level of racial infection (this association of Negro laughter, rhythm, and music is made graphic by Carl Seashore in “Primitive Music,” chapter 26 of his *Psychology of Music* (1938), where he provides a “photograph record” of the rhythms of a Negro laugh [see figure 0.7]).

According to Jung, then, “the [white] American presents a strange picture: a European with Negro behaviour and an Indian soul” (*Civilization*,

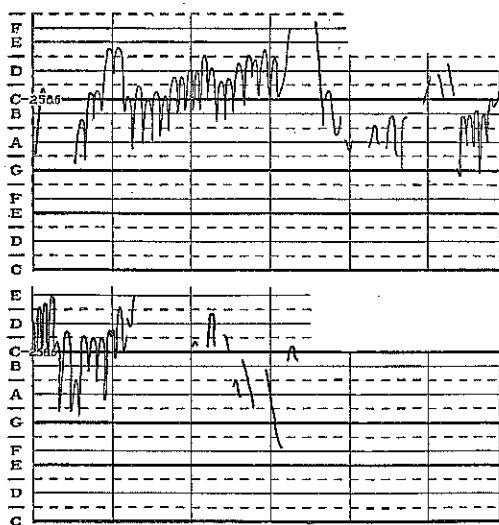
FIG. 4.—Negro laugh. (*Mufson, 1913*)

FIGURE 0.7 SEASHORE'S NEGRO LAUGH.

Source: Seashore, *The Psychology of Music*, 1927.

49). He explains that "the inferior man has a tremendous pull because he fascinates the inferior layers of our psyche" (508) (perhaps the most dramatic consequence of "going black" is "the American sex problem . . . a marked tendency to promiscuity" [506]). Critical is the notion that this "contagion" occurs insidiously, at an unconscious level: "But the defenses of the Germanic man reach only as far as consciousness reaches. Below the threshold of consciousness the contagion meets with little resistance. Just as the coloured man lives in your cities and even in your houses, so also he lives under your skin, subconsciously" (508). Because the infection occurs unconsciously, it is precisely the *rhythms*—psychological, physiological, linguistic, and musical—of the "coloured man" that are the most powerful viral agents:

Now for the facts. What about that American laughter? What about the boundless noisy sociality? The pleasure in movement and in stunts of all sorts? The loose-jointed walk, the Negroid dancing and music? The

rhythm of jazz is the same as the *n'goma*, the African dance. You can dance the Central African *n'goma* with all its jumping and rocking, its swinging shoulders and hips, to American jazz. American music is most obviously pervaded by the African rhythm and the African melody.

It would be difficult not to see that the coloured man, with his primitive motility, his expressive emotionality, his childlike directness, his sense of music and rhythm, his funny and picturesque language, has infected the American "behaviour." As any psychologist and any doctor knows, nothing is more contagious than tics, stammering, choreic movements, signs of emotion, above all laughter and peculiarities of speech. . . . Stammering can have a most infectious quality, so that you hardly can refrain from imitating it involuntarily. Melody and rhythm are most insidious, they can obsess you for days. . . .

The white man is a most terrific problem to the Negro, and whenever you affect somebody so profoundly, then, in a mysterious way, something comes back from him to yourself. The Negro by his mere presence is a source of temperamental and mimetic infection, which the European can't help noticing just as much as he sees the hopeless gap between the American and the African Negro. Racial infection is a most serious mental and moral problem where the primitive outnumbers the white man. American has this problem only in a relative degree, because the whites far outnumber the coloured. Apparently he can assimilate the primitive influence with little risk to himself. What would happen if there were a considerable increase in the coloured population is another matter.

(508-9)

African rhythms, grounded in the primitively motile nature of the black man's body and manifested in everything from his manner of walking to the happy nature of his sociality, permeate the psychosocial fabric of white America as an insidious obsession that surfaces literally as a species of speech impediment: the black man is felt as a dangerous presence in the unconscious that declares itself in instances of classical Freudian slippage. The white American is a European with a stutter that is not just in his tongue: according to Jung, both the body and the mind of the American stammer to produce the "strange picture" of a European who has been occupied by an alien rhythm.

### Rhythm and/as Political Ideology: Germany in the 1930s

In texts and statements generated in Nazi Germany, the conceptions of rhythm that I catalogue above are deployed directly in political propaganda and social policies, particularly those regarding music; race relations; and the formation, education, and operation of the Hitler Youth. The fact that Nazi policy penetrated decisively into the arts during the 1930s and early 1940s is well documented (see Grunberger, *A Social History of the Third Reich*): entirely racialized under the Nazis, all forms, types, and individual pieces of music were categorized according to the ethnic backgrounds of their composers, and “alien” forms of music were subject to the same laws of exclusion and persecution that were applied to the peoples with whom they were associated. “Jewish” and “Negro” musics received especial disapprobation, and while “dissonance was, of course, the key attribute of modern music to arouse Nazi ire,” rhythm was also the subject of ideological scrutiny:

Severus Ziegler, the manager of the Weimar theatre, ambitious to play a role in music analogous to that of his brother in art, mounted a “degenerate music” exhibition, in which such composers as Mahler, Schoenberg, Kestenberg, Stravinsky, Milhaud, Hindemith, and Weill were held up to public obloquy. He had this to say on the subject: “We do not reject dissonance *per se*, or the enrichment of rhythm, but dissonance as a principle, and the irruption of alien rhythm.” (Grunberger, *Social History*, 410)

Ziegler’s fears of an “irruption of alien rhythm” resonate with Jung’s conception of American racial contamination brought on by exposure to Negro rhythms, and these fears governed Nazi policy regarding “perverse jazz music”: “in 1937 the official SA paper discerned ‘impudent swamp flowers of Negroid pandemonium in German dance-halls’” (Grunberger, *Social History*, 419). Joseph Goebbels writes as if people hear music with their circulatory systems: when listening to Wagner, “you feel the stimulation in your *blood*. Germany, too, will soon feel the same and be called to an awakening.”<sup>15</sup> The rhythms of non-Germans are alien to the Aryan physiology, promote lewdness and license, cause young people to move and thus to think differently, and ultimately were prohibited by Party functionaries (420). And while alien rhythms are conducive to hysteria and im-

moderation and stimulate dark instincts, Aryan rhythms, on the other hand, can be used medicinally to reintegrate the shattered minds and bodies of wounded soldiers: “Karl Ritter’s war-film *Stukas* featured therapy-through-music: a shell-shocked flier whose only hope of a cure—according to medical opinion—lies in undergoing a profound experience, actually recovers during the performance (at Bayreuth) of the Great March from Wagner’s *Siegfried*” (386).

