

## SOME NOTES ON A THEORY OF AFRICAN RHYTHM ADVANCED BY ERICH VON HORNBOSTEL

by

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In an article on African Music written in 1928, Hornbostel offered an explanation of certain features of African rhythms which may puzzle Western ears (Hornbostel '28, p. 52):—

"African rhythm is ultimately founded on drumming. Drumming can be replaced by hand-clapping or the xylophone; what really matters is the act of beating; and only from this point can African rhythms be understood. Each single beating movement is again twofold: the muscles are strained and released, the hand is lifted and dropped. Only the second phase is stressed acoustically; but the first inaudible one has the motor accent, as it were, which consists in the straining of the muscles. This implies an essential contrast between our rhythmic conception and the African's; we proceed from hearing, they from motion; we separate the two phases by a bar line, and commence the metrical unity, the bar, with the acoustically stressed time-unit; to them, the beginning of the movement, the arsis, is at the same time the beginning of the rhythmical figure; up-beats are unknown to them. (i.e. *up-beats as weak beats, in the way Western musicians use them.* J.B.) To us the simple succession of beats ♪ ♪ appears as syncopated, because we only attend to its acoustic aspect. In order to understand African rhythms as they really are, therefore, we must thoroughly change our attitude; and in order to write them down adequately we must place the bar-line before the rest or the up-beat . . . the elementary form of African 3/4 rhythm is not

$\overset{>}{\downarrow} \downarrow |$  but  $\downarrow \overset{>}{\downarrow} | \dots$   
 (1<sup>o</sup>)                      (1<sup>o</sup>)

A. M. Jones refers to these remarks in his article "African Drumming" (Jones '34, p. 49):—

"Hornbostel with considerable ingenuity justifies these (marks of emphasis) on the ground that it is the *raising* of the arm rather than the actual sound of the strike, that carries the strong accent in African percussion rhythms. If our version be accepted, note that these accented notes practically all fall naturally into position, counting the strike as the accent. My African informant repudiates Hornbostel's notion. In this example, at any rate, it is entirely irrelevant."

These are the only references to motor concepts of rhythm in African Music that I have been able to find. Hornbostel does not say whether he deduced the theory himself or whether he had gotten it from some educated African or European enquirer. If his theory is correct then it deserves more attention than it has so far received, since it would be fundamental to the proper understanding of much African music. Although Hornbostel implies that *all* African peoples conceive their rhythms physically from motion rather than musically from hearing, it is more likely that the generalization applies, if at all, only to certain groups. Jones' African informant repudiates the notion; and this suggests that at least one group of Africans may not think of rhythm in this way.

Until Hornbostel's theory has been hammered out and proved true or false—or perhaps true *and* false, according to its application in different parts of Africa—accurate research into African music is seriously impeded. His proposition raises many problems and offers some solution to others:—

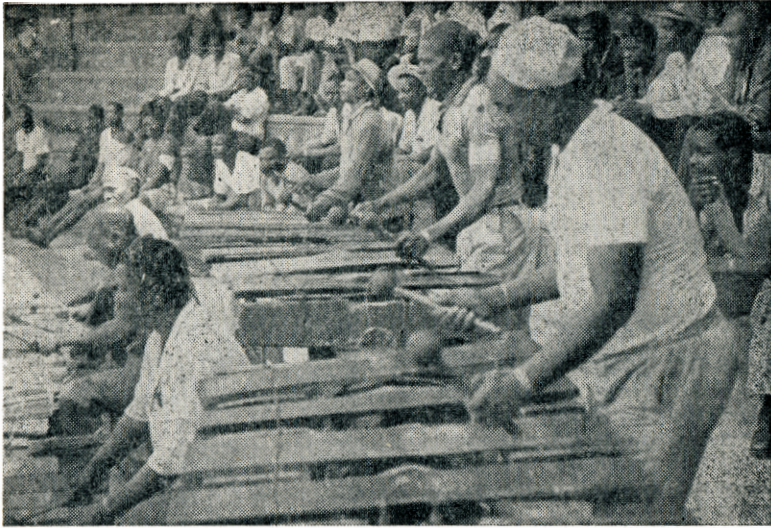
(1) *What is the precise nature of this suggested contrast between African and European concepts of rhythm?*

If one watches Chopi musicians playing their xylophones, they appear to be "attacking" their instruments with all the force they can muster. The only movement downwards that could be interpreted as a release of muscular tension is that which follows the raising of one arm in the air (see photo below), and this movement appears to be done only by a leader; it is a sign for the beginning of a new section of the music. Already an indictment of Hornbostel's theory? . . . .



