

« **Im Anfang war der Rhythmus** » : **Rhythmic Incubations in Discourses of Mind, Body, and Race from 1850-1944**

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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. [1]

Christian Ruckmich's article « The Role Of Kinaesthesia in the Perception of Rhythm, » published in *The American Journal of Psychology* for July, 1913, marks the midpoint of a period of intense « experimental investigation of the perception of rhythm » which occurred in the United States and Europe between 1890 and 1940. These fifty years saw a vigorous interest, accompanied by a considerable amount of experimental and theoretical work, in the nature of rhythm and rhythmical perception and in the possible practical applications of such studies to a wide variety of psychological, social, political, and cultural situations. During this period, the subject of rhythm simultaneously linked and transgressed the borders of the disciplines mentioned by Ruckmich, whose call later in the same article for a « complete study of rhythm » is echoed throughout the era by numerous German, French, English and American theorists from a variety of backgrounds, and indicates a general perception that the time had come for a science of rhythm to be formulated as a theoretical field in its own right. Rhythm was widely conceived to play a major role in a host of natural, social, psychological, and physical processes, and to be a critical component in the

structures of both mind and body, and the ideological uses to which it could conceivably be put were issues of intensive speculation. Because, as Ruckmich puts it, the subject of rhythm is so easily « carried over » from one discipline to the next, rhythm moreover acted precisely as an ideological incubator, able to traverse easily and mutually inform diverse areas of discourse. Historically a unique production of the early twentieth-century machine-age, in which, Ruckmich intimates, it is destined to play a major theoretical role, rhythm was ready by 1913 to become deployed in generative theoretical relationships with/in a significant array of social, political, and scientific discourses. [2]

It is the purpose of this paper to outline and describe a number of these « incubational » relationships as they were articulated from roughly the turn of the century to the late 1930s, with at one point a brief backward look at comments by Richard Wagner and Friedrich Nietzsche. The essay will establish a narrative of incubational links between developments in the study of rhythm in the fields of psychology, physiology, musicology, eugenics, genetics, the science of work, pedagogy, aesthetics, and political propaganda, and will examine how these studies intersect with one another to produce a complex equation involving rhythm, pulse, blood, genetics, music, and the organized modern state and its subjects : after becoming an object of inquiry in psychology, physiology, and musicology early in the century, rhythm is « carried over » into studies of genetics and eugenics, while at the same time playing an important role in theories of work and child-rearing. Ultimately enlisted in Fascist discourse, it is employed as a tool of propaganda for the construction of genetically encoded subject-bodies, as well as the body of the state, itself conceived as a complex array of interpenetrating personal, physiological, biological, racial, industrial, psychological, and historical rhythms. Thus by examining theories of rhythm as they were gradually articulated and as they informed one another in the first half of the twentieth century, we are able to trace an incubational topography, as it were, in the making, and to come to an understanding of the mechanisms by which scientific and theoretical discourses are appropriated for ideological ends.

Several ambiguities inhering in the body of theory assembled here inform the debates surrounding rhythm. In general, rhythm is conceived to be locatable *inside* the personal as well as the social body, where it is figured respectively as pulse and heartbeat (blood), and as the biological, psychological, physiological, and social rhythms (personal tempo, work rhythms, etc.) which make up the body politic. Rhythms may however also be employed *outside* such bodies in the service of marking, inscribing, organizing, and forming subjects, groups, crowds, and states. Rhythm acts as the medium through which communication may be established between such traditionally distinct categories as mind and body, or subject and state, and in fact the effects of physiological, musical, and other *exterior* rhythms on consciousness are central concerns of experiment and theory in early studies of rhythm. Rhythm is ubiquitous as the unheard pulse or unconscious tempo of a body, or (and) it can act as an agent of incubation (colonization) upon or within that body. As Carl Seashore puts it in his chapter on rhythm in *Psychology of Music*, rhythm both « stimulates and lulls, contradictory as this seems » : it paradoxically provokes self-consciousness at the same time that it determines the subject as a coded unit in a *trans-personal* array. In either case, it functions to identify, code, map, and organize body and mind, subject and group. [3]