German work in the psychology of rhythm during the years just prior to the Nazi period was also motivated by questions of race and inheritance; an example is Ida Frischeisen-Köhler’s essay “The Personal Tempo and Its Inheritance,” published in *Character and Personality* for June 1933, in which the author defines the “personal tempo” as a subjective rhythm of the personality which influences “every psychic transaction unfolding itself in time” (301).<sup>16</sup> Personal tempos totally inform the psychophysical matrix, for “when we actively intervene in any happening, we choose, quite spontaneously, a congenial tempo for the transaction in question—a tempo which is natural to us.” These “natural” tempos are measurable and inherited and compose the physiological medium that conditions the individual personality and determines the compatibility of different “types” of people:

The personal tempo adheres to the individuality as a whole; the integral psyche, as a unity, abhors one tempo as unsympathetic to it, or recognizes another as sympathetic. Now if every individual has his own characteristic tempo, the question at once arises, whether, in the case of definite groups of individuals, there is a tempo characteristic of the group as it exists at any moment.<sup>17</sup> (302)

Like Hyde’s work on music and blood pressure, Frischeisen-Köhler’s essay proposes that psychophysical rhythms are indicators of fundamental racial difference and act as the unconscious medium through which one person recognizes another as “sympathetic” or reacts to him or her as “abhorrent.” “Naturally,” individuals with similar tempos find one another compatible, but, in the words of Spengler, “when our rhythm is juxtaposed with that of an alien life, we find the discordance intolerable” (*Decline*, 228). A “scientific” apparatus for justifying the segregation of ethnic groups based on genetically determined racial rhythms was thus in place by the early 1930s.

## Rhythm and Constructing the Fascist Subject

In "Rhythmische Erziehung," an essay published in *Musik Im Volk* in 1944, Dr. Wilhelm Twittenhoff, director of the Seminar for Music Instructors of the Hitler Youth at the Institute for Music in Weimar, deploys a number of the conceptions of rhythm catalogued above as the critical elements of a practical, racialized pedagogy. Grounding his work in Jacques-Dalcroze's project of establishing schools for the cultivation of national rhythms, Twittenhoff outlines a six-to-seven-hour-long program to be used by Hitler Youth educators in the service of introducing their students to the rudiments of a rhythmic education. "Im Anfang war der Rhythmus" ("In the beginning there was rhythm"): "Musicology and child psychology both show to the same extent how rhythmic activity is situated at the beginning of all musical performance and how rhythmical figures are the first of all to be taken up" (315).<sup>18</sup> Citing Jacques-Dalcroze, Twittenhoff discusses rhythmic education as the foundation not only for facilitating the study of music but for use in body building (*Körpererziehung*): marching will orient the young person rhythmically, and "the fact that the youth learns rank-and-file marching under the muffled thump of the great drum gives every rhythmical instruction an appropriate point of departure" (317). Nazi posters from the period frequently depict the Hitler Youth banging and marching to drums. Instruction in keeping simple rhythms serves as the foundation for an education based upon learning ever increasingly complex rhythms: the youth soon learns how to march in larger groups, to sing while marching, and eventually to apply his rhythmical training to sports, gymnastics, and dancing (318). Connecting the rhythms of the body to the rhythms of nature and to those of larger social formations is the primary focus of rhythmical education:

Long before the discovery of any "Chronometer," the regularly recurring rhythmical processes in nature served these ends: the annual seasonal cycle, the lunar cycle, the ebb and flood of the tides, alternation of day and night, until one finally arrives at the smallest rhythmical natural process: the human pulse. The pulse binds one to a fundamental motion of the human body, the stride, and soon the stride is recognized as the foundation of music. (321)

The human pulse, then, acts as the punctuation that knots together and harmonizes nature and culture: when properly synchronized with cosmic

rhythms through exercise and training, the rhythms of the human body will inform the productions of culture to produce an organically "natural" social body.

Twittenhoff tells us that rhythmical gymnastics will be especially important for training young women in the Bund Deutscher Mädchen (319) and for the development of new social dances; since the last 2000 years have been "philosophically unfriendly" to the body, the goal of rhythmic education will be to reintegrate body, soul, and spirit into an organic unity (320). The folk dances of the Alpine regions may serve as models for the new dance, although exporting them indiscriminately from their native region would only produce a miserable caricature (326). National rhythms are thus firmly grounded in both the blood and the soil of the hosts whom they inhabit.

One of the most important uses of rhythm is as a means of making propaganda more distinct or clear: once children learn to clap out simple rhythms, songs may easily be learned, like "Karl will nichts tragen, der faule Wicht, / Haut ihm den Buckel voll! dann streikt er nicht" [Karl doesn't want to work, the lazy tyke, / Knock him on the knob! then he won't strike] (322). Twittenhoff ends his essay with a paean to rhythm, which he claims at once loosens and disciplines the powers of the soul; inhabiting a psychophysical no-man's-land, it negotiates the unity of body, soul, and spirit:

In its position as mediator between body and soul [rhythmic education] will become, to an ever-increasing extent, the essential link in every type of education which advocates the unity of the body, soul, and spirit, and uses this belief as the measure of its activity and its business.<sup>19</sup> (327)

## Summary by Carl Seashore

Before moving on to the role that Rhythmics played in Modernist poetry and poetics, I will summarize the foregoing discussion by using Carl Seashore's comprehensive chapter on rhythm in *Psychology of Music* (1938).<sup>20</sup> Under the title "What Rhythm Does," Seashore lists eleven items.