High-speed photograph of the leader of a Chopi *timbila* orchestra preparing to begin a new section of the music. (Photo—J.B.)





Two high-speed photographs of Chopi musicians playing in the arena of a Johannesburg Mine Compound. Note the looseness and turning of the wrists, especially of the bass players (top). If they were hitting their instruments they would not be holding the beaters in that way. The pictures also show how the wrists are suspended from the shoulders. In the second photo (bottom) the leader has just jerked his beret on to the xylophone of the man behind.

(Photos—J.B.)

One has a similar impression of downward "attacking" movements when one watches the performance of a virtuoso pianist. If in fact he were pounding his instrument the tone would be unpleasantly harsh (It sometimes is!). Closer analysis of his movements will usually reveal that there is constant upward lift, which makes the downward "thrust" more of a downward "drop." Some piano teachers insist that all the muscular effort must be made when *preparing* to play each tone, so that the note is actually struck during a moment of muscular relaxation. The fingers are allowed to fall on to the keys rather than compelled to hit them: thus, contrary to what may seem natural, the louder one plays the more relaxed one is. In playing groups of tones, or chords, which succeed each other slowly it is possible to emphasize the periods of effort between the relaxed sounding of the tones. Obviously this is impossible when the tones are sounded in quick succession, as in fast semiquaver runs; and here the muscular effort is made theoretically before the beginning of each musical *phrase*, each "moment of relaxation" covering several quickly-changing tones.

Thus when African xylophonists or drummers play successions of notes or beats quickly and appear to be beating downwards they may still be adhering to Hornbostel's theory, with the same modifications that a pianist would have to make to his theory of effort and relaxation when playing fast passages. The clue to the technique which underlies their performance, whether conscious or unconscious, is to be found in the movements of the trunk, and more particularly the shoulders. In the same way one often learns more by watching a pianist's arms and shoulders rather than his hands and fingers. The Chopi play their xylophones with a loose wrist which is supported directly from the shoulder; if the wrist were supported by the forearm rather than the shoulder, so that they *hit* the keys forcefully with the beaters, I do not think that they could possibly play almost continuously and as vigorously as they do for more than an hour at a time, while the *Ngodo* dance is performed.

The procedure of both European and African performers appears to be virtually the same: an African drummer raises his hand prior to letting it fall on to the instrument, and a European pianist must prepare a chord both mentally and physically before producing the musical sound. In both cases the performer is a step ahead of his audience; in a sense the pianist proceeds as much from motion as the African drummer. Similarly a violinist must make a muscular effort before sounding a musical tone; a wind player must "strain" and take a breath before he releases the air and plays.

The contrast which Hornbostel suggests is therefore not so much one of procedure as of *attitude* towards movements and the production of musical sounds. He claims that Africans think of the sounds as a bi-product of rhythmical movement, whereas Westerners pay more attention to the sounds than to the movement which causes them.

(2) *Comparison of Hornbostel's theory with dancing and the ethos of much African music.*

"In Africa, the music of the dance and the dance itself are one indivisible whole." (Jones '52, page 1).

This fact has been corroborated by so many other observers that there seems little reason to doubt its truth. Since music for dancing must be related to the dance movements and in many cases in Africa might be considered subordinate to them, one might expect to find musical concepts derived from the physical pattern of the movement. (Sachs dwells on this point in Sachs '37, page 181 ff., giving several examples of the correlation between styles of music and dancing.)

A large number of African dances might be described as extrovert (see Sachs '37); the tendency is to achieve emotional release by straining the body upwards and outwards. The *Ndablamu* stamping dance of the Nguni group in Southern Africa might appear at first to be an obvious contradiction of this: but in fact the tense winding-up of the body



is a longer and more significant movement than the stamping release. The pattern is one of Tension—Relaxation, Tension—Relaxation. This is the pattern of many African melodies (see for instance Hornbostel '28, p. 34 ff.); Sachs calls this type of melody "pathogenic" (Sachs '43, p. 41).

The general pattern of Western music is one of Relaxation-Tension-Relaxation.<sup>1</sup> The tendency is to sing up the scale, whereas in Africa the tendency is to do the opposite: some instruments are even tuned from the highest to the lowest note—or, as African musicians say, from the smallest to the largest.

