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ALAN LOMAX

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When you are concerned with aesthetics, with images of beauty, you are always exploring. You're always remaking them, adding to them. They are basically slow-growing things, like plants, and the explosions are rare, but so far as man's mind is concerned, this is all part of the system. —Alan Lomax, 1975

In the mid-1950s Alan Lomax threw himself into highly experimental research on expressive culture. He surmised that folk song styles vary with geography, culture, and history, an idea that germinated in the 1940s and further crystallized during a period of fieldwork in Spain and Italy, where he observed relationships between vocal tension and socioeconomic and severe codes of sexual conduct. "The development of modern recording machines and their use by researchers in many parts of the planet have indicated the existence of a number of styles of song in the world," he wrote in 1957. "These song style families are very old, very slow to change and are continental in their extension. Under the term song style one includes not only melody, rhythm, harmony, etc. — the formal musical characteristics — but the tone of voice, the motor behavior, the social organization, the audience response and the inherent emotions that produce the musical whole." To test these propositions, Lomax and a number of colleagues developed standardized methods of measuring and analyzing music, dance, and conversation that resulted in a unique interpretation of world performance traditions. The Cross-Cultural Survey of Expressive Style, as their project was called, was sponsored by Columbia University from 1962 to 1982 and Hunter College from 1983–1995.

Groundwork

The scientific, comparative musicology of Curt Sachs, George Herzog, and Charles Seeger provided the earliest stimulus for Lomax's ideas. Lomax's original interest in style was predisposed by his studies with Sachs and Herzog, which allowed him to frame the observations he was making in the field concerning the distinctive emotional cast of folk singing among blacks and whites and in different regions of the United States. Oriented by the ideas of Marx and Freud and by the great European and American social realist novelists of the nineteenth and twentieth centuries — Eliot, Dickens, Balzac, Zola, Dostoyevsky, Lawrence, Dreiser, Lewis, Steinbeck, Wright, etc. — Lomax construed the salient emotional qualities embodied in song as arising from the fundamental relations of production and the everyday experience of work, the division of labor and consequent status of women on the one hand, and from child rearing and the relative restrictiveness of sexual codes on the other. These, he postulated, found their unconscious expression in vocal delivery and the very facial expressions and postures of singers. Building on earlier work by James Francis Child, Cecil Sharp, Melville Herskovits, John A. Lomax, and Bertrand Bronson, he began to see these distinctive patterns as the substance of regionally based historic traditions transplanted from Africa, the Caribbean, and the British Isles, maintaining their core integrity yet merging as catalyzing cultural forces in the Americas.

In 1945 Lomax had written to the Guggenheim Foundation to propose a study of how the study of folklore might become a "useful and purposeful social instrument" as well as a sophisticated science. At this time he had the full support of leading people in the field, who regarded him as "a master of the *science* of folklore as well as a noted collector" (Thompson 1946). Claude Levi Strauss met Lomax at the New School in the 1940s and on his return to Paris and the Musée de l'Homme, told his colleague and friend, musicologist Gilbert Rouget, "He is someone you must know. He is may be the most important person in this field" (Rouget 2008).

In the 1950s Lomax's horizons expanded to encompass European fieldwork and world music. Stimulated by his epistolary exchanges with Charles Seeger (who was himself attempting to create a scientific musicology) and his readings of Darwin and the Central European ethologists, he began to envisage a natural history of world song based on a systematic description of its stylistic framework.

Lomax's first writings on the subject, "Folk Song Style: Notes on a Systematic

Approach to the Study of Folk Music," (*International Folk Music Journal* 1956) and "Nuova ipotesi sul canto folkloristico italiano" (*Nuovi Argomenti* 1956) compared vocal qualities in African American and Southern white singing, and in Mediterranean versus "Old European" traditions in Spain and Italy. Even at this stage, a preliminary classification of world folk song singled out Bushman and Pygmy singing, whose interlocking hocketing and yodeling, Lomax suggested, represented the earliest exemplars of human music making with traces in the Andamans, Tribal India, Malaysia, and Afro-America. As early as 1958, his ideas captured the interest of Margaret Mead and two years later of another Columbia University anthropologist, Conrad Arensberg, who became in 1962 co-principal investigator of the performance style research project at Columbia, and its principal sociological advisor.

Arensberg was known as a founder of Europeanist and applied anthropology and for his groundbreaking ethnographic and theoretical work on communities in complex societies. Based on his early work with Eliot Chapple (Chapple and Arensberg 1940) on measuring interaction (a term coined by Chapple) in the workplace, he enunciated a theory of culture as emergent from recurring patterns of behavior and of the generative function of interpersonal interaction in the formation and evolution of roles, organizations, and social structures (Arensberg 1972). Arensberg played a fundamental role in the scientific formation of the project over its lifetime. He articulated the connections between performance style theory and contemporary work on cultural evolution and cultural ecology by Elman Service, Leslie White, Julian Steward, Marshall Sahlins, Roy Rappoport, and Marvin Harris (Lomax and Arensberg 1980: 660). It was his view that the project extended the Durkheimian theory of culture as symbolic behavior, especially as later developed by White and Nadel, arguing that it gave their different but complementary models concrete expression and form through the application of communications theory to the expressive arts (Arensberg 1968: 306-7).

Crucial to the maturation of Lomax's theory were several emerging lines of research into nonverbal communication coming out of linguistics, sociology, anthropology, and psychology in the 1950s and early '60s, fundamentally indebted to Darwin's *The Expression of the Emotions in Man and Animals*. Lomax's interest in the distribution of vowel sounds in folk song was seconded by George Trager, who had been working with Henry Lee Smith on extra-linguistic communications. In 1960-61 Lomax studied with Trager at Buffalo on an ACLS fellowship, and with Raymond Birdwhistell at the Eastern Pennsylvania Psychiatric Institute. Birdwhistell, who had a profound effect on Lomax, had learned how to distinguish and decode the interpersonal content of body language through the frame-by-frame analysis of filmed conversation, a science he called kinesics. Birdwhistell's methodology also influenced the development of Choreometrics just a few years later, as Trager's did Parlometrics. Similarly influential was the work of W. S. Condon on synchrony in conversation, that of Albert Schefflen on posture in conversation and that of Edward T. Hall on proxemics — the use of space as an aspect of culture. Likewise drawn to the work of Konrad Lorenz, Lomax continued to mine this rich vein through interviews and correspondence with Adam Kendon, Michael Chance, I. Eibl-Eibesfeld, and other ethologists.

He was also in close touch with Margaret Mead and her collaborators, including ethnographic photographer Paul Byers, whose investigations of cultural behavior through the medium of photography and film complemented his own method of employing sound recordings and film as primary data.

Trager and Smith's meta-linguistics work also converged with Lomax's on voice qualities, and rekindled his interest in more precisely measuring and comparing these. In the early days of the project Lomax had anticipated using elaborate laboratory technologies for the precise measurement of musical traits, proposing the use of graphs of melody, attack, release, and ornamentation; the analysis of pitch analysis and vocal blend; the photographic study of facial expression, body position, throat tension, and body movement "to arrive at a visual cartoon of the typical singer"; the use of tiny microphones attached to various parts of the body to record the physiology of vocal production; the use of a double oscillograph to study the mode of vocal production ("the investigator must attempt to imitate the precise character of each song style, measuring his success with the oscillograph, and then describe his experience in vocal production"); use of the cardiograph and other diagnostic instruments to measure heart beat, breath, and other physiological phenomena attendant on the physical and emotional tension of singing.

In the summer of 1961 Lomax made sonographs of music samples using a "visible speech" machine at Purdue University, rating these for various voice qualities with a coding method that was preliminary to the system developed for Cantometrics. Later, introduced to the spectrograph by linguist Henry Truby, he again experimented with technology for measuring vocal qualities, but ultimately concluded that for the purpose of gauging such characteristics, understood as signals within the communications stream, the human ear was the ideal instrument. Laying aside the costlier measurement techniques, he focused on standardized methods of codifying variables adapted for the diagnosis of singing, dancing, speaking breathing rates, vowel preferences, etc. Over the years Lomax continued to explore the psychology and physiology of singing in interviews and correspondence with psychoanalyst Paul Moses

(*The Voice of Neurosis*), Viennese otolaryngologist, Dr. Godfrey Arnold, speech scientist Theodore D. Hanley, Dr. M. I. Cohen, specialist in human respiratory cycles, among others.

The Concept of Style

In the mid-1950s Lomax tested a comprehensive theory of folk song style, whose propositions he later set out to investigate and refine in a concerted program of research, extending them to dance and conversational styles. In a personal letter written in 1954, he laid out his main ideas:

Theorem 1: Musical style represents the principal emotional patterns of a society as they come to bear upon the life of the individual. Since every choice is at bottom an aesthetic and an emotional one, music might give us the cues to the real wellsprings of choice.

Theorem 2: Musical style changes only when the most important social and economic patterns change, thus completely alter the emotional patterns of a society. (That musical styles change only very slowly is an observation I have made along with other scientists. There seem to be only 8-10 main musical styles on earth).

Theorem 3: Musical style, therefore, stands for certain formative, aesthetic processes that operate in human society over long periods of time, in parallel with economic forces.

Conclusion: When we have described the musical styles of humanity and with their families and sub-families, we shall have the principal formative aesthetic currents of human history finally in our view (Lomax 1954a).