1. Rhythm favors perception by grouping. It has been demonstrated that, under happy grouping, one can remember approximately as many

small groups as one can remember individual objects without grouping. . . . The ability to grasp in terms of larger and larger units . . . is a source of pleasure. Thus, rhythm has become a biological principle of efficiency. . . . The rhythm need not be conspicuous to be effective. It need not be objective. It need not be conscious. At best it is a habit. (140)

On its most basic level, the presence of rhythm stimulates the mind to group phenomena; this facilitates both learning and remembering and makes automatic certain motor and perceptual processes. Rhythm thus functions as an agent of biological efficiency in the overall economy of the organism. It provides pleasure; can be both invisible and inaudible; and eventually disappears into the psychomotor complex, where it informs the Unconscious in the guise of "habit."

2. Rhythm adjusts the strain of attention. . . . Our attention is periodic. All our mental life works rhythmically, that is, by periodic pulsation of effort or achievement with unnoticed intermittence of blanks. . . . This periodicity is primarily one of attention and reaches out into all our mental processes, being one of nature's contrivances in the interest of the conservation of nervous energy.

This is a principle which is made use of in nature and in industry, as, for example, in our lighting current. . . . The rhythmic measure . . . is simply taking advantage of nature's supply of pulsating efforts of attention. And when the measure fits the attention wave, it gives us a restful feeling of satisfaction and ease. (140-41)

Seashore describes rhythm as a key player in the economics of biology: both the mind and nature are profoundly informed by rhythms, which help to conserve nervous energy, stimulate pleasure, and relieve psychophysical "strain," especially when, "unnoticed," mental rhythms are adjusted to natural measures. Modern industry is ultimately founded on the exploitation of natural rhythms.

3. Rhythm gives us a feeling of balance.

4. The sense of rhythm gives us a feeling of freedom, luxury, and expanse. It gives us a feeling of achievement in molding or creating. It gives us a feeling of rounding out a design.

5. Rhythm gives us a feeling of power; it carries. . . . The pattern once grasped, there is an assurance of ability to cope with the future. This results in the disregard of the ear element and results in a motor attitude, or a projection of the self in action. (141-42)

The effects of rhythm on the psychomotor mechanism are somewhat paradoxical: rhythm at once gives a sense of "freedom" and a feeling of "rounding out a design"; the subject feels empowered by virtue of being located in a pattern. Freedom and necessity are conflated through the medium of rhythm, which promotes "projection": an organism "in" a rhythm feels itself impelled by a transpersonal momentum that gives it a sense of assurance—particularly when coping with the future.

6. [Rhythm] stimulates and lulls, contradictory as this may seem. . . . There comes a sort of autointoxication from the stimulating effect of music and the successful self-expression in balanced movements sustained by that music and its associations.

The same is true of the march. When the march is struck up it stimulates tension of every muscle of the body. The soldier straightens up, takes a firmer step, observes more keenly, and is all attention; but as he gets into the march, all this passes into its opposite, a state of passivity, obliviousness to environment, and obliviousness to effort and action. (142-43)

Seashore articulates here the finely contradictory nature of the effects of rhythm on the human organism: as "autointoxication," rhythm at once "stimulates and lulls" consciousness—it activates an increasingly restricted range of awareness, sharpening the senses only to dramatically narrow them.<sup>21</sup> It is thus a powerful tool for the organization of oblivious but alert masses, like military troops.

7. Rhythmic periodicity is instinctive.

8. Rhythm finds resonance in the whole organism. It is not a matter of the ear or the finger only; it is a matter of the two fundamental powers of life—namely, knowing and acting. And, therefore, indirectly it affects the circulation, respiration, and all the secretions of the body in such a way as to arouse agreeable feeling. Herein we find the groundwork of



emotion; for rhythm, whether in perception or in action, is emotional when highly developed, and results in response of the whole organism to its pulsations.

This tendency to feel oneself into the music and act it out is an exhibition of the principle known as "empathy." (143-44)

Seashore outlines an erotics of rhythm: as it unites the organs of the body in syncopating pulses, rhythm stimulates emotional responses through pleasure and makes it possible to—or impossible *not* to—empathize with other bodies pulsing at the same rate. Intellectual and emotional states are at base rhythmical, stimulated as they are by pulsations, often at microscopic (or microauric) levels, in the body. Rhythm sutures the body ("acting") and the mind ("knowing"), and thus fundamentally informs the mechanics of human agency.

9. Rhythm arouses sustained and enriching association. One need not tramp through the woods where the Wagnerian scenes are laid in order to experience the rich flow of visual association with a rhythmic flow of the music in *Lohengrin*. (144)

Cultures, nations, and races are consolidated by rhythms that, present in cultural productions like music, poetry, fairy tales, calendars, and so on, knit generations by and into "associations." Cultural rhythms permeate the body and provide for strong empathies between members of the same group. According to theorists like Hyde and Spengler, members of different cultural and ethnic groups may not respond favorably to one another's rhythms. Rhythm also stimulates visual images, especially *national* ones like landscapes; this idea will be particularly attractive to poets with nationalist agendas like Yeats.

10. Rhythm reaches out in extraordinary detail and complexity with progressive mastery. . . .

One degree of rhythmic perception acquired becomes a vantage ground from which we may approach higher levels, and each of these in turn traversed leads to higher vantage grounds, level after level, vista after vista. They do not need to be objective. Nor need we be conscious of them as such. It is a state or organization into rich meaning.

11. The instinctive craving for the experience of rhythm results in play. (144-45)

It is precisely the "progressive mastery" with which such a rhythmic "state or organization into rich meaning" *reaches out*—the ability of rhythm to totally permeate the organism and the territory surrounding it—that resonates so well with fascist programs. Rhythm both *occupies* organisms and *preoccupies* them: in fact, it is in the negotiations between intrinsic rhythms and extrinsic ones that terms like "politics" appear. These are precisely the sorts of rhythmic relationships, based on "the instinctive craving for the experience of rhythm," that Modernist poets struggled to formulate.