Telescoping these larger physical patterns into the space of a bar of four beats we find that the African up-beat should be the strong beat, equivalent to the Western down-beat. Physically the sensations are similar; the first beat is the strong beat: but in one case it is a movement upwards and in the other a movement downwards. Musically, as Hornbostel suggests, the results are not the same: the Western music runs 1 - 2 - 3, 1 - 2 - 3 etc., whereas the African music runs 1 - 2 - 3, 1 - 2 - 3 etc.

I have noticed a similar contrast expressed in the overall movements of ballroom dancing and jiving. However well one waltzes, dances the Foxtrot or the Quick-Step, one tends to come *down* to the ground on the strong beats:—1 - 2 - 3, 1 - 2 - 3, 1 - or 1 - 2 - 3 - 4, 1 - 2 - 3 - 4. In jive dancing, however, one tends to *lift* the body off the floor. I have checked this point recently at some European night clubs in Johannesburg. During the playing of waltzes, steady and sentimental numbers the couples danced or slouched around the floor in the normal Western fashion: but as soon as the band played a semi-hot number several dancers would indulge in a pseudo-jive style of bounce-dancing. With hardly a single exception amongst all those whom I observed, they lifted their bodies on the strong beats of the music (Beats 1 and 3, since all the tunes were in duple time), and let them drop on the weak beats.

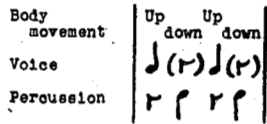
The syncopations of Jazz are often regular and monotonous, and it may be that this is due to a different conception of up-beats and down-beats. The upward lift, as opposed to the downward beat, is surely what gives Jazz its bounce. On the few occasions when I have played jazz on the piano I have found that bouncing up and down on the piano stool or lifting the shoulders in time to the music is very helpful to good rhythmic playing. It might well be shown that the fundamental innovation in Jazz was the replacement of the down-up movement found in most Western music and dances, by the up-down movement, a concept apparently derived from African dancing.

(3) *How far is Hornbostel's theory likely to apply to the rhythmic foundations of all African vocal and instrumental music?*

Although I have suggested that, in line with Hornbostel's hypothesis, the taking in of the breath for singing and playing wind instruments is equivalent to the raising of the arm prior to the beating of the drum (Section I of these Notes), it is more likely that the actual moment of exhalation coincides with the strong upward movement of the body. Although further tension, that of taking a breath, precedes it, the beginning of a pathogenic line of melody is really the climactic moment of tension. (When Chopi dancers sing they wind themselves up, moving their heads forwards, backwards and sideways left and right before bursting into the melodic phrase with tremendous vigour. The leader of the *Makwaya* dance of the Shangaan of Portuguese East Africa sizzles

<sup>1</sup> See, for instance Hindemith '47, p. 115 etc. Most Western music is shaped like a curve or a rising plane; very few works could be called pathogenic in outline. One might perhaps stretch a point and say that Vaughan Williams' 6th Symphony in E minor follows a pattern of Tension—Relaxation.

ominously like the fuse of a thunderflash before putting every ounce of effort into the first explosion of his speech-song.) Hornbostel deduces that theoretically the emphasis of the vocal line (and presumably that of melodies played on wind instruments also) should run at loggerheads with the audible beat of the percussion:—



If the whole body is strained and lifted in order to accentuate the melodic line, it cannot be expected to beat downwards at the same time. Perhaps this is why handclaps often occur systematically on the off-beats of a sung melody: the raising of the arms and the spreading of the hands is an act of tension resolved by the clap. Though these explanations of syncopation may be shown to apply in some areas of Africa, it must not be thought that they can be applied universally: for instance, in the areas in Northern Rhodesia and Southern Congo where polyrhythmic technique is commonly used the syncopation may perhaps be explained in a different way. In a pounding song of Tonga girls from Northern Rhodesia, analysed by D. K. Rycroft (Rycroft '55, p. 21), the down-beat of the pestles coincides with the strong beats of the vocal line. (This does not of course mean that all work songs will contradict Hornbostel's hypothesis: I can think of many cases where it is best for the physical movement to follow the vocal effort rather than synchronize with it. For instance, if a group of men are pulling a rope to the shout of "heave", the pulling will be more effective if the effort is made just after the shout rather than with it.)

Similar rhythmic features may be found in Jazz music, according to a recent definition of F. H. Garner and A. P. Merriam. Under the heading, "Continual off-beat phrasing of melodic accents", they list:—

- "a. Phrase patterns in which melodic accents fall between dominant percussive beats.
- b. Melodic cycles of three beats superimposed on a fundamental rhythm of two or four beats, the beats themselves remaining equal in value."