Rhythm thus acts as the transcendental medium mutually informing sets of contraries, and is a critical integer in the composition of form and identity. In its pulsing, rhythm stimulates movement and a sense of tempo ; in its regularity it promotes senses of stasis and timelessness, recurrence and repetition. It is simultaneously ground, medium, means, and end, a presence at once invisible and inaudible yet structurally the very heart of the phenomenon, or the ghostly presence informing that

heart, which, capable of momentarily surfacing to eye or ear, can be used to reorient the essence of the body, social or personal. Informing time, blood, body, and mind, it becomes a figure for the *Geist* of the people, the invisible current in and through which a sense of identity is established and transmitted. And as the ghost in the engine at the heart of the modern world, rhythm is fundamental to the configurations which structure modernity : it informs the alternating currents of electricity ; pulses through crystals and antennae in the networks of radio ; is audible in the droning of industrial machinery ; is manifest in the fluctuations of production and market in the science of statistical graphing ; and is viscerally evident in the tramp of marching troops. Questions of rhythm dominate the aesthetic debates of the day, particularly those focused in poetics on the issue of free verse, and in music on the nature and value of the works of Modernist composers (Stravinsky, Webern, *et. al.*) and non-European popular music (cf., jazz). It is an incubational phenomenon *par excellence*, acting simultaneously as code and encoder, able at once to dominate and disappear into the body it defines.

The omnipresence of rhythm

Thaddeus Bolton's essay « Rhythm, » published in *The American Journal of Psychology* for January, 1904, marks in many ways the beginning of Anglo-American investigations of rhythm ; it radiates as a point of departure for subsequent studies and is frequently cited in later works from a broad range of disciplines, for the issues Bolton outlines here admirably map the terrain of this newly emerging theoretical *topos*. Bolton's essay marks the first attempt to « regard 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. » The essay goes on to describe the functions of rhythm under a wide range of rubrics, including « Rhythms in Nature, » « Physiological Rhythms, » « Attention and Periodicity, » « Rhythmic Speech, » and « The Emotional Effects of Rhythm upon Savages and Children. » 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, » and even *motion* itself is ultimately reducible to the « periodic recurrence » of rhythm. 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. » The natural world syncopates to mutually informing pulses which interweave the textures of time and space as well as the organisms which inhabit them. [4]

It is upon human consciousness, however, that Bolton finds cosmic rhythms to have left the most profound impressions, for « 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. »[Bolton 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 series, they are deeply embedded in senses of religious and national identity. Both social and a-social behavior are informed by cosmic rhythms : even crime, insanity, and suicide « show a periodicity which corresponds with the year. »[Bolton 148-49.]

The human microcosm also pulses to a variety of rhythms : under « Physiological Rhythms » we find 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, cycles of growth and fatigue, are all fundamentally rhythmical, and « it may be safely said that the nervous action in general, and especially of the lower and vasco-motor centres, is rhythmical. »[Bolton 149-54.] The body as it is formulated here is a complexly linked web of interpenetrating rhythms permeated by and bathed in a larger environment itself saturated in tempos, pulses, cycles, and

periodic sequences.

These physical and physiological rhythms also of course affect the mind, as we learn 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.[Bolton 155.]

Bolton suggests that eventually these « series of pulses » will be measurable into « units of consciousness » ; ultimately, then, the study of rhythm may lead to successful 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 management may be made possible. The phenomenon of « grouping, » as a matter of fact, occurs as the primary function of the periodicity of attention :

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. [5]

The propensity for the attention to group impressions contributes to the most important function of speech (« all vocal utterances are primarily rhythmical »), which is to increase the « mental span » or « the carrying power of the mind » : through rhythmically over-determined speech like poetry, « the mental span may be made to extend itself over a very large number of simple impressions...if intelligible sounds were used and qualitative changes employed, the mental span might be almost indefinitely extended. »[Bolton 156-57.] The presence of rhythms in speech and attention may thus be used to stimulate the conscious evolution of the mind, programs for which will be articulated by theorists down the line.