### Rhythmics in Modernist Poetics

Poetry is an art. Prosody is, or should be, a science.

—Harriet Monroe, *Poets and Their Art*, 286

By the late 1930s, then, experimental work on rhythm had coalesced into a series of theoretical equations comprising a budding scientific field that linked the human pulse, genetic difference, racial metabolisms, the unconscious, machine-age work, and the geophysical environment: human bodies and minds, it appeared, were genetically precoded to respond to certain rhythms that manifested themselves in cultural productions as distinct as national fingerprints. Nazi exploitation of Rhythmics was of course an extreme use of this "science," many of the tenets of which were part of the more general Modernist zeitgeist. It is therefore not surprising that these equations appear in various configurations in the aesthetics articulating themselves at the time—particularly in poetics, where age-old controversies over the issue of rhythm were given a special spin. Poets and critics in the Anglo-American tradition had been speculating on the relationships between human physiology and poetic form since at least the middle of the nineteenth century. In "Poetry and Imagination," written by 1872, Ralph Waldo Emerson tells us to "ask the fact for the form" (56): all of nature, he writes, resonates in "the rhythmical structure of man" (51), which is itself articulated by the periodic sequences of the body:

Metre begins with pulse-beat, and the length of lines in songs and poems is determined by the inhalation and exhalation of the lungs. If you hum or whistle the rhythm of the common English metres,—of the decasyllabic quatrain, or the octosyllabic with alternate sexisyllabic, or other rhythms,—you can easily believe these rhythms to be organic, derived from the human pulse, and to be therefore not proper to one nation, but to mankind. (49)

While there is no trace here of the racist thinking that occurs later in the century—indeed, the passage reads as resolutely *antiracist*—Emerson ties poetic meter “organically” to the pulse. Likewise, in “The Physiology of Versification” (1870), Oliver Wendell Holmes explains how the “two great vital movements preëminently distinguished by their rhythmical character—the respiration and the pulse”—have “an intimate relation with the structure of metrical compositions” (315–16). Holmes focuses more on physiological differences than on transcendental similarities:

An individual of ample chest and quiet temperament may breathe habitually only fourteen times in a minute, and find the heroic, or iambic pentameter . . . to correspond with his respiratory rhythm and thus to be easier than any other for him to read. A person of narrower frame and more nervous habit may breathe oftener than twenty times in a minute, and find the seven syllable verse of Dyer’s “Grongar Hill” fits his respiration better than the octosyllables of Scott or Tennyson or Longfellow. . . .

The unconscious adaptation of voluntary life to the organic rhythm is perhaps a more pervading fact than we have been in the habit of considering it. One can hardly doubt that Spenser breathed habitually more slowly than Prior, and that Anacreon had a quicker respiration than Homer. And this difference, which we conjecture from their rhythmical instincts, if our conjecture is true, probably, most certainly, characterized all their vital movements. (319)

Hence, for Holmes, a person’s inclination toward a particular rhythm is based on personal, physical contingencies; note the gendered rhetoric of “narrower frame and more nervous habit”: no doubt men are drawn to epic while women prefer song and lyric. For both Emerson and Holmes, poetic rhythm is framed by the physiological contingencies of the author’s, and then the auditors’, bodies.

It is John Ruskin’s *Elements of English Prosody* (1880) that first indicates a drift toward the essentialist doctrines of rhythmic identity that I chronicle above. Ruskin links poetic meter to the *stride*. The spondee, he says, as the

time of the perfect pace of a reasonable two-legged animal, has regulated the verse of the two most deliberate nations of the earth—the Greek and Roman. . . .

The Spondeus is a foot, practically, if not utterly, peculiar to the Greek and Latin races and languages. It is inconsistent with the temper, and, except in rare cases, impossible in the tongues, of modern nations. All verses written in modern languages in imitation of the classic hexametre are forced, false, and unmusical; although, as I have said, our own rhythms are all derived from it, in proper subjection to our own tempers and tongues. (5–6)

For Ruskin, “races” have “tempers” generated by the particular constitutions of their bodies—especially by the tempos of their strides—that inform the rhythms of their “tongues”: hence, poetic “feet.” The *qualities* of a race can be sensed through the *quantities* of its verse forms:

As the first division of [the various meters’] time is from the pace of a man, so the length and rapidity of them are determined by the power of his breath. . . . The tetrametre and pentametre, which require the full breath, but do not exhaust it, constitute the entire body of the chief poetry of energetic nations; the hexametre, which fully exhausts the breath, is only used by nations whose pleasure was in repose. (33)

As we’ve seen, tracing the rhythmic contours of such national and racial “energies” becomes a major preoccupation of the sciences and the arts from the 1890s on.

While scientists like Thaddeus Bolton had from the outset been interested in poetic rhythms, poets become increasingly interested in scientific perspectives on rhythm as the twentieth century wears on. Crossover writers like Mary Hallock-Greenewalt—who recasts her 1903 *Popular Science Monthly* article, “Pulse and Rhythm,” for *Poet Lore* in the summer of 1905 as “Pulse in Verbal Rhythm”—publish in both scientific and aesthetic milieus. In the latter essay, the author links verbal “quantities” to the “scope

of beat [that] confronts the physician when he feels the normal pulse" in order to prove that "'Out of the mouth the heart speaketh' in no metaphoric sense" ("Pulse," 84); "is it strange," she asks, "if with such rigorous instruction the heart should have taught the head regular recurrence?" Hallock-Greenewalt develops what might be called the "lub-dub" theory of poetic rhythm:

Pygmy passageways simultaneously check the flow of blood from the heart, rudely distending the arterial walls at the capillary juncture. Is it inconceivable that this inhibited energy jostles the nerves to suggesting compensating action? Restricted freedom here also tortures the body forward; in this case to poetry, music and the dance. . . . We are rhythmic because the physical man demands it.<sup>[22]</sup>