In Lomax's formulation, expressive style is principally anchored in the following features:

1. Universality of traits, including the way the voice is produced and the way the song is dramatized; the composition of the singing group; the degree of cooperation involved in making music; body attitude and facial expression; instrumentation; performance circumstances and function; in dance, they are the geometry of movement, the locus of movement (trunk or legs and feet); the deployment of feet (step) in movement; speed and acceleration; choreography; symbolism of costume, etc.

2. Familiarity, through the common arrangement of these features by culture. "Taken altogether, these characteristics symbolize for the singer and his audience the very essence of the place of their origin and the sum total of the emotional tone of their culture. As soon as a singer opens his mouth, as soon as the familiar tone complex registers with the listener, [they] grow easy and comfortable, he is latched in the familiar feeling tone of his society, he is reminded of the most intimate experiences of his family life, his courtship, his childhood, etc. Not all of these emotions and experiences may be pleasant...but still they are familiar" (Lomax 1954b).

3. Redundancy. The stylistic method looks at the standardized behavior in performance, at the traits that are prominent and occur frequently in a culture's performances. "This repetitive structure is the logical place to look for the general cultural biases which both the performers and their audiences share. They define the style that makes the performance more or less acceptable to an audience. They also provide the framework round which the performers coordinate their activity" (1976: 3).

4. Stability: "Song style seems to be one of the least changeful of culture traits, outlasting language, and religion, perhaps even social structure — enduring over centuries and millennia and, apparently, spreading from continent to continent" (Lomax 1954b). Lomax later conjoined the notions of redundancy and stability in performance and Raymond Birdwhistell's observations of the "systems maintaining framework" in conversation, the formal and recurrent aspect of the communications stream, noting that the "how" (style) is the more constant and more prominent aspect of the sung (danced, spoken) communication than the "what" (e.g., text, melody, ascribed meaning and function and other emic aspects, etc.), which is flexible, variable and innovative.

5. Geographic clustering of regularly co-occurring traits: "Each branch of the human race has specialized in one or another or a mixture of these sounds in their music" (Lomax 1954a), and "There seem to be eight to ten big folk song style families in the world, each one of which has been in existence for a very long time, each one of which has, at points, crossed with other families or produced substyles in great proliferation" (Lomax 1954b). Elsewhere he names these: Eurasian; old Eurasian (Wales, Brittany, northern Spain and Italy, parts of Central and S.E. Europe, Central Asia); Siberian-Amerindian; Pigmy; sub-Saharan African; Australian; Melanesian; and Polynesian (Lomax 1956). Lomax theorized that style was associated with the first and earliest distributions of mankind across the earth, and that stylistic complexes and their markers (one or a few distinctive traits) are predictors of cultural traditions.

6. Implicit in the stylistic method was a focus on traditional forms and older types. Though he later applied it to popular music and dance, Lomax felt that this approach would yield the clearest blueprint of the human story as reflected in the expressive arts, and would thereby provide a baseline for studying cultural change. "The dynamic character of musical style," he noted (c. 1961: "is particularly in evidence in moments of cultural contact or acculturation, and this theory [of style] is particularly useful in the analysis of hybrid musical forms."

Lomax conjectured that expressive style is a primary agent of cultural expression and transmission, before and beneath the level of language. "A folk song style is the sum of all the social, psychological, and physiological, as well as the purely formal musical patterns of any given culture," Lomax wrote in the early stages of his work on the Cantometrics coding system. "Its fundamental diagnostic traits appear to be vocal quality (color, timbre, normal pitch, attack, type of melodic ornamentation, etc.) and the degree in which song is normally monodic or polyphonic. The determinative socio-psychological factors seem to be . . . the type of social organization, the pattern of erotic life, and the treatment of children.... I myself believe that the voice quality is the root [diagnostic] element. From this socio-psychological complex there seem to arise a complex of habitual musical practices which we call musical style" (Lomax c. 1961: 1).

This formulation of style was rooted in a synthesis of historical materialism and structural formalism with psychoanalysis and the ethnography of human emotions. Psychoanalysis, as a theory of the unconscious molded by the experiences of childhood, and as a lifelong journey taken by Lomax himself, was of profound significance throughout all of his work and is reflected in his several biographies of singers. The anthropology of emotions did not yet exist as a field of study, but was prefigured by the culture and personality school of anthropology, and most significantly for performance style theory, by Margaret Mead's comparative work on cultural transmission through socialization in behavioral and communicational terms. This tied in with the Yale-Pittsburgh cross-cultural studies of infant nurture and child socialization, against which performance variables were later tested (see below and Ethnographic Matrix). Lomax believed that the unconscious matter of song style was also personified in great artists and could be got at with psychoanalytic techniques: "The main themes of the songs should be related to the fantasy and dream patterns of the individual artist . . . who, since they are artists, can afford great insight into the generalized emotional patterns of their groups." (Lomax c. 1961: 3) Erik H. Erikson's biographical and clinical studies of the interplay between social history and the formation of personality and *Black Anger* (Wulf Sachs 1947), an African psychoanalytic biography, were extremely influential in this vein.

The psychological underpinnings of Lomax's theory of style are clearly stated here: "The main function of musical style seems to be to reestablish for the individual [our italics] the familiar social and psychological climate into which he was born, raised and seeks to express himself" (Lomax c. 1961: 3). The way in which this idea found expression in Lomax's research was partly modeled on the Russian formalist Vladimir Propp's Russian analysis of the structure of folk tales, which applied a complex system of thematic analysis to arrive at the story beneath the stories — the drama of childhood survival and successful maturation in preindustrial Europe. Like the analysis of expressive style, Propp's work can be employed to penetrate the salient psychosocial tensions that arise in connection with strategic domains and passages of life and are played out tirelessly in familiar symbolic formulae. "In other words," Lomax explains, "song style is the formal elaboration of some instinctive and universally human mode of dramatizing or exteriorizing human feelings. Each song style is dominated by one or the other of these patterns."

The sense that the self is forged by socioeconomic interaction was at the core of a scientific, empirical view of human nature summed up by Marx when he said, "The essence of man is not abstract, inherent in a specific individual. In its reality it is the totality of all social relations." (*Works*, v. 3, p.3, 1845) Over the last two centuries, the myriad ways in which this was directly experienced and filtered through childhood experience was explored in depth and detail for all classes of society in the European realist novel, as its principal concern. Transposing such observations into the realm of expressive behavior, Lomax had written, "The mood of family relationships, of erotic life, of competition and cooperation, of economic problems, of work patterns are immediately symbolized to become the overall product of the song style." By the same token, he postulated that the "systems maintaining" framework of style had to be absorbed early in the growth cycle through socialization, "The patterns it shows correspond to formative emotional patterns which shape relationships and [other] modalities in the whole culture" (Lomax c. 1961).

If style is culturally formed, its analysis is not the psychologist's or structuralist's search for universals. "Its repetitive structure is the logical place to look for the general cultural biases which both the performers and their audiences share. They define the style that makes the performance more or less acceptable to an audience. Fundamentally, singing and dancing are social and communicative acts, "occurring as public ritual, or as a rehearsal or recollection of it" even when performed in solitude

(Lomax 1976: 3). Their repetitiousness and their synchronizing and coordinating functions make them powerful mediums of communication within and between groups. Expected and instantaneously recognizable, style is the familiar pathway along which shared patterns of experience and emotion may travel between participants in the performance ritual — the click. "The listener participant, experiencing the given sound pattern, immediately experiences a sense of security, immediately enters into the pattern of inner emotional tension typical of his culture and experiences a pleasurable sensation . . . This is the basis of the musical experience. The psychological aspects of the study should concern itself with these matters" (Lomax c. 1961: 2–3).

Methodological Development

In the mid-1950s Lomax contemplated the methods he would later use to explore performance as a complex of psycho-physiological, psycho-social, as well as aesthetic, behaviors, i.e.: 1) the "objective" and comparative analysis of musical characteristics; 2) thematic and narrative analysis of the literary texts accompanying a musical style; 3) the study of "social and psychological forces coming to bear on the life of the individual singer or listener. Since song principally relates to inner emotional experience, the main patterns of childhood, sexual love, [economic] security, and religion need to be studied in the most general — cartoon — terms." Lomax felt that best means for arriving at "inner emotional experience" — was through the life histories of singers "in which social facts occur in close conjunction with the song texts."

It was Lomax and Arensberg's project to operationalize these ideas, and it was from paralinguistic, kinesic, neuropsychiatric, and minimal sequence studies of interpersonal interaction and synchrony that their basic methodology was derived. Through microanalysis of filmed conversation, Birdwhistell had found that most conversation consists of signals being exchanged about age, sex role, status, background, dialect, and cultural membership. "Birdwhistell was the first to point out that the major component in communication...is not the new information conveyed (the fresh combination of words), but the stream of communication itself." This "systems maintaining framework" — the formal, repetitive structure of interpersonal interaction — corresponded to redundancy and stability in performance, in which the "how" (style) is the more stable and constant aspect. With Arensberg, an early student of interaction, Lomax worked out the notion of performance as non-verbal expressive behavior symbolizing key patterns of co-action in everyday life, with which concerted research on folk song style began.