The political uses of rhythm as an agent of social control are suggested in « The Emotional Effects of Rhythm upon Savages and Children. » Bolton describes the « emotional effect which rhythms produce upon certain classes of people, savages and children, » as made manifest by involuntary muscular reactions :

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 163.]

Several issues raised here will become important for later theories of rhythm as an agent of social and political manipulation : the idea that lower classes of people, uncivilized nations, and children are particularly susceptible to the influence of rhythms will play a large role in theorizations 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 and child-rearing, and will be instrumental in military science and state-building, and the idea that rhythm can alternately stimulate states of ecstasy or catalepsy will contribute to the machinery of Fascist propaganda and formulations of social policy regarding music. 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, »[Bolton 165.] according to Bolton, 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.[Bolton 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.[Bolton 205.]

All natural and psychological phenomena and processes from the smallest of physical units, the microscopic cells in the nerve ends of the body, to the unimaginable temporal cycles of cosmic immensity, and including the very time-space 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 event is knit ; it is at once component and tool, a fact which will eventually generate a virulent species of paranoia : for if bodies are indeed as permeable by and susceptible to alien rhythms as Bolton suggests, to what extent can human agency affect any real control over the body and the rhythms which so dramatically inform its psycho-physical matrix ?

Mapping the rhythmic body

By the time Ruckmich publishes the essay cited earlier (1913), a substantial body of experiment and theory has been generated toward an answer to this question, although the essential nature of rhythm and the range of its effects still remain largely a mystery. Ruckmich cites not only Bolton, but 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 304.] a call which echoes Bolton's and has not as yet been answered, according to Ruckmich, due to « a dearth of analytical observations systematically controlled and obtained from trained and practiced subjects. » Ruckmich subjects the bodies of such subjects, whom he calls « observers, » to intense scrutiny as he tries « to detect, if possible, any movement of exposed parts of the body, or any change in breathing »[*Ibid.*] 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. »[Ruckmich 315.] Again, the nature of human attention is critical to this project, and Ruckmich cites 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 whom 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, » by introducing into the discussion the notion of pleasure. He quotes one « Squire » :

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. [6]

Rhythm is pleasurable because it acts to synchronize the otherwise dissociated organs of the body : a species of harmony is produced which, as it increases in intensity, can inspire ecstatic states, particularly in children. Miner ultimately reduces such pleasure to involuntary muscular tensions and movements which 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 rhythm :

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...[Miner 13.]

Thus the impression of rhythm is a species of illusion cultivated 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.[Miner 19-20.]

Miner exercises 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 the mind projects illusionary constructions of 'groups' onto phenomena. As mental acts torqued by the « perception » of rhythm become automatic, the « economy of attention » is freed and the mind *expands*. Miner echoes the

language of economics here, outlining a kind of capitalism of consciousness : economy is the end of biology, and the ability to perceive rhythmically constitutes the foundation of all human speculation.

The idea that work (biblically, the fundamental condition of human definition) was made possible through the agency of rhythm, is not entirely original with Miner. Karl Bücher's 1896 *Arbeit und Rhythmus* is an exhaustive study of the role of rhythm as the major structural component of human work : rhythm is grounded in the physiology of the human motor and thus fundamentally informs human labor. Although his study concerns itself mainly with the use of singing and other rhythmic accompaniments in the organization of work among primitive « Naturvolker, » Bücher ends his book with a chapter entitled « Rhythm as a Principle of Economic Development » (« Der Rhythmus als Okonomisches Entwicklungsprinzip »), in which he describes the gradual increased complexity of society as a « social evolutionary Process » (« sozialen Evolutionsprozess ») made possible by the development of ever more sophisticated work rhythms : natural rhythm « economically regulates energy needs » and promotes the ever-increasing division of labor without which « our current 'Machine-age' wouldn't have been possible. » [7] For Bücher, the entire domain of work, from the micro-level human body to the macro-level industrial corporation, is structured by the rhythms which fundamentally inform twentieth-century « machine-age » social fabrics, and which facilitate labor like « lubrication keeps the machine going » (« wie das aufgegossene Öl den Gang der Maschine »).[Bücher 422.] By automating labor, rhythm liberates the mind for the more imaginative work of cultural and artistic production.