But the heart buffets the nervous system with double blows. It says, here is one for you for contraction, here is one for you for expansion. Does the poet deal it out similarly to the world? In answer one has but to paraphrase that 'with a lub dub, lub dub, lub dub, every long poem and nearly every important short poem in the English language is written. . . . Between the two sounds of the heart a little less than a third of a second, one-third of the whole heart beat or thereabouts passes. The iambus enters in and out, just so, as rhythms go, by the clock. (83-84)

The source of poetic rhythm, then, is deeply insinuated in the arterial system of the speaking body; the iambus works in locked synchronicity with the pounding of the heart. But while the native—and here it is implied, racial—English speaker's pulse rate maintains the organic "lub dub" of the iambic, people of other races or ethnicities, or even from lower classes, have pulse rates that compromise the language's natural tempo: Hallock-Greenewalt cites a statistic to the effect that "For a single minute, uneducated Irish women and negroes excited on the witness stand can reach a speed of eight syllables a second" (81), thus effectively destroying the iambic. One wonders what said "negroes on the witness stand" are so excited about: it is precisely in such scenes of distress that true racial identity most eloquently declares itself.

In the flagship issue of *Rhythm*, a British literary periodical that runs from 1911 to 1913, editor John Middleton Murry defines Modernism itself as at root an archeology of rhythm:

Modernism is not the capricious outburst of intellectual dipsomania. It penetrates beneath the outward surface of the world, and disengages the rhythms that lie at the heart of things, rhythms strange to the eye, unaccustomed to the ear, primitive harmonies of the world that is and lives.<sup>23</sup>

("Art and Philosophy," 12)

Likewise, the author (most likely Harold Monro) of an unsigned editorial entitled "Rhythm" in the first volume of *The Poetry Review* for 1912 writes, "The main principle of life is rhythmic; all its sub-principles are equally so"; like Murry, the writer describes modern poetry's project as the recovery of archaic rhythms: "The tendency of the poets of western civilization has been to lose their sense of the primary rhythms, and to cut, piece and fit their language into certain artificial forms. . . . Therefore modern poets are seeking, as far as possible, to remember the primary rhythms" ("Rhythm," 152). Such "primary rhythms," as we've seen, tended to be linked to blood; in the fall 1929 issue of the American literary journal *Blues: A Magazine of New Rhythms* (the editorial staff of which included W. C. Williams), Parker Tyler writes that "Indigenous culture is determined by the bloodbeat and bloodbeat is personal-environmental. To have felt something, such as America, to have learned it and kept it as a subconscious possession is factorial" (Tyler, "New York Notes," 41). The racist philosophy of eurhythmics also played a role in the arts of the day: by 1925 there were twenty-eight Dalcroze schools in the United States, and one of the earliest Dalcroze-inspired dance performances in America was performed in 1916 by the Washington Square Players and "staged by Mishio Ito, a Japanese, and a graduate of the Dalcroze school in Hellerau," as pointed out by *Theater Arts Magazine* (Caldwell, *Michio Ito*, 56). Ito is perhaps best remembered as Yeats's collaborator and the lead dancer in *At the Hawk's Well*, performed in London in 1916, at which time he was also consulted by Pound, who, busy on his Noh book, incorrectly assumed that Ito was versed in Noh technique (I deal with this episode in the next chapter).

Dalcroze is cited at length in Mary Austin's 1923 book *The American Rhythm*, in which the author explicitly links American "racial material," heredity, the North American landscape, politics, and poetic rhythms in something of a grand synthesis of the ideas I have been discussing. "Almost anybody might have predicted the rise of a new verse form in America," she writes:

Given a new earth to live on, new attacks on the mastery of time and space, and a whole new scale of motor impulses is built into the subconscious structure of the individual. Given a new experiential adaptation of social mechanisms, and all the emotive and cognitive processes set themselves to its tune. Given, as happened in the United States, an emotional kick *away* from the old habits of work and society, and a new rhythmic basis of poetic expression is not only to be looked for, but is to be welcomed. It becomes evidence of the extent to which the American experience has "taken," among the widely varying racial strains that make up its people. (9)

Austin links poetic rhythm deeply to the metabolisms of the body; echoing Hallock-Greenewalt, she tells us that

The major rhythms of the human organism are given by the blood and the breath. What is the familiar trochee but the *lub-dub, lub-dub* of the heart, what the hurrying of the syllable in the iambus but the inhibition of the blood by the smaller vessels? Within the organism many minor organs have each their distinctive rhythmic tempo, both nervous and functional. Very probably rhythm is a factor in thought formation. (4-5)

What's important about this "thought formation" is that it is determined entirely by genetic and environmental factors; the "American rhythm," then, is accompanied by an American *body* and an American *mind*, both of which are the ineluctable consequence of European settlers inhabiting American spaces. Austin begins by arguing that rhythm is inherited through the "germ plasm" (6), "recapitulated from generation to generation" (8); hence the base of the American rhythm, what Austin calls "the native resiliency of the racial material worked upon" (13), is Teutonic: "When I speak of rhythm here, I am referring to the basic motor impulses which underlie the English gesture. These are the simplest; the *lub-dub, lub-dub* of the heavy footed Nordics" (11). But this basic racial beat has been modified by the fact of the "great hegira from northern and central Europe" to the New World, where "something also was added by the land. . . . Streams of rhythmic sights and sounds flowed in upon the becoming race of Americans from every natural feature":

Life set itself to new processions of seed time and harvest, the skin newly turned to seasonal variations, the very blood humming to new altitudes. They rhythm of walking always a recognizable background for our thoughts, altered from the militaristic stride to the jog of the wide, unrutted earth. Explorer, fur-trader, King's agent, whoever for three centuries followed it, must have carried a record of its foot work in his walk, a wider swing and recovery to his mind. (14)

With its newly tuned skin and its blood humming to an altogether different set of registers, the American race is a "*becoming race*," a newly adapted human type comprising European genes in a New World landscape. As Jung puts it, "Man can be assimilated by a country. There is an x and a y in the air and in the soil of a country, which slowly permeate and assimilate him to the type of the aboriginal inhabitant, even to the point of slightly remodeling his physical features" (*Civilization*, 510)—hence, "the strange [American] picture: a European with . . . an Indian soul."

