

13)

ID:NYCG93-I3669

ST:p

NYCG93-I3669

AD:04-27-93

UD:04-27-93

TM:11:09pt

308

TO:ILRC/

FROM:NYCG/LI

BOR:NYCG

CODE:REQ

BNT:

4-50-51

L/C:C

CR:CCL

PST:0

FWD:NYPG,FLFG,NHDG,PAUG

ADR:Interlibrary Loans Section
Columbia University Libraries
535 West 114th Street
New York, NY 10027

C 28946

9

LEN:ILRC

LCDE:

LNT:

DUE:

REN:

USE:

9/98

PTN CARVALHO

T/JT Journal of music therapy.

IMP [Lawrence, Kan.] National Association for Music Therapy.

V/PG 10, NO.3, PP.156-64, 19? 1973

5-398

AA JOHNSTON, THOMAS F.

AT THE FUNCTION OF TSONGA WORK-SONGS

VER RLIN ID: ILRC2308498-S; RLIN ID: NYPG91-S6677; RLIN ID: FLFGABE6684-S;
IN ID: NHDGR2308498-S; RLIN ID: PAUG1645994-S

CAL (ILRC) \HdCpy; (CRLS)

CAL (NYPG) (LOC1) *MA (Journal of music therapy)

CAL (NHDG) (MUSC) \ML\3920\J67\

CAL (PAUG) RC489.M7J586; (VPL) \Current.\rec'd

ISS 0022-2917

CRD 76641354/MN

COPY

4-29-93 AK

The Function of Tsonga Work-Songs

THOMAS F. JOHNSTON

The Tsonga, a Bantu-speaking people numbering about 1,200,000 in Mozambique and 700,000 in the Northern Transvaal, live in an arid and unfertile environment where horticultural subsistence is hazardous and where, due to the migrant labor situation, all of the arduous horticultural tasks are performed by women, usually with infants tied to their backs.

From 1968 to '70 the author observed that Tsonga women daily formed themselves into organized work-groups, to hoe, weed, reap, and pound maize communally. Tsonga women not only sang at these tasks, but possessed a discrete body of songs for each task, exhibiting task-specific rhythms and melodies. The songs were always performed in call-and-response style, and each body of task-specific songs was often accompanied by polyrhythms provided by an untuned source of sound such as a drum or upturned oil-drum. The physical carrying-out of each task often assumed the character of a dance. What are the therapeutic implications of these typically African phenomena?

This paper endeavors to show that communal "immersion" in polyrhythmic kinesthesia has a reinforcing, feedback effect upon individual susceptibility to auditory driving; that task-specificity in Tsonga work-songs is functional; that call-and-response musical style is related to the psychophysiology of work-groups; that polyrhythms tap the basic brain wave frequency of the whole group rather than solely that of the individual; that untuned (multi-pitched) sources of low fre-

Thomas F. Johnston, PhD carried out two years (1968-70) of field work in southeastern Africa under grants from the Wenner-Gren Foundation for Anthropological Research (#2504) and the University of the Witwatersrand. He is a graduate of the Trinity College of Music, London (Licentiate, 1949), California State University at Hayward (MA in music, 1968), California State University at Fullerton (MA *summa cum laude* in anthropology, 1972), and the University of the Witwatersrand (PhD in ethnomusicology, 1972). He is currently teaching at the University of Alaska in Fairbanks.

quency sound at the equivalent of alpha rhythm produce optimum auditory driving, and that dancing produces biochemical effects which increase susceptibility to auditory driving. These various components and aspects of Tsonga work-group music are functional in alleviating the unabatedness and monotony of women's horticultural labor, and in ensuring attainment of at least a minimal subsistence level for the population by coordinating the physical manipulations of individuals in task forces and spurring on their efforts.

THE DISCRETE BODIES OF WORK-SONGS

The most common bodies of work-songs are as follows:

tinsimu ta kurima, songs for hoeing;

tinsimu ta kuhlakula, songs for weeding;

tinsimu ta kuthsovela, songs for reaping;

tinsimu to kandza, songs for pounding;

tinsimu ta tshiri, songs of the mortar (overlaps with previous category);

tinsimu ta kurhiya hlampfi, songs for netting fish;

tinsimu ta tsheva, songs for spearing fish.

The incidence of specific bodies of work-songs is related to the changing seasons of the Tsonga horticultural year. For instance, one hears songs for hoeing in October, during *Nhlangulu* ("time for the arrival of the rains"). Songs for weeding are heard from December to March, and songs for sinking hut center-poles and transporting thatched roofs (the roof usually outlasts the walls) are heard in April, which is named *Dziva-musoko* ("time of the rainbow and the end of the rain"). May to September is a time when the newly harvested maize is likely to be plentiful, and during the preparations for bulk brewing many pounding songs are heard.

THE IMPLICATIONS OF AFRICAN CALL-AND-RESPONSE STYLE

Many Tsonga work-songs are designed so that their rhythmic stress indicates to members of the work-party the points of action and respite, the point of minimum vocal exertion coinciding with the point of maximum physical exertion, as in Figure 1.