Bücher complains, however, that industrial machinery alienates human labor because it does not operate at a human tempo ; on the other hand, large-scale, « uniformizing » (« einformige ») work is of « the greatest benefit for a person, so long as he can determine the tempo of his bodily movements » (« Gerade die Einformigkeit der Arbeit ist die grösste Wohltat für den Menschen, so lange er das Tempo seiner Körperbewegung selbst bestimmen und beliebig aufhören kann »).[Ibid.] Bücher looks forward to a time when the rhythms 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.[Bücher 441.]

A proper understanding and use of rhythm, then, may 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 : penetrated and permeated by an environment itself constructed of and saturated in 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.

Bücher's conclusions about the effects of music and rhythm on the bodies of workers undergo experimental testing later in the century. Harry Porter Weld's « An Experimental Study of Musical Enjoyment, » published in *The American Journal of Psychology* in 1912, describes 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 music of different tempos, rhythms, and styles ; Weld 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 his subjects :

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. [8]

We learn 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, Weld's 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 eye-brow ; 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. »[Weld 264.]

Throughout Weld's essay we are thus confronted by the voices of auditors engaged in mapping out the body and the mind as they interact with and in rhythm, which is treated as a lens-like medium through which one can finally accurately survey the human organism. Psycho-physical reactions to rhythm provide a topography of the mind-body complex - rhythm can be used to *sound* literally the body in the same way that an oceanographer uses sonar to chart the hidden topographies 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 it or not.

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 debate during the 'twenties and 'thirties : the titles of two chapters in Charles Diserens's *The Influence of Music on Behaviour*, « The Influence of Music on the Sick, » and « The Influence of Music on Work, » which mention « possible industrial applications, » indicate something of the range of possibilities. [9] 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, » [10] and she concludes that

vocal and instrumental music may be selected that will excite psychological and concomitant cardio-vascular 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.[Hyde 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, »[Hyde 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. 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. »[Hyde 192.] When the terms of the experiment are reversed, however, she finds an opposite set of reactions : exposing her auditors to « the weird war tones and beating of the drum » of an Indian song, she measures powerfully negative physiological reactions in her white subjects, particularly in the women. The males among her « non-sensitive Indian listeners » respond positively, showing increased diastolic blood pressure and electromotive force for a full eight minutes after the performance :

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.[Hyde 193.]

Hyde's project of experimentally determining the effects of musical rhythms on subjects « of different native endowment » implies that the rhythmic topography of individuals from diverse genetic backgrounds and/or opposite sexes 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 : people in different bodies will move, think, feel, and respond differently to rhythmic stimuli.

Hyde's work with music has interesting precursors like Henry Thomas Moore's « The Genetic Aspect of Consonance and Dissonance, » 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* » [11] (emphasis mine), and the idea that musical ability and one's sense of rhythm are genetically inherited is an important issue in studies of rhythm during the thirties. 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 such effects, but « to discover the extent to which musical sensitivity, training, and heredity affect these changes. » [12] 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 unfortunately 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.[Washco 244-45.]

Thus the nature of the rhythm within a particular human being 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 an interest in Washco's work in possible ideological roles for rhythm in social and political policy.

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, collects together essays written between 1898 and 1919 which 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 regulated forms of dance and movement. Like Washco and Weld, Jacques-Dalcroze is interested in the relationship 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.* » [13] The author couches the *raison d'être* for his project in the facts of social trauma and fragmentation in the wake of WWI, and prescribes eurhythmics as « the necessary measure for the safeguarding of our civilisation and our culture... » :

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.[Jacques-Dalcroze viii-ix.]