And like Jung, Austin fears the "primitive" pull of "Negro behaviour" on the new American body, a pull especially pernicious when motivated by the "Afro-American rhythms that go by the name of jazz, rhythms that can only be successfully achieved by unharnessing the body from its civilized inhibitions" (*American Rhythm*, 31). She explicitly warns of the dangerous influence of the use of such rhythms in poetry: advocating Native American rhythms as more organic, she tells us that

the Amerind admits none of the bond-loosening, soul-disintegrating, jazz-born movements of Mr. Sandburg's *Man Hunt*. Dance that rhythm tune in your mind merely, letting the body respond as you will feel it must to describe the rhythm adequately, and you will see at once why its affectiveness would be toward spiritual disintegration. It would also be clear to you what Mr. Lindsay meant by "letting in the Congo, and Mumbo Jumbo." (32-33)

Finally, readers of *The Dial* and *Poetry* in the 1910s would have been exposed to the science of Rhythmics by Amy Lowell and Harriet Monroe, both of whom championed William Morris Patterson's 1916 *The Rhythm of Prose*. Monroe waxes especially effusive in the first paragraph of her essay "Dr. Patterson's Researches":

Of course [rhythm] is an element of unalterable law: from the electron to the most enormous sun in space, every object moves rhythmically, in vibrations or pulsations or orbits, hastened or retarded between incredible extremes of slow or swift. All life is governed by heart-beats, and the arts are man's effort to respond to the universal impulse.

(*Poets and Their Art*, 307)

If Monroe sounds like Thaddeus Bolton in her rehearsal of both the "cosmic" and the "cardiac" connection here, it is most likely because the second chapter of Patterson's book is a comprehensive "Historical Survey" of the field of Rhythmics that summarizes the work of Bolton, Squire, Ruckmich, Weld, and Bücher—to mention only writers whom I also discuss—as well as some twenty other theorists of rhythm. Amy Lowell not only champions Patterson in "The Rhythms of Free Verse," an essay published in the January 17, 1918, edition of *The Dial*, but describes her year-long collaboration with him, during which she "read into his sound-photographing machine" specimens of H.D.'s poetry as well as her own (52–53). The "science" of Rhythmics was very much on the minds of—and visible to—the editors, poets, and readers who made up the public of poetry in the early twentieth century.

### Racial Origins of Prosody

What I think we have, in English poetry, is a kind of amalgam of [metrical] systems of divers sources . . . : an amalgam like the amalgam of races, and indeed partly due to racial origins.

—T. S. Eliot, "The Music of Poetry," *Selected Prose*, 109

T. S. Eliot's comment above, made in a lecture delivered in Glasgow in 1942, has everything to do with his poetic project of "purify[ing] the dialect of the tribe," as he famously puts it in "Little Gidding." The logic of Eliot's theory of rhythm works itself out like this: since metrical systems have their origins in racial bodies, and modern societies are racially heterogeneous ("i.e., amalgamated"), modern poetry will necessarily tend toward *vers libre* (although Eliot argued in 1917 that "*vers libre* does not exist," since "any line can be divided into feet and accents" (*Selected Prose*,

31, 32)). Hence, twentieth-century poetry written in English comprises an "amalgam of metrical systems"—such poetry is subject to being scanned, although it is not systematically or regularly metrical. Eliot aligns prosodic systems with the degree of social "homogeneity" operative in a culture; he detects in modern poetry's formal "decay" a sonic parallel to cultural "decay" due to the heterogeneity of modern societies:

But the decay of intricate formal patterns has nothing to do with the advent of *vers libre*. It had set in long before. Only in a close-knit and homogeneous society, where many men are at work on the same problems, such a society as those which produced the Greek chorus, the Elizabethan lyric, and the Troubadour canzone, will the development of such forms ever be carried to perfection. (36)

Eliot suggests here that it is as impossible for a modern poet to work in intricate formal patterns as it is for a modern civilization to operate "homogeneously"—for what is the *necessary* basis of the prosody of the poetry of *Homo amalgam* but the polyrhythmical voice of the mongrel?

And who better to chronicle the effect of mongrelization on the rhythms of modern poetry than Mina Loy, who writes that "on the baser avenues of Manhattan every voice swings to the triple rhythm of its race, its citizenship and its personality" (*Lost Lunar*, 159)? As the "chart of a temperament" (157), the quirky prosody of Loy's poems attests to a twentieth century "human . . . race / altered to irrhythmic stagger" (133), and poetic lines in which "The white flesh quakes to the negro soul" in "a synthesis / of racial caress" (95–96) imply a whole history of research into the effects of "alien" rhythms on race-marked bodies. In "To You," a "hybrid-negro" "Hob-nob[s] / With a nigger" in a miscegenated New York—

Where the mono-rabble  
Plays the one-stringed banjo  
On the noise of its ragged heart  
Inaudible  
In the shattering city  
Alien as your aboriginal  
In the leveling dirt—<sup>24</sup>

Modern racial identity has been “shattered” and “leveled” to the hybrid “mono-rabble”—the same deracinated crowd against whom Pound, Yeats, and Eliot rail—whose “ragged heart” has turned black. Its inaudible beat—at once alien and aboriginal and keyed to the one-stringed banjo of traditional black minstrelsy—pervades the unreal city. Like Jung, Loy is more ambivalent than her fellow poets about the “racial infection” that such alien rhythms introduce into the body politic; disturbing as they are, they do “inspire the writer with a modernist style,” as Michael North puts it (*Dialect*, 141).