In Arensberg's theory of "minimal sequence process modeling" (Arensberg 1972), which attempts to explain cultural behavior through the discrimination, measurement, and sequencing of interpersonal interactions, both performing and non-performing customary social acts can be treated as parallel interpersonal behaviors. Work in paralinguistics and kinesics demonstrated that discrete levels in communication are synchronous and bear a complementary relationship to one another. Lomax and Arensberg brought this discovery to bear on the study of performance, predicting that they would find similarities between the expressive and the cultural realms. "The assumption that gives significance to these relationships ...is that every cultural system has an internal congruence reflected in its expressive and communications systems." That is, congruence of function — distinctive ways of handling organization, energy, space, force, timing, sequence, dominance, and gender in different environments — can be shown to link behaviors of different classes. "The novelty of our procedure is that by describing both singing and non-singing customs in terms of interpersonal behavior, we were enabled to perceive an identification of their common forms" (Arensberg 1968: 121). Thus style analysis affords a method of operationalizing theorized connections between the artistic and the social, between one expressive system and another. Since in expressive behavior such phenomena were believed to be quite stable, it was surmised that they arose in connection with older modes of human adaptation.

How to apply such insights nomothetically to a range of cultural types and expressive traditions? Lomax thought that fluctuations in performance style across cultures signaled specific ranges of response to the human condition. Again, "[Since] similarity of pattern can be shown to link culture traits of quite different content and a search can be conducted for the correlates of the personal and interpersonal production of song style which correspond point by point with those of non-singing customs, those of singing can also be compared and connected.... Thus, for example, if the structure of one's society is one of command and deference, of waiting and obedience before royal pomp and decision, does the style of one's songs show similar patterning of human relationships?" (Arensberg 1968: 120-121). Commencing with this question, the joint product of their separate backgrounds, Lomax and Arensberg attempted to discover predictable relationships between the stylized representation of feelings in expressive style and specific domains of socioeconomic life. Their approach was to confront the data of performance with consistent ethnographic evidence from societies in all world regions. This was primarily to be found in cross-cultural studies of subsistence, work teams and kinship, the role of women in production, male dominance, premarital sexual codes, social stratification, political structure, and nutrition (See Ethnographic Framework, below).

Research Program

In 1962 the performance style project moved to an institutional setting within Columbia University's Bureau of Applied Social Research and Department of Anthropology, where it remained for two decades, directed by Lomax and Arensberg. From the outset their approach was fully interdisciplinary, tackling different modes of expressive culture using the same methodologies, integrating data and analysis in whatever ways seemed feasible and potentially fruitful. Working with disciplinary specialists, ethnologists, statisticians, and a computer programmer, they quickly developed methods for describing, comparing, and classifying expressive style, and deployed them in nine related studies. In rough order of commencement, these were: voice qualities (1955–1962; 1964–1966), Cantometrics (1956–1995), Phonotactics (1961, 1964 and forward), instruments and orchestration (1963–1977, 1984), folk song texts (1965–1966), Choreometrics (1965–1994), Minutage (1966–1972), Parlametrics (1971–1972), and American pop (The Urban Strain, 1984–1985).

They also made several correlational studies of style and social factors such as leadership, women's roles in subsistence activities, premarital sex codes, and male dominance, as well as a taxonomic analysis of culture according to subsistence type. It was an ambitious experiment, and as a piece of cross-cultural research embracing broad temporal, spatial, and historical discontinuities, it presented significant methodological challenges.

These inquiries tackled the same core concept of expressive behavior (performance) as the communicational spine of culture, applying similar analytic tools to different sources of data, as well as the converse. The results were tested against geographic and sociological factors, which produced new associations and hypotheses to be investigated. This layered, multifaceted process of drilling down from high generality to the particular and back again produced a pyramid of hypotheses of increasing specificity and concurrence with other findings. The research operations were guided by the broad hypotheses given above (see Concept of Style), and by a number of questions and testable observations specific to each sphere of expressive behavior to be investigated.

A preliminary set of descriptive variables and a rating system, applicable to the data and diagnostic of broad intercultural distinctions, were then developed based on a limited world sample of recorded and filmed performances. Coded data was provisionally analyzed by sorting, rough comparison, and hand-drawn diagrams, which produced trial geographies of style, led to alterations in the variables and scales, and revealed gaps in the sample.

Data samples were then enlarged and adapted to conform to the regional distributions of cultures in the Standard Cross-Cultural Sample in the *Ethnographic Atlas* (see below). More restricted samples partly based on random selection were created for verification purposes, and also for specific correlational tests. Modal style profiles of cultures within sampling provinces, areas, and world regions were produced using computerized statistical methods. (All computerized statistical programs were written from scratch and customized for the project.) The coded samples were then subjected to several types of factor analysis, which produced geographically based clusters and taxonomies, clusters of stylistic variables, and correlations between ethnographic and stylistic variables and tendencies, as well as between different performance style datasets. Examination of these associations led to more extended lines of inquiry.

In each case, Lomax teamed up with one or more specialists to create and test a diagnostic and rating system, collect and code a sample, analyze the coded data, and collaborate in the interpretation and write-up of results. Throughout, Conrad Arensberg's role was to provide, as he put it, "a steady outpouring of knowledge of scientific method and of ethnographic detail of many peoples and places" (Arensberg 1968: 303). Anthropologists Barbara Ayres and Edwin Erickson developed cross-cultural samples, worked with programmer Norman Berkowitz on statistical design, and tested ethnographic and performance variables for relationships between them.

The performance style studies overlapped or proceeded simultaneously. At the same time, Lomax was still making LPs based on his 1959 and 1960 revisits to the South, undertaking new field and archival research in the Eastern Caribbean, the Soviet Union, Morocco, and the Dominican Republic. He was active in the Civil Rights and black identity movements, and throughout the 1960s, '70s, and '80s produced articles, teaching materials, and radio and television programs attempting to influence public policy on the arts.

In 1958 Walter Goldschmidt, editor of the *American Anthropologist*, had asked Lomax to submit his article on folk song style presenting a provisional regional classification of world song styles according to degree of vocal tension, social organization of the performance (solo or choral type), and tonal unity. In the summer of 1961 Lomax invited Victor Grauer, then a graduate student in musicology, to assist him in testing his theories about style on recorded music from a small sample of world cultures. Working at first from Lomax's small studio in Greenwich Village, Lomax and Grauer explored several vocal qualities of particular interest to Lomax and deemed in

psychiatry to be indicative of stress — high register, constricted vocal width, nasality, and rasp. From attributes which Lomax hypothesized were diagnostic of relationships between folk song style and culture, they worked out precisely defined measures of musical organization, integration, rhythm, explicitness, musical form, embellishment, and force, formulating these into a coding system. On the advice of statisticians the variables were scaled according to a discernible degree of variation in occurrence found for each parameter throughout a provisional world sample of singing. A coding book was compiled by Lomax and music theoretician Robert M. Abramson and revised when Grauer returned to the project in 1962. Lomax called the method **Cantometrics**, signifying "a measure of song style, or song style as a measure of culture."

Choreometrics and Parlametrics were similarly designed, using different sources of data and descriptors of style. **Choreometrics**, a study of dance and movement style, was begun in 1965. Dance had long interested Lomax, and Birdwhistell had suggested to him that dance constituted a more primary form of nonverbal communication even than song. Birdwhistell recommended the Laban system of dance notation as a point of departure. Lomax worked closely with Irmgard Bartenieff, the leading exponent of the Laban method in North America, and her student, Forrestine Paulay, who collaborated with Lomax for many years. The team accumulated film clips of dance from all world regions and scrutinized them to find areas of significant intercultural variation in movement patterns, i.e., social organization and formal choreography, trace forms, dimensionality, articulation of trunk and body parts, and dynamics. On this basis it was possible to construct a detailed and precise system for notating movement style, initially with a coding system of over 300 measures that was later reduced to 65. They also sought out film footage of people working at tasks that were traditional in, or prototypical of, a region and/or culture; this was then scrutinized using the criteria for coding dance, this analysis becoming part of the project data.

Parlametrics was a comparative study of speaking styles made with Norman Markel of the University of Florida in 1971 and 1972, which applied methods similar to those of Cantometrics and Choreometrics to samples of speech in 156 languages. A preceding piece of paralinguistic research, made with Edith Trager in the early 1960s during the development of Cantometrics, charted the differential occurrence of vowel types in folk singing from several regions of four European countries and the U.S.; Trager named this **Phonotactics**. In 1964 Fred C. Peng and Barbara Ayres applied the method to a subset of the Cantometrics world sample using componential analysis and correlation studies. Phonotactics remained a focus of interest throughout the project.

As noted, Cantometrics actually began with Lomax's early exploration of voice qualities from 1955 through 1961. Working at the University of Florida, Gainesville between 1964 and 1966, linguist Norman Markel investigated relationships between song and affect (emotional tenor) employing psycholinguistic methodology. Guided by an old intuition of Lomax's, Markel and Lomax looked into co-variation between melodic pattern and intonation and stress in speech.

The analysis of instruments and orchestration began as part of Cantometrics, which described the musical organization, rhythmic scheme, and the tonal and rhythmic blend of the orchestral part (the term "orchestra" denoting one or more instruments), as well as relationships between the instrumental and the vocal parts, and within the orchestra itself. Instrumental types, adapted and revised in 1963 by Theodore Grame from Sachs' classification, were also coded and mapped. At that time also, Barbara Ayres found correlations between orchestration and social structure. By 1977 the project had produced a classification of ensemble types and outlined an evolutionary taxonomy of orchestration. New features of orchestration were added for the Urban Strain study.