Eurhythmic training will create human beings in whom the mind and body will be totally integrated, and for whom distinctions between will and action will be nonexistent :

...the ideal education, and that especially to be desired, now that the war is over, is one which will enable our children to subordinate their practical to their mental habits, and to convert their intellectual rhythms, as occasion demands, into physical actions of the same order.... 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 diverse 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'....[Jacques-Dalcroze 309-10.]

Eurhythmics may be employed in the service of healing the mind/body and subject/object schisms fundamental to Western constructions of self ; likewise, 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 subconscious faculties with the fruits of a special culture designed for that purpose.[Jacques-Dalcroze 118.]

The « special culture » that Jacques-Dalcroze envisions making possible involves the fabrication of a new human being in a systematically controlled process of evolution : by objectifying natural rhythms, one may utilize them to automate body and mind, and ultimately fuse them in a single, fully-automated human being, one for whom thought never gets in the way of action, whose body responds immediately to orders, and whose will, intellect, and actions occur simultaneously. The « conscious » and the « sub-conscious » will finally be reunited by 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. »[Jacques-Dalcroze 120.] Rhythm thus not only reintegrates the disintegrated modern human being, but reconnects him 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.[Jacques-Dalcroze 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 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 » ;[Jacques-Dalcroze 320.] 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.[Jacques-Dalcroze 329-30.] « The union of nations, socially so important, should be based on the interchange and balance of temperaments peculiar to the various races. »[Jacques-Dalcroze xiii.]

Jacques-Dalcroze goes on to discuss rhythm in nearly all of its complexities and ramifications : rhythm will be used in the future as a device for crowd control and for animating and uniting masses of people ; the « genius » has a special knack for expressing the soul of a people by « uniting...in a single mighty rhythm the particular rhythms of his contemporaries » ;[Jacques-Dalcroze 183.] rhythm's role in the arts, in education, in politics, and in psychology, and ultimately its status as the basis of all human culture, are explored here. His 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. Jacques-Dalcroze's 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 :

The actual practice of individual rhythm (as also the method adopted for the purpose) is more than a pedagogic system. 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.[Jacques-Dalcroze 118-20.]

German incubations : Nietzsche, Wagner, Spengler, Jung

When we turn to the german world we find a number of incubational theories of rhythm, torqued around issues of race, language, soil, blood, poetry and music, in place long before the National Socialist decades. The nature of rhythm in language is particularly the focal point for an ideologized discourse of racial politics : 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. [14]

These racial linguistic rhythms further 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 »[Nietzsche 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 thought, of a race. Nowhere is this made more clear 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. » [15] Inhabiting alien soil and speaking an alien language because they

themselves have no national ground, Jews have lost all sense of 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.[Wagner 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 incapable 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 solitarily with his Jehova in a splintered, soiless 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.[Wagner 51-52.]

By the mid-nineteenth century, then, the notion that racial rhythms permeate and inform language, thought, and music, is present in theoretical discourse.

According to Oswald Spengler, it is precisely such psycho-physical rhythms which distinguish one race from another and account for differences in cultural production which 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. [16]

Spengler grounds racial difference in the « accent » in blood ; cultural production and even private life pulse to the rhythms of the bodies 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 collective *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 W. B. Yeats and Erza Pound.

Finally, C. G. 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 psycho-social « 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. [17]

Due merely to proximity to 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. Americans not only look different than their old world forefathers, but laugh, walk, and talk like the « coloured » peoples among whom they live : « Thus the American presents a strange picture : a European with Negro behaviour and an Indian soul. »[Jung 49.] According to Jung, « the inferior man has a tremendous pull because he fascinates the inferior layers of our psyche » ;[Jung 508.] perhaps the most dramatic consequence of « going black » is « the American sex problem...a marked tendency to promiscuity. »[Jung 506.] Critical is the notion that this « contagion » occurs insidiously, at an unconscious level :

But the defences 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.[Jung 508.]