Loy, for instance, employs a dynamic synthesis of poetic form and race-based content in *Anglo-Mongrels and the Rose*, her mini-epic exploring racial miscegenation in modern-day London. The poem follows the Hungarian Jew “Exodus” as he immigrates to England, that “paradise of the pound-sterling” (*Last Lunar*, 112); Loy sardonically calls him a “parasite attach[ing] to the English Rose” (119)—in fact, to an Englishwoman named Rose, whom he woos and eventually marries. While still in Budapest, Exodus has an epiphany:

Blinking his eyes  
at the sunrise Exodus  
lumbar-arching      sleep-logged      turns his ear  
to the grit earth      and hears  
the boom of cardiac cataracts  
thumping the turf  
with his young pulse

(113)

Exodus hears the “boom of cardiac cataracts” when his ears are stopped; the knotting of blood and soil via the pulse here suggests that this Jew’s proper homeland is in the “east”—in this case in the ruins of the Hapsburg Empire, notorious for its polyglot subjects:

Imperial Austria taught the child  
the German secret patriotism  
the Magyar tongue the father  
stuffed him with biblical Hebrew and the  
seeds of science

(111)

Because his metabolism keeps time to the mongrel measures of *Mittel-Europa*, Exodus feels out of step with the rhythms of the Anglo-Saxon world. Hence Loy’s use of Old English alliterative accentual meter, repiete with hemistiche, when she describes London: on Sundays, the country

spewed  
her silent servants      out of her areas  
in their bi-weekly ‘best’      to  
“Ow get along with you”      their lurching lovers  
along the rails of parks  
The high-striped      soldiers of the swagger stick  
tempting the wilder flowers of womanhood

(116)

These verses recall the “journey’s jargon” and “bitter breast-cares” of Pound’s “Seafarer,” whose “wretched outcast” narrator is also a homeless wanderer “seek[ing] out a foreign fastness.”<sup>25</sup> And just as the Seafarer is brought home to the hopelessness of his plight by the cries of seabirds, so Exodus senses his own alienation upon hearing an alliterative thrush “shatter its song upon the spurious shade / of a barred bird fancier’s” (117), as he “paces” through the Sunday park described above:

The dumb philosophies  
of the wondering Jew  
fall into rhythm      with  
long unlistened to      Hebrew chants  
A wave  
‘out of tide’      with the surrounding  
ocean he breaks  
insensitized      non-participance      upon himself

(117)

“Out of tide” with the human waves around him, this alien wonderer “breaks” from the English crowd—as does the verse in this stanza: floated out at the end of line three, “with” interrupts the strong duple meter established by the two preceding lines—“The dúmb philósophies / of the wón-dering Jéw / fáll into rhythm      with”—whereas the indented “A wave” initiates the series of lurches in the next three lines. No Saxon alliteration

here; and the triple-split last line breaks with any Old English precedent (although it does remind one of the similarly split twin lines of "In a Station of the Metro"). As in the poetry of Pound and Yeats, Loy's often bizarre versification is carefully constructed to signify the clash of alien bodies under the sign of modernity.

Theories of rhythm as blood- and race-based, as stimulated by environmental factors, as integral to a "primitive" layer of the world that Modernism seeks to make available, and as "a subconscious possession," were all part of the discussion involving what it meant to write Modernist poetry. Had such theories been of interest only to obscure writers such as Hall-ock-Greenwalt or Parker Tyler, or even to better-known figures, such as Amy Lowell or Harriet Monroe, who in their own day played significant roles, they would no doubt warrant little more than a historical footnote. The fact that they profoundly informed the poetics of Pound, Yeats, and other more important Modernist writers, however, demands that they be explored as critical features of those writers' practice.

# 1

## *Pulsanda Tellus*

### *Ezra Pound's Absolutist Rhythms*

Ce que disait l'abbé Rousselot: "Le rythme est l'image, gravée dans la parole, de l'homme tout entier, corps et âme, muscles et esprit."

—Henri Meschonnic

### The Root of the Matter

When the African's drumming contains the root of the matter.

—Ezra Pound, *Antheil and the Treatise on Harmony*, 1927

Scattered piecemeal throughout his works, Pound's comments on the subject of rhythm are often obscure: as Stephen Cushman puts it, "one encounters numerous ambiguities, inconsistencies, and lacunae" when tracing what he calls Pound's "fictions of form" (*Fictions of Form*, 83–84). While Pound's most famous articulation of the issue occurs in the third tenet of the Imagiste manifesto of 1912—"As regarding rhythm, to compose in the sequence of the musical phrase, not in sequence of a metronome" (*Literary Essays*, 3)—he commented on the nature and effects of rhythm constantly, albeit haphazardly, throughout his career. As early as 1910, he announces his belief in "absolute rhythm" (*Translations*, 23), which he describes two years later as "a rhythm . . . which in poetry corresponds exactly to the emotion or shade of emotion to be expressed" (*Literary Essays*, 9); he reiterates this correspondence as late as 1934, where the second of his "three chief means" for "charging language with meaning to the utmost possible degree" is "inducing emotional correlations by the sound and rhythm of speech" (*ABC*, 63).

## NOTES

### *Introduction. Phonoscopic Modernism*

1. Brogan, *English Versification, 1570–1980*, and Omond, *English Metrists*, are the most comprehensive surveys of the field. See also bibliographies in Cureton, *Rhythmic Phrasing in English Verse*; Silken, *The Life of Metrical and Free Verse*; Holder, *Rethinking Meter*; Baker, *Meter in English*; Golston and Riad, "Iambic Pentameter Is Neither." For a general overview of current theories, see Cureton, 7–75.
2. The classic anthology of modern essays on prosody is Gross, *Sound and Form*. For recent discussions of controversies involving poetic rhythm and meter, see Holder, *Rethinking Meter*; Baker, *Meter in English*; and Cureton, *Rhythmic Phrasing in English Verse*. The title of an unpublished article by the metrical phonologists Golston and Riad, "Iambic Pentameter Is Neither," is perhaps indicative of the current state of the debate.
3. See especially Raffel, *From Stress to Stress*; Boland in Baker, *Meter in English*; Fussell, *Poetic Meter and Poetic Form*, chap. 4; Hartman, *Free Verse*; Taylor, *Hardy's Metres*, 7–48; and Aviram, *Telling Rhythm*.
4. A good study of such "models" is Dolezel, *Occidental Poetics*, whose "discovery of modes of poetics, of conceptual and methodological systems that were designed to cope with topical issues of the research tradition at its various developmental stages" (5) is useful. See also Cushman, *Fictions of Form*; Easthope, *Poetry as Discourse*; Finch, *The Ghost of Meter*; and Meschonnic, *Critique de rythme*. For more strictly "philosophical" approaches to rhythm, see Deleuze and Guattari, "1837"; Abraham, *Rhythms*; and Gumbrecht, "Rhythm and Meaning."