At one point Lomax would amuse himself by counting the frequencies of certain words and phrases in English-language folk songs on the theory that the favored themes and preoccupations of a culture would emerge in its sung poetry. Together with Joan Halifax, he spent several months in 1965 following up on this old hunch, using several dictionaries developed for the computer analysis of texts — P. J. Stone and E. B. Hunt's General Inquirer System (1963), and derivative dictionaries of folklore texts then being developed by Benjamin Colby, Pierre Maranda, and Elli Kaija Kongas (which scanned texts and assigned words to categories and subcategories of time, space, movement, family, community, etc.) They established relative frequencies of such concepts for a small sample of iconic folk songs from six cultures. Because of the great degree of redundancy in folk song texts and their function as a medium of group communication, Lomax conjectured that they could shed light on the predominant concerns, attitudes, and emotions of the collectivity.

In 1966 Lomax turned to yet another aspect of singing which had long intrigued him — phrasing, or the frequency of breath-marked pauses. In correspondence with several research doctors, he inquired about human respiratory frequencies, breathing rates cross-culturally, and correlations between breathing and emotional states. Minutage is a study that analyzes melody as pause-marked phrases, or the uninterrupted segment of phonation between pauses, as timed by the breathing rate

typical of the culture's effort pattern in subsistence activities. Kathleen Mullin and Roswell Rudd noted timing, breath markers, overlapping structures, and breathlessness in a subsample of 678 recordings from the Cantometrics sample.

A coding book for minutage was drafted by Mullin in the late 1960s. In 1984–1985, Roswell Rudd, by then a veteran Cantometrics analyst, and Forrestine Paulay collaborated with Lomax on a study of American popular music and dance called *The Urban Strain*, which used the techniques of both Cantometrics and Choreometrics to analyze film and recordings made commercially throughout the twentieth-century. In addition to the Cantometrics descriptors, new ones were required for the novel vocal and orchestral techniques and effects, often enhanced or created by electronic technology, of twentieth century popular music. The study showed that crossovers between African and European-derived performance modes produced many innovations in music and dance, and that signature combinations of African and European expressive systems actually did emerge in every decade.

Data Collection and Sampling

Communications psychologist Martha Davis said of the interaction studies movement that the camera and recording machine were to the analysis of communication what microscopes and specimens are to biology. The unprocessed data of performance style research consisted of recorded samples of music, dance, work movement, and speech. To assemble the best available documentation from the world's main cultural regions was a time-consuming and expensive task. Far fewer scholarly and commercially produced ethnographic recordings of music and dance existed then than today. Song data could be obtained with relative ease from Lomax's own research collections and those of colleagues, as well as from published recordings, although for areas like China and Tribal India there was little coverage.

A special expedition by Lomax to the Soviet Union added examples from Russia, the Caucasus, Central Asia, and Arctic Asia. Far-flung efforts were required in order to view and acquire film footage of work movement and dance sufficient for even a cursory survey, and it took years to accumulate a representative sample.

The Parlometrics dataset, one of the smallest, was created from scratch, since no multi-cultural collections of recorded conversation then existed. For many years, scant data was obtainable for Tribal India, China, South America, and Oceania. The basic unit of sampling consisted of a limited number of examples per culture.

Examples were not chosen randomly but for their representativeness, following scholarly guidance. This was done because they found that style tends to be very repetitive, and in most instances relatively few examples captured the stable performance norms. In most cases, coding many examples per culture produced little new information. Lomax and Grauer settled on about ten examples per culture for Cantometrics, which had the largest dataset. Ten examples per culture usually sufficed, although for some cultures one or more sub-styles needed to be sampled as well.

"The adequacy of any of these samples" Lomax wrote,

is...subject to this test: will another sample of a similar kind taken in the same culture produce a similar performance profile? From this point of view, I believe that the majority of our samples will hold up. Even "secret" songs generally tend to be stylistically close to the more familiar music of a culture. The truth is that, with any one culture or subculture, singing is a rather standardized kind of behavior. It must be so since a main function of song is to . . . permit groups of performers to vocalize together and their listeners to share in a common experience. Cantometrics is a study of these standardized models, which describe singing rather than songs. Therefore, it is not primarily concerned with "complete" collections and descriptions, as are most scholarly endeavors, but with locating verifiable regularities and patterns [emphasis added] [Lomax 1961].

Choreometrics and Parlometrics were handled in the same way. By of experimentation with larger samples from some cultures, their (necessarily) smaller samples were also considered representative.

Lomax, Arensberg, Ayres, and Erikson worked with George P. Murdock's *Ethnographic Atlas* to derive the most representative sample of cultures within the world regions and sub-regions for which there existed corresponding recordings of music and dance. The *Ethnographic Atlas* (published from 1962 to 1967 in *Ethnology* and later expanded, digitized, and collated with Murdock's notes into one volume) accounted for 1167 well-described societies, ranging from hunter-gatherers to early historical societies (e.g., Romans), to village communities in industrial nations. In order to defeat Galton's problem (a statistical test to determine whether a hypothetically functional relationship between cultural traits is independently derived or the result of diffusion and shared historical background), Murdock grouped these societies by affinities of language, history, and geographic proximity into 400 clusters, to which he

then applied more stringent criteria, reducing them to 200 sampling "provinces". In the late 1960s Murdock and Douglas White eliminated scantily documented provinces and combined others that were still too similar, resulting in a total of 186 sampling provinces (Murdock and White, 1968).

The Standard Cross-Cultural Sample (SCCS), as this was called, was thus designed to insure independence of cases and even representation of six major cultural-historic regions. For the purpose of testing relationships between cultural traits, it was possible to include only one case per province, since "all the societies included in a given sampling province shared...too many historical connections to assure independence of cases" (Silverman and Messinger 1998). The SCCS is still widely used in cross-cultural studies.

With a few modifications made on Arensberg's advice and as a result of the first major coding trials in Cantometrics, the performance style studies adhered to Murdock's sampling format and provinces. The inconsistencies between the geographical taxa employed by Murdock and those emerging from stylistic analysis resulted in three modified groupings.

1) Tribal India and Arctic Asia were separated from Eurasia, and Australia from Oceania, since it was felt that the connections between these regions were unclear. 2) Because of the "distinctive homogeneity" of its song style, Arensberg and Lomax carved Europe out of Murdock's circum-Mediterranean region and subdivided it into several provinces: Old Europe, Mediterranean Europe, Western Europe, Western Europe Overseas and Latin America. "Old Europe" includes the Caucasus, Eastern and Central Europe, Northern Spain, Northern Italy, and the parts of the Balkans. 3) The remaining areas of ancient civilizations in Murdock's Circum-Mediterranean region — the Near and Middle East and Village India — were linked to those of East Asia and South Asia (including Malay cultures subtracted from Murdock's Oceania) in a new region called "Old High Culture". (Why Mediterranean Europe was not included in Old High Culture is unclear.)

These nine world style regions initially comprised 233 sampling provinces based on 3,525 codings. Barbara Ayres, Monika Vizedom, and several other anthropologists (on the basis of their own field studies) added codings derived from many newer community studies, especially in Europe and its offshoots in America. However, until other areas underrepresented in Murdock (Tribal India, China, etc.) could be further sampled, the nine regions could not be considered to represent the world evenly; these imbalances were later corrected. Africa and the circum-Mediterranean were overrepresented in Murdock.

Two subsamples were created to control for biases resulting from (a) historic-geographic interdependence of sample cultures and (b) skewed parameters of comparison resulting in sample cultures being tested against those in an over-sampled region. The select sample (S) was designed to minimize the effects of shared origins and diffusion, and to ensure maximal balanced coverage of cultural types and song styles. In consequence its 120 member cultures were included on the basis of judgment rather than probability. Several steps were involved in constructing the select sample (see Erikson 1968: 322–24): (1) Establishing the range of variability of the entire sample by searching style similarities and cultural codings; (2) Establishing a provisional list of cultures, including one from each of the 56 geographic areas (a level above the province and below the region); (3) Adding cultures from areas in which there were striking cultural or stylistic variations; (4) Examining the list for possible cultural-historic duplication based partly on linguistic affinities and partly on Murdock's clusters of similar cultures for Africa and the circum-Mediterranean, since at that time Murdock's culture clusters were not available for the world (Murdock 1966); (5) Finally, by rejecting at random cultures from Africa and the circum-Mediterranean, the sample was stratified to equally represent three macro-regional units according to Murdock's recommendation: North and South America, Africa and the circum-Mediterranean, and East Eurasia and the Insular Pacific. In a very few cases cultures with a recent historical connection were allowed to remain in the sample in order to meet the criterion of geographic balance and inclusiveness in areas with limited coverage, such as the Insular Pacific. See Erikson (1968: 324) for a full explanation of this strategy and how it affected the sample.

The smaller *random test sample* of 85 cultures (T) was constructed from a list of Murdock's cultural clusters, each one from a separate cluster, and stratified to ensure an even representation of regions. These were then grouped in macro-regional blocks, and names were drawn from each block using a random table of numbers. The selected cultures were then checked against geographic coordinates to ensure that none were in proximity — that is, closer than three degrees each of latitude and longitude in the tropics, four or five degrees in the temperate zones, and six in the Arctic (Murdock's criterion for separation). One of each neighboring pair was rejected at random and substituted by another from the same cluster.