Because the infection occurs at an unconscious level, it is precisely the rhythms - psychological, physiological, linguistic, and musical, of the coloured man which 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....[Jung 508-09.]

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 psycho-social fabric of white America as an insidious obsession which surfaces literally as a species of speech impediment : the black man is felt as a presence in the unconscious which declares itself in instances of classical Freudian slip (page). This slippage occurs however not just in speech acts, but indeed preoccupies the entire psycho-physical matrix of the white American, who is an European with a stutter not just in his tongue : according to Jung, both the body and the mind of the American stammer to produce the « strange picture » of an European who has been occupied by an alien rhythm.

Rhythm and/as ideology : Germany in the 1930s

When we turn to texts and statements generated in Nazi Germany, we find the conceptions of rhythm catalogued above 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 thirties and early forties is well documented : [18] entirely racialized under the Nazis, all forms, types, and 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 applied to the peoples with whom they were associated. 'Jewish' and 'Negro' music 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 410.]

Fears of an « irruption of alien rhythm » resonate with Jung's conception of American racial

contamination brought on by exposure to Negro rhythms, and 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 419.] Goebbels writes as if people hear music with their circulatory systems : when listening to Wagner, « you feel the stimulation in your *blood*. » [19] 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.[Grunberger 420.] According to Josef Skvorecky, « a set of regulations which were binding for all dance orchestras » was issued by one Gauleiter, who paid special attention to questions of rhythm :

...as to tempo, preference is also to be given to brisk compositions over slow ones (so called blues) ; however, the pace must not exceed a certain degree of allegro, commensurate with the Aryan sense of discipline and moderation. On no account will Negroid excesses in tempo (so-called hot jazz) or in solo performances (so-called breaks) be tolerated ; so-called jazz compositions may contain at most 10 percent syncopation ; the remainder must consist of a natural legato movement devoid of the hysterical rhythmic reverses characteristic of the music of the barbarian races and conducive to dark instincts alien to the German people (so-called riffs).... [20]

While alien rhythms are conducive to hysteria and immoderation and stimulate dark instincts, Aryan rhythms 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*. [Grunberger 386.]

German work in the psychology of rhythm during the period just prior to the Nazi takeover was also torqued 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. » [21] Personal tempos totally inform the psycho-physical 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 which 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. [Frischeisen-Köhler 302.]

Like Hyde's work on music and blood-pressure, Frischeisen-Kohler's essay proposes that psycho-physical rhythms are indicators of fundamental racial difference and act as the unconscious medium through which one recognizes another as « sympathetic » or reacts to him or her as « abhorrent. » « Naturally, » individuals with similar tempos find one another compatible, but, in the language of Spengler, « when our rhythm is juxtaposed with that of an alien life, we find the discordance intolerable. »[Spengler 228.] A 'scientific' apparatus for justifying the segregation of ethnic groups based on genetically determined racial rhythms is thus firmly in place by the early 1930s.

Rhythm and the construction of the fascist subject

In « Rhythmische Erziehung, » an essay published in *Musik Im Volk* in 1944, D^r. 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 pedagogical methodology : grounding his work firmly 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. [22]

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. »[Twittenhoff 317.] Instruction in keeping simple rhythms serves as the foundation for an education torqued 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.[Twittenhoff 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.[Twittenhoff 321.]

The human pulse, then, acts as the punctuation which 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 ultimately an organically 'natural' social body.