5. The classic handbook is Fussel, *Poetic Meter and Poetic Form*; see also Fraser, *Metre, Rhythm, and Free Verse*; Attridge, *The Rhythms of English Poetry*; and Cureton, *Rhythmic Phrasing in English Verse*.
6. See especially the essays collected in Bornstein, ed., *Representing Modernist Texts: Editing as Interpretation*, and Rainey, ed., *A Poem Containing History: Textual Studies in The Cantos*. In both volumes, the essays by Ronald Bush are particularly relevant; see also Bush, "Modernism, Fascism, and the Composition of Ezra Pound's *Pisan Cantos*," and "Remaking *Canto 74*."
7. Vincent Sherry's *Ezra Pound, Wyndham Lewis, and Radical Modernism* is very close both in method and spirit to what I do here; we both investigate how "radical *idéologie* allows one to impose the figures of one discipline—physiology—onto another—politics" (184) and how the High Moderns were "formulating political principles in the laboratory of human physiology" (187). Sherry argues, however, for a certain "superiority of the eye" in Modernist poetics that my work on Pound directly contradicts, or at least nuances in substantial ways.
8. Bolton's contemporary and counterpart in Germany was Ernst Meumann, whose work is also frequently cited during the period. See Meumann, *Untersuchungen zur Psychologie und Aesthetik des Rhythmus*.
9. Bolton was a "fatigue expert," although Rabinbach doesn't mention his name: see G. B. Lovell's review of his "Ueber die Beziehungen zwischen Ermüdung, Raumsinn der Haut, und Muskelleistung," in *The Psychological Review* 10, no. 4 (1903): 452–53.
10. Rabinbach tells us that "by 1924, Bücher's *Arbeit und Rhythmus* had reached six editions" (*The Human Motor*, 348). See also his discussion of Bücher (174–75).
11. All translations of Bücher are mine (special thanks to Georg Rast).
12. For an analysis of the Marxist perspective on this line of thinking, see Antliff, *Inventing Bergson*, 171–84.
13. For an argument against the inheritance of rhythm, see Swindle, who also critiques Jacques-Dalcroze's eurhythmics ("On the Inheritance of Rhythm," 199–203).
14. See discussion of Jacques-Dalcroze in Schwartz, "Torque," 73–77.
15. Quoted in Perris, *Music and Propaganda*, 55.
16. Frischeisen-Köhler worked at the Kaiser Wilhelm Institute in Berlin. Her essay was originally published as "Das Persönliche Tempo: Eine erbriologische Untersuchung," in *Sammlung psychiatrischer und newrologischer Einzeldarstellungen*, vol. 4 (Georg Thieme: Lepipzig, 1933).
17. See also Sanderson, "Differences in Musical Ability," who tests the musical ability of children of "Jewish, German, Negro, Italian, and Polish racial groups." She reports that "the Negro group shows a definite inferiority to all other racial groups except in performance on the test of rhythm discrimination" (117).
18. All translations of Twitthoff are mine (special thanks to Georg Rast).
19. See also Schwartz, "Torque," 120n. 42, and Antliff, *Inventing Bergson*, 14–15: "Fascist proponents of reactionary modernism developed an organic definition of the nation-state by trumpeting the qualitative temporality of a given racial group as an ideological alternative to the quantitative systems of temporal organization promoted by international capitalism. . . . In Bergsonian terms the rhythm of the machine could be united to the temporal rhythm of a given racial group."
20. Seashore was professor of Psychology at the State University of Iowa.
21. For discussion of the "complicated and often contradictory reactions that attend the sense of rhythm," see also Sonnenschein, *What Is Rhythm?* 3–5.
22. Cf. Holmes: "It seems not unlikely that other organic rhythms may be found more or less obscurely hinted at in the voluntary or animal functions. How far is *accent* suggested by or connected with the movement of the pulse, every stroke of which, if it does not lift the brain, as Bichat taught, sends a shock through its whole substance, and compresses it in its unyielding case?" ("The Physiology of Versification" 320).
23. See Antliff's excellent discussion of *Rhythm* in *Inventing Bergson*, 67–105.
24. Mina Loy, "To You," in *Others: A Magazine of the New Verse*, ed. W. C. Williams, vol. 3, no. 1, 1916–1917 (New York: Kraus Reprint Corporation, 1967), 27–28.
25. Pound, *Selected Poems*, 18–21.

### 1. Pulsanda Tellus

1. For an important discussion of Pound's "ultimate indifference to, and impatience with, the distinction between metrical and free verse" (79), see chap. 4 of Cushman's *Fictions*. As Pound puts it in "A Retrospect": "Indeed *vers libre* has become as prolix and as verbose as any of the flaccid varieties that preceded it. It has brought faults of its own. The actual language and phrasing is often as bad as that of our elders without even the excuse that the words are shovelled in to fill a metric pattern or to complete the noise of a rhyme-sound. Whether or no the phrases followed by the followers are musical must be left to the reader's decision. At times I can find a marked metre in 'vers libres', as stale and hackneyed as any pseudo-Swinburnian, at times the writers seem to follow no musical structure whatever" (*Literary Essays*, 3). George Antheil agrees with Pound that poor rhythmical sense is at the bottom of most bad music as well: "Ninety percent of failures are due to absolute incapability in the primary rudiments of music—rhythm!" *Pound and Music*, 270).
2. As Pound puts it in 1916, "one does not want to be called a symbolist, because symbolism has usually been associated with mushy technique" (*Gaudier-Brzeska*,