In the 1980s the basic song sample was increased to 4,134 codings and in the 1990s to about 5,500. These are not equally representative, however, there being as many as 110 recordings for one province to as few as six for another, and it is not clear as of

this writing which were included in the three balanced samples. Choreometrics (2,138 coded examples) and the other datasets have more limited coverage, but they correspond to the Murdock/Cantometrics sampling provinces. Alluding to the difficulties of assembling viable samples, Lomax remarked "the stabilization of data is a major problem in aesthetic studies."

Selection of Variables

The object was to come up with a uniform and economically defined grid for each dataset, to be applied rigorously to all performances. In collaboration with disciplinary specialists, sets of multinomial categorical variables were developed and scaled for each study. Discrete measures or parameters were selected for their capacity to describe and measure, or evaluate, the *constants* of expressive behavior with observable ranges of variation across cultures. Because of the diverse yet highly specialized nature of the questions being explored through these diagnostic measures, and because they were often the objects of research in other sciences, it was necessary to seek expert advice from outside of the project as well.

Much experimentation and fine-tuning went into selecting variables and normalizing the scales for rating them. The choice of variables was dictated by two main criteria: that they represent traits used in some frequency by all cultures, and that they consistently differentiate the known traditions. Each parameter was narrowly defined, and each was scaled in terms of its limits and its range across a world sample. For all of the performance style studies taken together, some 500 variables were so developed.

Coding and Variability

The rule was to code for the way in which a trait is used predominantly throughout a performance. However, it was found that only fifty percent of the variables for any one dataset could be coded in this way — in other words, only about half of the traits were used strictly in any one song (or dance) style. Others were used freely, broadly, or vaguely. The allowance made for variation in the coding process was the option of making two to three ratings per line. Where this occurred it was interpreted as an indication of the range of variance for that trait in that performance.

Codings were tested and verified through a system of consensus rating, whereby two to three coders independently rated sets of examples as well as problematic coding lines. Regular consensus tests of the various samples produced a rater consensus of about 82 percent or greater among the raters. This procedure afforded another means of detecting variance, since disagreement often occurs where a trait is used variably or obscurely.

Coder disagreement also helped identify traits used freely in one style as opposed to strictly in another. With multiple codings, this helped define a range of variation within a style. A further reason for coder disagreement was that the rating systems did not always provide an exact slot for the use of a trait.

Modal Profiles

After these procedures were applied to a sample of performances from a culture, cultural cluster, or region, the modes of each line were determined. This is how performance style was actually discovered through data analysis. The percentile of the one or two highest scores per line determined whether that feature would be considered variable or constant. Although the distribution of all traits was accounted for, it was found that the performances of most tribal and peasant cultures stabilized around a small number of features (5–12), with others in variation. The stable elements within a sample constituted its modal profile, "the models...in which the habits of cultures were centered." With larger samples, peripheral and emerging styles might be revealed, but the features of the main performance models grew more distinct.

Statistical Methods and Analysis, by Michael Flory, **IN PROGRESS**

Data were analyzed both to establish what factors might best differentiate musical styles among various cultures and to determine how cultures might be grouped by common factors in their typical musical styles. Accomplishment of these goals would allow determination of the associations between types of social organization and the characteristics of musical styles.

Both goals — the extracting of factors characterizing style and the grouping of cultures based upon their musical styles — were pursued using factor analysis, a statistical technique developed in the early years of the twentieth century to reduce multiple psychological measurements to a set of "factors" representing the underlying influences on an individual's scores on these measures. It is in this form, formerly called "R" factor analysis, that factor analysis is still used extensively, and this was used to extract the most salient characteristics of musical styles. But if the cases, rather than the measurements, are used as the raw material of the factor analysis, factor analysis can be used to determine what cases (in this instance, what cultures) most resemble each other on the basis of their measured characteristics. Such "Q" factor analyses are seldom performed now, having been superseded by cluster

analysis and its refinements.

Nevertheless, the results derived from "Q" factor analyses remain valid, even though additional insight might be gained using the newer techniques.

The factor analyses depended on the way in which the elements of musical style were coded and the criteria with which similarities between different cultures were established. Norman Berkowitz describes these methods, on which considerable effort was expended, in detail in an appendix to *Folk Song Style and Culture*. Because many of the characteristics of style could not be expressed as the continuous, normally distributed variables common in psychology, some innovation was required to measure similarity of stylistic characteristics among cultures.

Having established a set of factors sufficient to characterize a culture's musical style, and having derived from these analyses sets of cultures that bore stylistic similarities, the task remained to determine whether particular forms of social structure might be associated with certain stylistic characteristics. At this point, however, a potential confounder of the analyses arises. Existing human societies did not appear independently of one another. Migration, shared history, and cultural contacts might account both for similarities in social structure and for resemblances in musical styles, leading to apparent causal relationships between society and style that instead are due to historical diffusion. The researchers realized that to work with only a subset of the world's cultures, as Murdock himself did in his "Standard Cross-Cultural Sample" of apparently unrelated societies, would defeat the broad program set forth by the project to classify the world's musical styles. Yet it was probably infeasible to eliminate contamination of analyses by cultural diffusion effects using the statistical methods and computing power available at the time.

In 1976 Edwin Erickson, the Project's statistical consultant, published a reanalysis of the Cantometric data in which he attempted to account for the influence of cultural diffusion on the associations the earlier analyses had uncovered between cultural and stylistic factors. Using factor analysis and path analysis, an extension of linear regression intended to show the direct and indirect "paths" of influence several variables exert upon one another, he concluded that much of the variation in song style around the world could be accounted for by shared history and cultural diffusion. The quality of the voice in singing, however, appeared to be related to the degree of premarital sexual constraint in a society independently of any historical factors.

Even today, the data collected and categorized by the Cantometric, Choreometric, and related projects represent a unique resource for investigating the interrelationships between expressive style and social structure. New statistical methods and vastly increased computer power would permit analyses that were impossible at the time the data were gathered. Cluster-analytic methods and methods for hierarchical modeling have developed enormously and would allow more sophisticated and extensive analyses of the similarities and differences among culture areas, while developments in latent variable modeling (structural equation models) would allow many more variables, including those not directly observed, to be included in path analyses.

Ethnographic Framework

As an application of comparative anthropology, the chief goal of the project was to test the assumption that style and its elements symbolize and express some of the ways in which human beings are organized in relationship to their material world and to one another. It thus developed in the context of an ethnographic framework devised under the tutelage of Conrad Arensberg, who brought to bear his extraordinary grasp of world ethnology and human ecology.

The cross-cultural methodology developed by George P. Murdock provided a foundation for developing a controlled ethnographic matrix against which to measure the coded samples of performance.

In the 1950s Murdock had begun to code the 1167 societies in the *Ethnographic Atlas* according to predetermined categories, so that they would be amenable to large-scale comparison with the newly available computer technology. This was an analytic endeavor, not to be confused with the Human Relations Area Files (HRAF), a system of indexing cultures also founded by Murdock at Yale in the 1940s. Known as a meticulous scholar with interests in kinship, theory of social structure, human sexuality, historical linguistics, the Bantu expansion, the history of anthropology, and cross-cultural measurement and comparison, Murdock had been influenced by the evolutionary tradition in anthropology and saw himself as a broadly-oriented empirical social scientist rather than a relativist.

Both codes and sources overlapped little with the HRAF, where ethnographies in all languages had been organized into 800 categories under which relevant passages from the original works could be consulted (HRAF now includes data from over 400 societies). The cross-cultural codes, by contrast, were based on Murdock's analysis of his own collection of monographs and articles and his researches in the Yale libraries, and were applied to the Standard Cross-Cultural Standard Sample described above. The *Ethnographic Atlas* is also a cumulative work which Murdock, his collaborators and

successors (including Douglas White, Robert Textor, Raoul Narroll, John and Beatrice Whiting, Irvin L. Child, Herbert Barry III, Alice Schlegel, Martin K. Whyte, Marjorie Whiting, William Lambert, Patrick Gray, Clellan Ford, Melvin and Carol Ember, William Divale, Greg Truex, and Michael Fischer) contributed from the vantage point of their own research interests. Used by a growing number of cultural specialists, the Atlas now includes over 500 scaled variables — relatively gross differentiators — in 22 categories of culture (Silverman 1998).

IN PROGRESS: Cross-cultural method adapted & applied in performance style research Findings and Outcomes

General Conclusions

The analysis of expressive behavior from cultures with (largely) preindustrial modes of subsistence and social organization suggests that stylistic features, singly and in co-occurrence, emerged and crystallized with particular ways of life on earth. The geographic distribution of such patterns and their concurrence with ethnographic, archeological, and genetic evidence — as well as among separate performance style studies — afford justifiable grounds for such speculation and for further research. Style analysis might prove to be, as Lomax put it, "a key to understanding human history and its many intertwined traditions, showing that the function of the lively arts is to reinforce the diverse adaptations of the human species in its peopling of the world."

In response to an article in *Science* by Lomax and Norman Berkowitz (1972), one anthropologist suggested that similarities between cultures arise from their ecological adaptations to roughly similar environments — an odd criticism considering that this was a premise of Cantometrics.

