CHOREOMETRICS Download the .pdf

Since dance is the most repetitious, synchronic of all expressive behaviors, it has turned out to be a kind of touchstone for human adaptation. —Alan Lomax, 1975

In 1965 Irmgard Bartenieff, Forrestine Paulay, and Alan Lomax launched Choreometrics, a study of dance as formalized, culturally conditioned communicative behavior. They wanted to learn how human movement disposes energy through space and time, and how this changes from one environment to another. They began by surveying a small sample of dance and movement as recorded on film as a way to identify elements of style from a cross-cultural perspective, and to develop measures for describing and scales for rating them. When additional documentary footage had been collected, a sample representative of the world was coded and statistically analyzed in order to discover the geographic distribution and interrelation of these variables, and their correlation to major systems of human adaptation. The study brought rigor, sophistication, and a trans-cultural perspective to the task of observing, comparing, and interpreting distinctive patterns of movement. It furnished a vocabulary for describing the typical dance styles of the world's cultures and a paradigm for situating them in the human story.

An early inspiration for Choreometrics was the work of Ray L. Birdwhistell (1918–1994) on non-verbal behavior, which posited an unconscious set of meanings in body attitude, movement, and synchrony analogous to the grammar and vocabulary of speech. Also important was W. S. Condon's discovery of precise rhythmic synchrony at the micro level among participants in conversations. Birdwhistell steered Lomax to the system of effort observation and notation developed by the Bratislavan choreographer Rudolf Laban (1879–1958), which is still one of the most widely used systems for human movement analysis. In 1964 Lomax had not yet found significant cross-cultural correlations for rhythm in song. Considering movement to be a more primary form of expression than song, Birdwhistell suggested that Lomax look at performance style in dance and recommended Laban's system as the most useful one for the observation of dynamics.

Lomax invited two of Laban's foremost proponents in the United States to join him. Dancer, choreographer, and physical and dance therapist Irmgard Bartenieff (1900–1981) had studied with Laban and had applied his principles of human movement patterns and movement education to physical therapy, dance therapy, and movement-oriented psychological research. Forrestine Paulay, Bartenieff's student, was a dancer, choreographer, teacher, and movement therapist. In her work with psychiatrist Judith Kestenberg's Developmental Study Group, Paulay had already broken ground by demonstrating the importance of pre-shaping in movement (called "directional movement" in Laban Movement Analysis), as comparable to that of pre-effort.

For the next four years, Lomax, Bartenieff, and Paulay collected and viewed filmed examples of work and dance from hundreds of cultures. Through a rigorous comparative process they adapted the Laban principles that had been used to reveal intra-cultural or individual differences in movement style into variables that could facilitate perception of intercultural variation. They were interested in shared dynamic patterns of body movement, focusing first on whether actions were predominantly linear, curving or spiraling; whether transitions tended to be curvilinear or pointed; if and how the torso was articulated; on the spatial emphasis of body attitude; and on the way in which movement spread through the body.

In their effort to compile a sample representing the main regions of culture, the Choreometrics team spent nearly eight years acquiring documentary footage from consulates, television companies, film archives, and visual anthropologists. The dataset slowly grew as new material emerged and is now made up of 2,138 film segments and coded dance sequences. "We regarded the vast, prejudice-laden sea of documentary footage as the richest storehouse of information about humanity," Lomax explained. "We come to it with an observational approach like that used by the ordinary person in everyday life, which enables him to differentiate constantly between different classes of visual experience and to behave appropriately in relation

to these varieties of experience."

Through the early 1970's, Lomax and Paulay further expanded the Choreometrics system, testing for their usefulness in cross-cultural comparison observations — observations that came directly out of the filmed material itself. They looked at such variables as gender differentials, audience role, composition and organization of the dance group and orchestra, the use and presentation of body parts, step styles, and patterns of leadership and group synchrony. The completed system included over 300 measures. Over the course of a decade, these variables were refined and condensed to 139 measures in four fields comprising the Choreometrics coding system: 1) body attitude and movement qualities; 2) choreography; 3) social organization; 4) limb use, rhythm, and form. These were in turn collapsed to produce a more manageable set of 65 variables amenable to statistical analysis.