Work-song transcription: Ha Rhwala Mlamla Majapaka (Lifting the Iron of the Japanese).

♩ = 100

Cycle: 8 ♩

Transpos.: maj 3rd up

FIGURE 1

In this song, the foreman's call—"ha rhwala" (to lift)—describes the action, and the laborers' response—"mlamla Majapaka" (iron of the Japanese)—describes material which was being lifted at the time of the construction of the Swaziland railway (1965). It may not be coincidental that all Tsonga work-songs are in this call-and-response style. Call-and-response is related psychophysically to circular form (constant 'hypnotic' repetition of a short rhythmic and melodic theme), breath inhalation/exhalation, and progressive/regressive dance movements which keep a weeding-group (for instance) moving steadily across the field but able to double-back a step or two for missed weeds.

In several observed versions of the *nanayila* dance (a dance related to fertility beliefs concerning both crops and nubile girls) the number of unison whistle-blasts occurring during each cycle of the tune coincided with the number of breaths conveniently drawn during the same time period, and the perimetral revolution of the circle of dancers occupied an optimum number of tune repetitions determined by the tempo set and the performer's dance steps. These repetitions brought the team back into its original position with respect to the group of seated drummers (Johnston 1971, 43).

The duty of the caller (cantor) of work-party songs is to issue work instructions in musical form, enliven the situation by improvising amusing lines, and to spur on the group; it may be noteworthy that she is called the *mufambisi*, from *famba*, to go.

THE USE OF UNTUNED SOUND-PRODUCERS AS RHYTHMIC STIMULI

Four other Tsonga work-songs are shown in Figures 2 through 5. Note the prominent rhythmic position occupied by a pick-axe, a house-pole, and a pestle; for cultural and psychophysiological reasons these objects are particularly efficacious as rhythmic stimuli:

Rhythmic stimulation of the organ of hearing as a whole can be accomplished only by using a sound stimulus containing components of supraliminal intensity over the whole gamut of audible frequencies—in effect a steep fronted sound such as that produced by an untuned percussion instrument or an explosion (Walter and Walter, 1949, 57–58, 82).

Work-song transcription: Shona Piki (Dig with the Pick-axe).

♩ = 108

Cycle: 12 ♩

Transpos.: maj 2nd down

The musical score for 'Shona Piki' is presented in three systems. The first system features a vocal line in treble clef with lyrics 'Ho-lo-ve-la ho-lo-ve-la nsa-ti wa-mulung-u' and an 'opening call' bracketed above. The second system shows a vocal line with lyrics 'sho-na pi-ki ho-lo-ve-la ho-lo' and a rhythmic accompaniment line with 'pickaxe' notes and 'raise' markings. The third system shows a vocal line with lyrics 've-la nsa-ti wa-mu-lung'' and a rhythmic accompaniment line with 'raise' markings. The score includes various musical notations such as notes, rests, and brackets.

FIGURE 2

Work-song transcription: *Hi Yeni Kaya* (Let Us Go Home).

♩ = 104

Cycle: 20 ♩

Transpos.: maj 3rd up

The score consists of two systems of piano accompaniment. Each system has a treble and bass clef. The first system features a 'call' phrase in the treble clef with lyrics 'Hayi ye-ni ka-ya-a' and a 'response' phrase with lyrics 'Ma-aha-wu wa rhe-ndzele-ka wa'. The bass clef accompaniment includes the words 'house-pole', 'ralax', and 'nic.'. The second system continues the call and response with lyrics 'rhendzele-ka ab-i ye-ni ka-ya' and 'ka ma-ve-mbe-e'.

FIGURE 3

Work-song transcription: *Hi Ya Kandza Mavele!* (We Crush Maize!).

♩ = 92

Cycle: 8 ♩

Transpos.: maj 2nd up

The score is divided into three systems. The first system shows a 'call' phrase in the treble clef with lyrics 'Ma-ve-le mwana mana-'. The second system features a 'response' phrase in the treble clef with lyrics 'he-ye ha-ye ye-e' and a 'pestle' in the bass clef with lyrics 'raise raise'. A note indicates '(2nd time singe "nere")'. The third system shows another 'call' phrase in the treble clef with lyrics 'so-ai karbele ku kandza niri' and a 'response' in the bass clef with lyrics 'ya kandza ma-ve-le' and 'raise raise'.

*response moves faster in certain versions

FIGURE 4

Work-song transcription: Tlhokolo, N'wana Manani (Stamp, My Mother's Child).

♩ = 116
Cycle: 8 ♩

Transpos.: 5th up

The musical score is divided into two systems. The first system features a vocal line with the lyrics "ko la n'wa-na manana ho ahe", a pestle line with notes labeled "pestle" and "raise", and a drum line with notes labeled "drum" and "etc.". Above the vocal line is a "call" section with a single note labeled "Ho". The second system features a vocal line with the lyrics "ye n'wa-na manana ho ahe", a pestle line with notes labeled "raise", and a drum line. Above the vocal line is a "response" section with notes labeled "response".