Avoiding debate and with a characteristic mixture of scientism and idealism, Lomax replied as follows:

The environment, Earth, has not changed drastically in the last 20,000 years, whereas in that time the human race has developed many cultural styles that differ from each other as profoundly as do the sub-specific habits of other kinds of animals. Our finding that these cultural styles have clear-cut geographical distributions, which account for the fact of human history, reinforces the main thesis of anthropology. In man, cultural (inherited, learned norms and skills) replaces genetic inheritance and enables human societies to adapt more flexibly than animal groups. In this (metaphorical) sense, human sub-speciation is cultural. In fact the key element seems to be man's keen esthetic sense of the culturally appropriate, which provides the baseline for cooperative endeavor in all human societies.

Publication

In order to keep the project alive, Lomax published quickly and prolifically, even in advance of the maturation of his findings. Through the 1980s articles by Lomax and his associates appeared in the *American Anthropologist* (1959), *Ethnology* (1962), *Ethnomusicology* (1965), *Journal of American Folklore* (1967), and other publications, leading up to *Folk Song Style & Culture*, a book of papers on all aspects of the project presented at the 1966 meeting of the American Association for the Advancement of Science in Washington, D.C. and published in 1968. This was followed by numerous articles by Lomax, Edwin Erickson, Conrad Arensberg and others in the *American Anthropologist* (1970), *Science* (1972), *The World of Music* (1973), *Language & Society* (1973 and 1977), the *New Encyclopedia Britannica* (1974), *Behavioral Science Research* (1976), *Current Anthropology* (1977), among other journals and edited volumes. "World Dance" (ca. 1991), a book on Choreometrics by Alan Lomax and Forrestine Paulay, and "Singing" (ca. 1992, incomplete), remain unpublished.

Performance style research had an educational and policy aspect as well, which was typical of how Lomax went about his work. In 1976 he published *Cantometrics: An Approach to the Anthropology of Music*, a system for learning Cantometrics designed to bring a culturally balanced approach to the study and understanding of music. He and Forrestine Paulay produced several films demonstrating Choreometrics — *Dance & Human History, Step Style* (1980), *Palm Play* (1980), and *The Longest Trail* (1986). *The American Patchwork* (1991), Lomax's PBS series on regional American culture, was based on insights from the performance style studies. The project culminated in the 1990s with the **Global Jukebox**, a research tool that brought together all of the datasets, media, and teaching systems of the project, and where people were invited to explore and to study the performing arts of the world and of their parent cultures.

Academic Critique / Limitations

The Performance style research projects were funded over two decades by the National Institutes for Mental Health, the main source of support for communications research during the 1960s and seventies, as well as by the National Science Foundation, the National Endowments for the Arts, the National Endowment for the Humanities, and by numerous private foundations and corporations. This was the last of Cold War era, during which a great deal of empirical research in communications was encouraged, but such sustained funding still speaks to an impressive degree of

interest and support from the science, arts, and humanities communities. Cantometrics and Choreometrics were recognized as significant achievements and were given an extended hearing in academic journals.

Even so, partly due to scientific and technical reasons and partly due to its timing in the history of anthropology and allied disciplines, the paradigm was destined for limited acceptance. There was also Lomax's equivocal relationship to the academy (he declined the opportunity to take a Ph.D. and would not teach courses), and his mercurial personality and his fame, which made him enemies as well as friends. In spite of his productivity and his many academic friends and sponsors, he remained in many ways an outsider.

A number of anthropologists questioned the project's sampling approach and statistics, its interpretations of correlations between style and culture, and its projections from the present into the past, which were partly an effect of the cross-cultural method. Many criticized an analysis founded on categories of abstracted cultural traits, and concomitantly the project's reliance on the *Ethnographic Atlas*, which was seldom appraised fairly. Folklorists, ethnomusicologists, and dance scholars were deeply skeptical of an evolutionary analysis of artistic expression using statistical methods, indeed of any method that seemed to overlook or normalize exceptions and variant styles.

One difficulty lay in Lomax's writings. His ideas might have had a more sympathetic hearing had they been cautiously and methodically introduced, but this was not Lomax's style. He had been strenuously advised by his scientific collaborators at Yale to focus on one question at a time and to describe the operations employed to arrive at each result so that his experiments could be repeated (e.g., Child to Lomax, 1965).

Yet Lomax continued to write densely, evocatively, and eagerly, mingling data and results with broad, sometimes speculative interpretation — and balancing this with long, and to many readers, impenetrable statistical appendices. Arensberg's writings tended to be telegraphic, but he was clear about the project's theoretical lineage, its relationship with contemporary research, and (as was Erikson) its methods. Lomax was the primary voice of the project, however, and his reluctance to deal with negative cases, alternative interpretations, and the limits of what could be verified by the project's methods were legitimately criticized.

Such weaknesses opened the door to contentions — or worse, insinuations — that Cantometrics reductively asserted direct causal links between social structure and expressive style. This was at least a misreading; moreover, many cautionary reminders by Lomax and Arensberg make it plain that they regarded environmental and cultural factors in the light of *predisposing conditions* (Arensberg 1968 and 1977; Lomax 1968 and 1976). As experienced students of culture and explorers in new territory they were aware that the precise nature and concatenation of such relationships would be extremely complex and were probably undiscoverable — although they could be suggested — by their particular methods. Another major misconception that arose was that the Cantometrics was a theory of musical *origins* (Brown 2000), when it was actually an effort to learn about *the role of the expressive arts in cultural evolution*.

In the 1960s interdisciplinary research was being held up as a paragon but it has taken decades and the aid of digital technology and the Internet for it to flower. The diverse disciplines encompassed by the project made it difficult for specialists to grapple with. Intra-disciplinary theorists could find no secure anchorage here either. Lomax and Arensberg happily presented their findings with a pragmatic blend of functionalist, historical-diffusionist, and evolutionary explanation, which probably seemed a reckless heterodoxy to the divided schools of thought of the time. Here is an instance from Lomax (1968: 118): "A performance can be described [in stylistic terms] as a function of a set of relative ranges of behavior... which the members of a culture feel are both satisfying and valuable." But he then goes on to say:

Since these patterns seem to vary by regions, their variance may depend not so much on localized cultural structure as on norms of conduct and cultural traditions [our italics] that have shaped behavior across vast stretches of time and space. Therefore, the search for the meaning of song [dance, etc.] is not only culture-oriented [i.e., functionally related to social structure], it not only rests upon the assumption that song style is learned behavior, but it becomes a search for the grand regional traditions of cultural style as well as song style.

Clearly, Lomax hoped that the coming together of science and the humanities advocated in his writings about style and culture would lead to a new plateau of harmony between the two in the study of humankind. He was perhaps unaware that the tension between materialism and idealism in anthropology could easily bring about the eclipse of his project. Alluding to the fissure that zigzags through the history of philosophy and the social sciences Marx had written "It is not the consciousness of men that determines their existence, but, on the contrary, their

social existence that determines their consciousness." David Price points out (2004) that many anthropologists of the 1930s through the 1960s were influenced by the Marxian emphasis on the primacy of the economic base, and/or were brought independently to a similar view by their very subject matter as a natural outgrowth of looking at whole cultural systems. Prominent among these were cultural evolutionists and materialists as well as cross-culturalists.

For their part, Lomax and Arensberg construed the means and relations of production in a limited and specifically anthropological sense, adhering to George Murdock, Marvin Harris, and the cultural ecologists rather than to Marx. And, in contrast to both classical Marxism and cultural materialism, their paradigm situated the arts at the center of culture rather than in its superstructure.

The conclusion they drew in the 1970s was that aesthetic factors were a driving force in cultural evolution and speciation operating in parallel with subsistence type. Although it resonated with neo-evolutionary and materialist approaches, this model simply did not fit within any of the then-emerging subfields of anthropology, which was becoming an increasingly fragmented and compartmentalized discipline.

In the 1980s there was a turning away from the analysis of structure in the ways it had been conceived and applied in anthropology. Performance style research was at cross-purposes with the coming wave of postmodernism, which in its many forms called attention to multiple meaning, interiority, and the infinity of perspectives. Many of the new generation of scholars in ethnomusicology, folklore, and anthropology looked to particularistic, ideologically-oriented research and produced a vast casuistic literature "demystifying" the work of earlier scholars and exposing the flaws of "scientism" — and generations of students who had been nourished on the critical literature but not necessarily on its sources. Evolutionary approaches based on the description, classification, and comparison of human groups at any level raised spectres of racism and "essentialism". In the new theories of musical evolution that began to appear in present century (e.g., Nils and Wallins et al 2000), Cantometrics figured very little.

In the mid-1950s Alan Lomax had written to Charles Seeger, "I remain confronting a great mystery which simply stated was, what was the actual function of the music itself in the life of the individual?" This was the spark that kindled the entire inquiry, which led from the emotions of the individual and the group to work, childhood experience, the sexual code, the position of women, political organization, technological development, and nutritional level, to performance style and back again to culture in evolutionary perspective. In light of the sweeping connections that performance style research attempted to make, it is no wonder that the scientific and scholarly communities found much to question. Conrad Arensberg — scientific anthropologist, historian, quantifier, theoretician, and consummate ethnographer — was one, however, for whom the project was satisfying fare. For him it fulfilled, at least in part, the promise of cultural anthropology as a behavioral science, which begins and ends with the person. "A valid operational definition of culture and culture pattern reduces them, as Nadel insisted, to verifiable regularities of behavior of interpersonal events," Arensberg wrote on the last page of *Folk Song Style & Culture* (1968: 308)

[Such a definition] specifies who did what was done, in what order, and in what frequencies. It checks asserted social and cultural phenomena with the ethnographer's record of what happened, and who did what things, to and with whom, and how often and in what recurrent or non recurrent circumstances. It turns each rubric of cultural anthropology or sociology back into verifiable histories, personal acts, and utterances.