Rhythmical gymnastics will be especially important for training young women in the Bund Deutscher Madchen,[Twittenhoff 319.] and for the development of new social dances ; since the last 2000 years have been philosophically unfriendly ['feindlich'] to the body, the goal of rhythmic education will be to reintegrate body, soul, and spirit into an organic unity ['die organische Einheit von Leib, Seele und Geist'].[Twittenhoff 320.] The folk dances of the Alpenlander may serve as models for the new dance, although exporting them indiscriminately from their native region would only produce a miserable caricature ['Es wurde dabei nur ein jammerliches Zerrbild entstehen'] :[Twittenhoff 326.] national rhythms are thus firmly grounded in both the blood and 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 ['deutlich'] : once children learn to clap out simple rhythms, songs like « Karl will nichts tragen, der faule Wicht,/Haut ihm den Buckel voll ! dann streikt er nicht »[Twittenhoff 322.] ['Karl doesn't want to work, the lazy tyke,/ Knock him on the knob ! then he won't strike'] may be easily learned. Twittenhoff ends his essay with a paeon to rhythm, which at once loosens and disciplines the powers of the soul ['Lockerung und Disziplinierung der seelischen Krafte zugleich !'], and which, inhabiting a psycho-physical no-man's land, 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.[Twittenhoff 327.]

The study of rhythm thus informed a variety of discourses in the early twentieth century, and indeed threatened at several points to become a theoretical field in its own right. Since, as it was formulated at the time, the perception of rhythm was at its simplest the perception of any systematic arrangement of repetitive units or elements in time or space, rhythm could indeed be found anywhere, could inform any temporal or spatial phenomena : rhythm was understood to inhabit simultaneously the human being and the natural world, the mind and the body, aesthetics and technology, cosmic and microscopic phenomena, and indeed, to structure fundamentally reality in any and all of its manifestations. Several issues became pressing theoretical questions, and ultimately contributed to Fascist ideology and political practice : do different human bodies have different 'natural' rhythms ? Are there racial metabolisms ? Can rhythms be used to stimulate bodies, either positively or negatively ? Are racial rhythms manifest in pulse rates ; are they thus involved in the mystique of blood ? How do physiological rhythms inform the mind : what exactly is the nature of the relationship between the involuntary twitching of a muscle when stimulated by rhythm and what Bolton calls the 'units of attention' ? Can one alternately shape or disfigure a body or a state or a nation by exposing it to rhythm ? The capacity of rhythm to effect a totalitarian permeation of territory resonates with the Fascist program ; rhythm indeed *occupies* organisms, and in fact preoccupies them in that it inheres in them a priori, - as a necessary formal component - and in fact structures, interweaves, and organizes them in time and space. But it may also be used as a colonizing or otherwise invasive force upon them, in which case rhythm preoccupies the organism by hypnotizing or automatizing it. Whether it be unconscious, invisible, inaudible, situated entirely below the threshold of consciousness, or visually and audibly the most conspicuous factor in an incursionary maneuver within the borders of the sensory field, rhythm functions primarily as an agent of occupation, and hence as a powerful ideological incubator.

Establishing the unity of body, soul, and spirit, the so-called « Unity of Being, » through the agency

of rhythms is also, according to William Butler Yeats, the central project of modern poetry, and the extent to which theories and ideas of rhythm catalogued in the forgoing pages are either directly deployed in or otherwise parallel the metrical practices of modern poets, like Yeats and Pound, for whom poetry has an explicitly political function, and who indeed affiliated themselves at different times with Fascist organizations, is an issue beyond the scope of the present essay, but one which deserves critical attention. The scattered comments in Yeats's prose writings regarding poetic rhythm, his conception of history as a series of rhythmical gyres, the fact that he wrote marching songs for the Irish Blueshirts, and the highly systematic rhythms of his own poems, all suggest that Yeats developed a program for rhythm that in crucial ways matches those of the theorists before him. Poetry is, after all, that species of writing in which rhythm plays the most critical role - although the exact nature of that role in an overtly political poetry remains to be articulated.

Notes

[1] Christian A. Ruckmich, « The Role of Kinaesthesia in the Perception of Rhythm, » *The American Journal of Psychology* XXIV. 3 (July, 1913) : 304.