FIGURE 5

Tape-recordings made in the field in Africa, of the crunch of a digger's pick-axe, of the thud of a driven house-pole, of the thud of a partly dropped and partly pushed pestle in a mortar, and of the boom of Tsonga drums and/or upturned oil-drums, reveal that these sounds are largely of a low, dull quality, possessing complex frequency curves, but without specific pitch such as that possessed by, say, a flute tone. Neher (1962, 152f) has pointed out that

1. A single beat of a drum contains many frequencies. Different sound frequencies are transmitted along different nerve pathways in the brain. Therefore, the sound of a drum should stimulate a larger brain area than a sound of a single frequency.

2. A drum beat contains many low frequencies. The low frequency receptors of the ear are more resistant to damage than the delicate high frequency receptors and can withstand higher amplitudes of sound before pain is felt. Therefore, it should be possible to transmit more energy to the brain with a drum than with a stimulus of higher frequency.

It is noteworthy that in tasks not automatically involving a sound-producer such as a pick-axe, house-pole, or pestle, the Tsonga generally either bring in their own drums or they upturn a large cooking-cauldron which produces a steep fronted sound of low frequency and high volume.

TAPPING THE ALPHA RHYTHMS

Tsonga work-party women appear to seek maximum brain stimulation through sound: low frequency, high volume, poly-rhythmic sound which, in the case of Tsonga fast-moving bimetric drumming, is found to take place at about 8 cycles per second. The metronome marking in Figure 5 indicates that each half-measure (i.e., each dotted quarter note) occurs 116 times per minute (or each whole measure 58 times per minute). If each whole measure occurred 60 times per minute it would occupy one second, showing that the 8 drum beats accompanying each measure possess a cps frequency of 8, which is within the 8-to-13 cps frequency-range possessed by alpha rhythms in the auditory area of the human cortex.

In the absence of drums, Tsonga women who stand in pairs driving two pestles into one mortar, clapping their hands while the pestle is in the air, and stamping their feet, may be replicating the same optimum rhythm, or at least one mathematically proportionate to it (16 to 26 cps was commonly observed) and which can be mentally divided by means of the accompanying word-syllables, and physiologically divided by means of ancillary hip, shoulder and head movements.

THE FUNCTIONAL BIOCHEMICAL EFFECTS OF DANCING

African choreographic, kinesthetic limb-plus-trunk-plus-head activity in time to music during monotonous horticultural tasks

produces functional biochemical effects increasing both alertness and available energy:

The violent dancing and gestures make hyperventilation a possibility and increase the production of adrenaline, as well as cause a decrease in blood glucose which is used for energy (Neher, 1962, 157).

The seemingly superfluous "maraca-shaking" of the African laborer who must break open hundreds of coconuts daily, the gum-boot slapping of the line of Zulu stevedores, and the lid-tapping of the truck-driver as he unloads oil-drums, are not wasted effort, but ways of introducing stimulatory and complementary psychological and physiological pleasures into daily chores. They are ways of translating movement and sound into music, and matching external tactual, kinesthetic, and auditory experiences to pre-existent internal biological phenomena (see Strauss *et al.*, 1952, for a description of susceptibility to rhythm due to increased adrenaline flow and decreased blood glucose).

THE FUNCTION OF POLYRHYTHMS IN AFRICAN WORK-GROUPS

Whereas the western function-oriented music, such as the marches sung by columns of soldiers, tends to consist of a solitary, plodding rhythm, African work-party music is polyrhythmic, the former type appearing (to the Tsonga) to be elementary and boring. Typically, a fast, dominant rhythm of 8 to 16 cps is accompanied by secondary and tertiary rhythms in the ratio of 3 to 2, 4 to 3, etc. These polyrhythms involve not only the producers of the rhythms, such as the drummers or pot-beaters, but also the workers, who stamp their feet with one rhythm and sway their shoulders and shake or nod their head with another rhythm, often a multiple of the first. This is interesting in the light of laboratory experiments by Walter and Walter (1949, 63f):

For a few experiments, two light sources were used simultaneously with independent flash frequencies. . . the hallucinations described by subjects were . . . compelling.

Two years of residing with African musicians, herbalists, and diviners (these last two utilize exorcism rhythms extensively)

convinced me that African polyrhythm creates emotional tension for the performers and the audience, due to the push-pull clashing of accents and the intriguing, sometimes exciting ambivalence as to where the on-going pulse lies. There is also the possibility that polyrhythm, with its parallel auditory-drive streams consisting of different basic cps frequencies, works to tap what we know are the different basic brain wave frequencies of individuals within a group; all are ensnared, as it were, the group commitment itself also constituting a feedback mechanism which reinforces the motivations and expectations of the individual.

REFERENCES

- Johnston, T. F. The music of the Shangana-Tsonga. Unpublished PhD thesis. Johannesburg: Witwatersrand University, 1971.
- Neher, A. A physiological explanation of unusual behavior in ceremonies involving drums. *Human Biology*, 1962, 34(2), 151.
- Strauss, H., Ostow, M. and Greenstein, L. *Diagnostic EEG*. New York: Grune and Stratton, 1952.
- Walter, V. J. and Walter, W. G. The central effects of rhythmic sensory stimulation. *Electroencephalic Clinical Neurophysiology*, 1949, I(1), 57.