Prospects

Seeing his work increasingly marginalized, Lomax resolved not to publish further until he felt able to respond to his critics. He was one of those single-minded individuals who seemed unstoppable in the pursuit of his every aspiration. But during the last years of his active career the once ebullient folklorist spent the nights flicking through the channels of his television turned to the highest volume, baffled and crestfallen to find no one with whom he could communicate about the enterprise that had filled his thoughts and visited his dreams for so long — and which with an almost childlike faith he had believed would find acceptance. A potential outlet for the project appeared when paleontologists began making a series of discoveries about early man in Africa, which coincided with the publication of findings by geneticists Rebecca Cann, Luigi Cavalli-Sforza and their colleagues on the origination of ancient humans in Africa and their pathways from there across the globe. This was encouragement Lomax had been waiting for. "The recent developments in archaeology, indicating that the human species originated in a Pygmy-like culture in Africa 100,000 years ago, has recently added substance to the discoveries of the Cantometrics Project," he wrote to the editor of *Scientific American* in 1991. Noting the resistance of his colleagues to the far-reaching hypotheses of Cantometrics, he continued, "I believe my findings about the evolution of performance style ... to be of essential ... interest, since the ties between ongoing cultural structures and performance indicate a dynamic relation between them." After seeing a presentation of the research on the Global Jukebox,

Cavalli-Sforza and one of his collaborators, Erich Minch, requested a copy of the Cantometrics dataset for use in their research on the movements and cultural speciation of early humans, but by then Lomax had become incapacitated by a stroke.

In 2005 researchers in evolutionary biology at Imperial College, London began performing new statistical tests on Cantometrics, calling it "an amazing and under-appreciated source by which to unravel the history of song." Genetic anthropologists at the University of Maryland began investigating the co-variation of sub-Saharan African genes and musical styles. Several of the performance style studies were never written up, but the data are recoverable in digital form and the source media examples are intact. The coding systems and writings on the original analyses have been compiled and annotated. It will be interesting to revisit them as evolutionary anthropology and communications theory enter a new era.

Selected References

Arensberg, Conrad M.

1978 [1968] Cantometrics in Retrospect. *In* Folk Song Style and Culture. Alan Lomax, et al. Pp. 300–308. Edison, New Jersey: Transaction Press (first published, Washington D. C.: American Association for the Advancement of Science. Publication No. 88).

1972 Culture as Behavior: Structure and Emergence. *Annual Review of Anthropology* 1: 1–26.

Barbara Ayres

1973 **Effects of Infant Carrying Practices on Rhythm in Music.** *Ethos*, 1 (4) December: 387–404.

1965 Memo to Alan Lomax on the Gutman Scale. Unpublished.

1967 Gutman Scale analysis of social complexity in relation to song style. Exhibit 9 of Grant application to NEH. Unpublished.

Barry, Herbert III, Irvin L. Child, and Margaret Bacon

1957 A Cross-cultural Survey of Some Sex Differences in Socialization. *Journal of Abnormal and Social Psychology* 55 (1): 332–37, 447.

Birdwhistell, Ray L.

1970 *Kinesics and Context.* Philadelphia: University of Pennsylvania Press.

Cavalli-Sforza, Luigi Lucca, Paolo Menozzi, and Alberto Piazza

1994 *The History and Geography of Human Genes.* Princeton, New Jersey: Princeton University Press.

Cavalli-Sforza, Luigi Lucca, Paolo Menozzi, J. Mountain, and Alberto Piazza

1988 Reconstruction of Human Evolution: bringing together genetic, archaeological and linguistic data. *Proceedings of the National Academy for the Advancement of Science USA* 85: 6002–26006.

Chapple, Eliot D.

1980 *The Biological Foundations of Individuality and Culture.* Huntingdon, L. I.: Robert E. Krieger Publishing Company.

Chapple, Eliot D., and Conrad M. Arensberg

1940 Measuring Human Relations: An Introduction to the Study of the Interaction of Individuals. *Genetic Psychology Monographs*, 23: 3–147.

Condon, W. S., and W. D. Ogsten

1966 Sound film analysis of Normal and Pathological Behavior Patterns. *The Journal of Nervous and Mental Disease* 143 (4): 338–47.

1967 A Segmentation of Behavior. *Journal of Psychiatric Research* 5: 221–35.

1971 Speech and Body Motion of the Speaker-Hearer. *In* Perception of Language. Horton, D. L. and J. J. Jenkins, Eds. P.p. 150–73.

Davis, Martha

2001 Film Projectors as Microscopes: Ray L. Birdwhistell and the Microanalysis of Interaction (1955–1975). *Visual Anthropology Review* (Fall / Winter 2001–2002, 17): 2: 39–49.

Downs, J. F.

1966 *The Two Worlds of the Washo.* New York: Holt Rinehart and Winston.

Eibl-Eibesfeldt, Irenäus and Hans Hass

1967 Film studies in human ethology. *Current Anthropology*, 8 (5), Part 1 (Dec., 1967): 477-479.

Erickson, Edwin E.

1968a Self-Assertion, Sex Role, and Vocal Rasp. In *Folk Song Style and Culture*. Alan Lomax et al. Pp. 204–210. Edison, New Jersey: Transaction Press (first published, Washington D. C.: American Association for the Advancement of Science. Publication No. 88).

1968b Statistical Notes. In *Folk Song Style and Culture*. Alan Lomax et al. Pp. 322–327. Edison, New Jersey: Transaction Press (first published, Washington D. C.: American Association for the Advancement of Science. Publication No. 88).

1969–70 The Song Trace: Song Styles and the Ethno-history of Aboriginal America. Ph. D. Dissertation, Columbia University, 1969 [Abstract in *Dissertation Abstracts International* 30, no. 9 (1970): 4471–72 B].

1970 Cluster Test of Folk-Song Styles 1260–65. *American Anthropologist* 72. Printed as Appendix D of Naroll, 1970.

Freeman, Linton C., and Alan P. Merriam

1956 Statistical Classification in Anthropology: An Application to Ethnomusicology. *American Anthropology* 58 (3): 464–72.

Freeman, W. J.

2000 *Neurodynamics*. New York: Springer.

Goffman, Erving

1968 *Interaction Ritual: Essays in Face-to-face Behavior*. Garden City: New York: Anchor Books.

1971 *Relations in Public: Microstudies of the Public Order*. New York: Basic Books.

Grauer, Victor

1965 Some Song Style Clusters: A Preliminary Study. *Ethnomusicology* 10 (3): 265–71.

2006 Echoes of Our Forgotten Ancestors. *The World of Music Journal of the Department of Ethnomusicology, Otto-Friedrich-University-of-Bamberg* 50, 2.

2007 <http://music000001.blogspot.com/>.

Grauer, Victor, and Fred McCormick

2005 Cantometrics: Song and Social Structure: A Response. *Musical Traditions*, an Internet journal: <http://www.mustrad.org.uk/articles/cantome2.htm>. Grauer's comments are interleaved with McCormick's 2002 critique of Cantometrics.

Hall, Edward T.

1959 *The Silent Language*. New York: Doubleday and Company.

1969 *Interaction Ritual: Essays in Face-to-face Behavior*. Garden City: New York: Anchor Books.

1969 [1966] *The Hidden Dimension*. Garden City, New York: Anchor Books.

1971 *Relations in Public*. New York: Basic Books.

Harner, Michael J.

1970 Population Pressure and the Social Evolution of Agriculturalists. *Southwestern Journal of Anthropology* 26: 67–86.

George Herzog

1935 Special Song Types in North American Indian Music. *Zeitschrift für Vergleichende Musikwissenschaft* 3: 23–33.

Holden, C. J.

2002 Bantu Language Trees Reflect the Spread of Farming across Sub-Saharan Africa: A Maximum Parsimony Analysis. Pp 793–799. In *Proceedings of the Royal Society of London*: B 269.

Kenny, James A.

1974 A Numerical Taxonomy of Ethnic Units Using Murdock's 1967 World Sample. Unpublished Ph.D. Dissertation. Indiana University. Bloomington, Indiana.

Keeling, Richard

1992 *Cry for Luck: Sacred Song and Speech Among the Yurok, Hupa, and Karok Indians of Northwestern California*. Berkeley: University of California Press, 1992. <http://ark.cdlib.org/ark:/13030/ft8g5008k8/>.

Laver, John

1999 Towards an integrated theory of nonverbal communication; in Proceedings of the International Congress of Phonetic Sciences, San Francisco, California.

Levinson, David, and Martin J. Malone

1980 Toward Explaining Human Culture: A Critical Review of the Findings of Worldwide Cross-Cultural Research. New Haven, CT: HRAF Press.

Lomax, Alan

1954 Letters to Robin Roberts. Unpublished. Collection of Robin Howard.

1955 Letter to Peter Seeger. Unpublished. Performance Style and Culture Research Collection, American Folklife Center, Library of Congress, Washington, D. C.