[2] It is important to point out here that, as far as my research shows, *no complete study of rhythm* was ever made during the period in question ; the subject as such was never officially articulated or codified. Rather, one finds issues of rhythm informing, to varying degrees, a significant number of discourses at different moments during the first half of the century : this paper represents an initial attempt to collate, chart, and analyze such moments. As far as statistics go, the issue is nearly omnipresent : the question is, to what extent was rhythm a floating field, so to speak, mutually informing a variety of disciplines ? And what were the mechanisms by which rhythm was « carried over » from one discourse to the next ?

[3] Carl Seashore, *Psychology of Music* (New York : McGraw-Hill Book Co., Inc., 1938) 142. See especially « What Rhythm Does. »

[4] Thaddeus L. Bolton, « Rhythm, » *The American Journal of Psychology* VI. 2 (Jan. 1894) : 146-47. On trouvera ce texte [ici](#).

[5] Bolton, quoted in Swindle, P. F., « On the Inheritance of Rhythm, » *The American Journal of Psychology* XXIV. 1 : 183-84.

[6] James Burt Miner, « Motor, Visual, and Applied Rhythms, » *The American Journal of Psychology*, V. 4 (June, 1903) : 20.

[7] Karl Bücher, *Arbeit und Rhythmus* (Leipzig und Berlin : B. G. Teubner, 1909) 414. All translations from Bücher are mine. (Special thanks to Georg Rast.)

[8] Henry Porter Weld, « An Experimental Study of Musical Enjoyment, » *The American Journal of Psychology*, XXIII. 23 (January, 1912) : 208.

[9] Charles Diserens, *The Influence of Music on Behaviour* (Princeton : Princeton University Press, 1926) 122.

[10] Ida Hyde, « Effects of Music Upon Electro-Cardiograms and Blood Pressure, » *The Effects of Music*, ed. Max Schoen (London : Kegan Paul, Trench, Trubner & Co., Ltd., 1927) 184.

- [11] Henry Thomas Moore, « The Genetic Aspect of Consonance and Disonance, » *The Psychological Monographs*, Whole No. 73 (September, 1914) 20.
- [12] Alec Washco, « The Effects of Music Upon Pulse Rate, Blood-Pressure and Mental Imagery, » diss., Temple University, Philadelphia, 1933, 5.
- [13] Emile Jacques-Dalcroze, *Rhythm, Music, and Education*, tr. Harold F. Rubinstein (New York and London : G. P. Putnam's Sons, 1921) 265.
- [14] Friedrich Nietzsche, « Beyond Good and Evil, » *The Basic Writings of Friedrich Nietzsche*, tr. Walter Kaufmann (Modern Library : New York, 1968) 230.
- [15] Richard Wagner, *Wagner on Music and Drama*, ed. Albert Goldman and Evert Sprinchorn, tr. H. Ashton Ellis (New York : E. P. Dutton & Co., Inc., 1964) 59.
- [16] Oswald Spengler, *Decline of the West*, 2 vols., tr. Charles Francis Atkinson (New York : Alfred A. Knopf, 1926)1 : 228.
- [17] Carl Jung, *Civilization in Transition*, tr. R. F. C. Hull (London : Routledge & Kegan Paul, 1964) 46.
- [18] See Richard Grunberger, *A Social History of the Third Reich* (London : Wiedenfeld and Nicolson, 1971)
- [19] Quoted in Arnold Perris, *Music and Propaganda* (Connecticut : Greenwood Press, 1985) 55.
- [20] Josef Skvorecky, *The Bass Saxophone*, tr. Kaca Poladkova-Henley (New York : Alfred A. Knopf, 1979) 8-9.
- [21] Ida Frischeisen-Köhler, « The Personal Tempo and its Inheritance, » *Character and Personality*, I.4 (June, 1933) : 301.
- [22] Wilhelm Twittenhoff, « Rhythmische Erziehung, » *Musik im Volk*, ed. Wolfgang Stumme (Berlin-Lichterfelde : Friedrich Vieweg, 1944) 315. All translations from Twittenhoff are mine. (Special thanks to Georg Rast.)