One of the ideas the Choreometrics team set out to explore was that dance epitomizes the style of movement widespread in a tradition, particularly that which once powered the main productive activities in pre-industrial societies and eras. They therefore also collected and examined film of people working. It was found that, by and large, dance mirrors the movements necessary to carry out the main recurrent tasks of subsistence which are or once were fundamental in those particular societies and times. Moreover, the shape and dimensionality of dance movement (linear/one-dimensional; curvilinear/two-dimensional; spiraling/three-dimensional) appear in association with early forms of material culture and technology.

This approach resulted in an ethnographic classification of dance and an interpretive framework of great potential interest and utility. A geography of movement style, produced by statistical analysis of the coded data, distinguished 18 major world dance traditions appearing as regional clusters of performances linked by most similar traits: Sub-Saharan Africa; Circum-Mediterranean; East Eurasia; Insular Pacific; South and Central America; and North America. Clear stylistic profiles of such large traditions (and of their constituent cultures for which data was available) could then be drawn. Cross-cultural comparison of these profiles with ethnographic descriptors suggested relationships between movement style and climate, technology, gender differentials in productive activities, and the basic trajectories of body movement employed in the most common work activities.

When submitted to several kinds of statistical analyses the Choreometrics variables grouped themselves into factors of dimensionality, limbs, rhythm, linking/leader, intimacy, regimentation, spacing, integration, group layout, tactics, stance, torso, self-presentation, dynamics, size, refinement, and gender. These, in turn, formed clusters associated with some of the underlying motive forces of social life and communication — integration, differentiation, energy, rhythm, gender participation, and control of sexuality.

Like Cantometrics, Choreometrics was designed to distinguish large tendencies and distributions rather than individual variation and intra-cultural meaning — although with refined scales it would be possible to micro-analyze a particular dance tradition. Dance ethnography can illuminate the ascribed meaning and symbolism, narrative content, spiritual significance, political and ritual functions, and personal artistry of dance from any number of perspectives. By contrast, Choreometrics works best at the level of whole dance traditions, interpreting dance as para-communication and, as such, as a highly structured but largely unconscious medium for cultural identification and reinforcement at the level of the community.

Explaining Choreometrics to David Mayer in 1987, Alan Lomax noted:

> We took a systems approach — that is, instead of looking at an object in one respect, we took a great many important features, and we saw how the profile of those features changed as you moved across cultures. It's been a long process. At the end we've come up with some very interesting things about the dance, the differences in dancing, the movement of the feet, about many other things human. We feel very clearly that dance is a kind of a center of the main aspects of movement style that links people together in a culture. It makes people members of that culture, and makes it possible for them and their ancestors to have adapted to certain zones of environment. Dance is not something that is on the outskirts of human life; it is right at the center.

Three teaching films — *Dance and Human History* (1976), *Step Style* (1980) and *Palm Play* (1980) — illustrate several of the measures and hypotheses of Choreometrics. *The Longest Trail* (1986), published with a handbook entitled "A Dance Geography of the American Indian People," traces the striking commonalities in movement style among Siberian peoples and Native Americans. The project also produced several articles and an unpublished book, "World Dance" (c. 1993) by Alan Lomax and Forrestine Paulay. *The Rhythms of Earth* DVD (2007) offers the four teaching films on DVD along with a number of special features, including illuminating interviews with Forrestine Paulay, programmer and statistician Michael del Rio,

anthropologist and statistical scientist Michael Flory, and Alan Lomax (being interviewed by the ethnographic filmmaker Robert Gardner).

It is in ACE's plan to recompile **Choreometrics dataset** of over 2,128 coded analyses and metadata linked to the digitized film selections from which they derived, and to publish the coding system. We also plan to produce a DVD demonstrating and explaining each coding line.

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