1961–97 Correspondence. Unpublished. Performance Style and Culture Research, American Folklife Center, Library of Congress, Washington, D. C.

1961 Memo (Probably to Conrad Arensberg). Unpublished. Association for Cultural Equity, New York, N.Y.

1962 Notes. Unpublished. Performance Style and Culture Research Collection. American Folklife Center, Library of Congress, Washington, D. C. and Association for Cultural Equity, New York, N.Y.

1962 (April) Letter to Jack Harrison. Unpublished. Humanities Division, Rockefeller Foundation.

1972 Main Factors in Dance and Movement Style. Unpublished MS. Association for Cultural Equity, New York, N.Y.

1976 Universals in Song. Unpublished paper. Association of Cultural Equity, New York, N.Y.

1977 Cantometrics: A Method in Musical Anthropology. Berkeley, California: Extension Media Center.

1980 The Language of Song. In Papers in Honor of Gene Weltfish. Stanley Diamond, Ed. The Hague: Mouton.

1989 Sounds of the South, presentation of April 8 1988. Unpublished transcript. Global Jukebox papers. Association for Cultural Equity, New York, N.Y.

Lomax, Alan, et al.

1978 (1968) Folk Song Style and Culture. N.J.: Transaction Press, 1978.

Lomax, Alan, and Conrad M. Arensberg

& 1977 A Worldwide Evolutionary Classification of Cultures by Subsistence Systems. *Current Anthropology* (18) 4: 659–707. Includes comments by Riva Berlant Schiller; Gertrude E. Dole; Arthur Hippler; Knud-Erik Jensen; Abraham Mkopsky; Andrew Sherratt; John L. Sorenson; and B. Turyaikayo-Rugyema; and reply by Lomax and Arensberg.

Lomax, Alan with Norman Berkowitz

1972 The Evolutionary Taxonomy of Culture. *Science* 177: 228–39.

Lord, Albert B.

1960 The Singer of Tales. Cambridge Mass.: Harvard University Press.

Marx, Karl

1859 A Contribution to the Critique of Political Economy. London, p.3.

McQuown, Norman, Editor

1971 The Natural History of an Interview. Chicago: The University of Chicago Joseph Regenstein Library Microfilm Collection of Manuscripts on Cultural Anthropology. Series 15, Nos. 95–98.

Mead, Margaret

1963 Anthropology and the Camera. The Encyclopedia of Photography. Willard D. Morgan, ed. New Haven, Conn.: Yale University Press.

1964 Continuities in Cultural Evolution. New Haven, Conn.: Yale University Press.

Meeuwssen, H. J., J. W. Flohr, and R. Fink

1998 Computerized assessment of the skills of synchronization and the imitation and timing of rhythm patterns. P.p. 93–95. In *Technological Directions in Music Education*. San Antonio, Texas: University of Texas at San Antonio Institute for Music Research.

Megggers, Betty J.

1964 North and South American Cultural Connections. In *Prehistoric Man in the New World*. Pp. 511–23. Jesse D. Jennings and Edward Norbeck, Eds. Chicago: University of Chicago Press.

Mithen, S.

2005 *The Singing Neanderthals: The Origins of Music, Language, Mind and Body*. London: Weidenfeld & Nicolson.

Moses, Paul J.

1954 *The Voice of Neurosis*. New York: Grune and Stratton.

Murdock, George Peter 1949 *Social Structure*. New York: MacMillan.

1967a *Ethnographic Atlas*. Pittsburg, Pa.: University of Pittsburg Press.

1967b *Ethnographic Atlas: A Summary*. *Ethnology* 6 (2): 107–236.

1983 [1981] *Atlas of World Cultures*. Pittsburg, Pa.: University of Pittsburgh Press.

Murdock, George Peter, and Douglas R. White

1969 [1968] *Standard Cross-Cultural Sample Ethnology* 8:329–369.

Murdock, George Peter, and S. F. Wilson

1972 Settlement patterns and community organization: cross-cultural codes. *Ethnology* 11: 254–295.

Naroll, Raul

1956 A Preliminary index of social development. *American Anthropologist* 53: 687–715.

1983 *The Moral Order: An Introduction to the Human Situation*. Beverly Hills, California: Sage Publications.

Netting, Robert McC.

1965 A Trial Model of Cultural Ecology. *Anthropological Quarterly* 38 (3 [July] Special Issue on Africa): 81–96.

Nettl, Bruno

1954 *North American Indian Musical Styles*. Vol. 45. Philadelphia, Pa.: Memoirs of the American Folklore Society.

1956 *Music in Primitive Culture*. Cambridge, Mass.: Harvard University Press.

Price, David

2004 *Threatening Anthropology: McCarthyism and the FBI's Surveillance of Activist Anthropologists*. Durham, North Carolina: Duke University Press.

Propp, Vladimir

1958 [1928] *Morphology of the Folk Tale*. Bloomington: Indiana University Research Center in Anthropology, Folklore and Linguistics.

Rappoport, Roy

1970 Some Suggestions Concerning Concept and Method in Ecological Anthropology. In *Ecological Essays*. David Damas, editor. Pp. 184–88. National Museums of Canada Bulletin 230.

Rouget, Gilbert

2008 Interview with Anna Wood, Paris.

Sachs, Curt

1937 *World history of the dance*, Translated by Bessie Schönberg. New York: W.W. Norton.

1962 *The Wellsprings of Music*. The Hague: Martinus Nijhoff.

Sachs, Curt, and Erich Von Hornbostel

1961 Classification of Musical Instruments. Anthony Baines and Klaus P. Wachsmann, translators. *Galpin Society Journal*

Sahlins, Marshall D., Elman R. Service, Thomas G. Harding, and David Kaplan

1973 *Evolution and Culture*. Ann Arbor: University of Michigan Press.

Schefflen, Albert E.

1964 The Significance of Posture in Communication Systems. *Psychiatry: Journal for the Study of Interpersonal Processes* Vol. 27:316–331.

1965 Quasi-courtship Behavior in Psychotherapy. *Psychiatry: Journal for the Study of Interpersonal Processes* Vol. 28: 245–57.

1966 Systems and Psychosomatics: An Introduction to Psychosomatic Manifestations of Rapport in Psychotherapy. *Psychosomatic Medicine* Vol. 28: 297–304.

1973 *Body Language and the Social Order*. Englewood Cliffs NJ: Prentice-Hall.

1973 *How Behavior Means*. Gordon and Breach, Doubleday.

1973 *Communicational Structure: Analysis of a Psychotherapy Transaction*. Bloomington, Indiana: Indiana University Press.

Sebeok, Thomas A.

1956 Sound and Meaning in a Cheremis Folksong Text. In *Essays on the Occasion of His Sixtieth Birthday*. For Roman Jakobson. Compiled by Morris Halle. The Hague: Mouton.

1962 The expression of Emotions on the Lexical and Linguistic Levels. In *Expression of the Emotions in Man*. P. Knapp, ed. New York: International University Press.

Sebeok, Thomas A., Alfred S. Hayes, and Mary C. Bateson, Eds.

1964 *Approaches to Semiotics: Transactions of the Indiana University Conference on Paralinguistics and Kinesics*. The Hague: Mouton.

Seeger, Charles

1962 The Model b "Melograph": A Progress Report. *Journal of the International Folk Music Council* 14: 168

1977 *Studies in Musicology, 1935–1975*. Berkeley, CA: University of California Press.

Silverman, Philip, and Jacquelyn Messinger

1977 *The Standard Cross-Cultural Sample*, Unpublished Manuscript written at California State University, Bakersfield.

Stone, P. J., and E. B. Hunt

1963 A Computer Approach to Content Analysis: Studies Using the General Inquirer System. *Proceedings of the Spring Joint Computer Conference from American Federation of Information Processing Societies Conference*; vol. 23, pp. 241–256. New York: Spartan Books.

Thompson, Stith

1946 Unpublished letter to the Guggenheim Foundation.

Titon, Jeff Todd

1982 Cantometrics. *Journal of American Folklore* 95: 370–74.

Trager, George L.

1964 *Paralanguage: A First Approximation*. In Dell Hymes, ed. *Language in Culture and Society*. New York: Harper and Row. First published in 1958 in *Studies in Linguistics* 13: 1–19.

Turnbull, Colin M.

1960a Field Work Among the Bambuti Pygmies. *Zaire* 14: 175–92.

1960b Some Recent Developments in the Sociology of the Bambuti Pygmies. *Transactions of the New York Academy of Sciences, Series II*, 22 (4): 275–83.

1961 *The Forest People*. New York: Simon and Schuster.

Udy, Stanley H.

1959 *Organization of Work: A Comparative Analysis of Production Among Non-Industrial Peoples*. New Haven, Conn: Human Relations Area File Press.

Vayda, Andrew P.

1969a Expansion and Warfare in Swidden Agriculturalists. In *Environment and Cultural Behavior*. Vayda, Andrew P., Editor. Garden City, NY: Natural History Press.

1969b *Environment and Cultural Behavior*. Vayda, Andrew P., Editor. Garden City, NY: Natural History Press.

Wallin, Nils. L, B. Merker, and S. Brown, Eds.

2000 *The Origins of Music*. Cambridge, Mass.: MIT Press.

White, Leslie

1959 *The Evolution of Culture*. New York: McGraw Hill.

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