Both these features are often loosely called "syncopation". (b) may be explained on the basis of polyrhythmic technique (see Jones '34 etc.); while (a) may perhaps be explained on the basis of the elaboration of Hornbostel's theory which I have discussed.

Quite recently I came across some African music which seemed to combine both these features at the same time. I give below a diagram of the rhythmic foundations of the *ngeni-so* movement of a Chopi *Ngalanga* dance from the Zavala district of Portuguese East Africa.<sup>2</sup>

<sup>2</sup> Special dubbings of this recording can be obtained by arrangement from the International Library of African Music. It was collected on 4.x.55, (Research No. HIM-4), during a short expedition led by Mr. Tracey.

$\text{♩} = 100 \text{ M.M.}$

RATTLE, and basic beat of XYLOPHONE.

NCHUTO Tenor Drum, played with stick. Right ARM of player.

NKULU Bass Drum, played with two beaters.

VOICES.

Rhythmic foundations of *ngeniso* movement from a Chopi *Ngalanga* dance.

The notation of the voice part must not be taken too literally, since the rhythm was governed by the words; nevertheless the tendency was to slow down over the course of each two-bar phrase, as indicated above. A solo xylophone begins the dance, the other two join in with the rattle player, and then the two drummers: the voices enter when the rhythm is well under way. I checked my notation of the drum rhythms by playing them myself: when I emphasized the first of each triplet group in the *Nkulu* part I was corrected: only when I tested Hornbostel's theory and played with the accent on the last note of each group (as indicated above), was my performance approved. I tried playing the *Nchuto* drum as if it was the second of a group of triplets; that was also corrected. There is further use of polyrhythmic technique which I have not indicated above; the xylophones were often played with the left hand in duple time and the right in triple time. I was told by our Chopi interpreter, himself a musician, that the triple time is regarded as a variation within the basic duple time, and that it is important that the player should maintain the duple time in the left hand part. (cf. Drum technique described in Jones '52, p. 36 ff.)

Here, then, is evidence of off-beat accents apparently produced by polyrhythmic technique and the application of Hornbostel's theory at the same time. It is worth mentioning that when I first heard the play-back of part of this recording I was tempted to think that the beat of the *Nchuto* drum was in fact the main beat. When they performed it a second time however, it was quite clear that the main beat was set by the rattle player and the xylophonists; I noticed also the body movements of the two drummers, how the *Nkulu* player seemed to take each phrase in one downward swaying movement, and the *Nchuto* player stressed the upward lift of his drumstick almost as much as the downward beat. I could never have guessed what was happening by listening to the recording alone.

(4) *Further evidence in support of Hornbostel's theory.*

The other day a local boy sang us a song with guitar accompaniment. There was no hint of polyrhythmic technique in the rhythmical structure of the music (polyrhythm

does not appear to be used extensively by Africans in the Union of South Africa); both accompaniment and melody were in duple time, arranged in 4-bar periods and with simple European-influenced harmonies. The player beat time with his foot; the upward beat of his foot coincided with the strong, apparently syncopated accents of the melodic line; but the downward beat of his foot coincided with the strong beats of his strumming on the guitar. Being accustomed to European music, I regarded his down-beat as the main beat and his up-beat as the weak beat, so that the vocal line seemed excessively syncopated to me, almost monotonously so. If on the other hand the up-beat was to him the strong beat, then his conception of the syncopation would have been entirely different; in fact none of the music would have on him the physical effect of syncopation if it were perfectly normal for him to accent the voice on the up-beat and the percussive sound on the down-beat.

(As Hornbostel points out, the motor concept of rhythm poses certain problems in transcription. Are we to place the bar-line in accordance with the sound or with the physical movement that causes the sound? Written music should of course indicate the sound intended, not the methods of producing that sound; on the other hand, if we are to analyse music thoroughly it seems that we should try to express it in the terms in which it was conceived. Ideally every transcription of African music should be accompanied by some indication of the physical movements which produce the musical sounds. Transcriptions of drumming, for instance, which do not indicate the hand used to play each note, are not very enlightening.)

In listening to some items of African music, and trying to beat time with my foot, I have often found that I wanted to lift not only my foot but my whole body on what should be the first beat of the "bar"; only in this way could I feel the rhythm of the music. An excellent example of this sort of tune is *Mwana aboyi mama* (Ngoma 1378. 78 r.p.m., also on Decca LP 1224, No. 10 in the "Music of Africa" Series).

There is, moreover, evidence that African drummers *feel* their rhythms rather than listen to them. A typical example of this occurs in A. M. Jones' book on the Icila Dance (Jones '52): Mr. Kombe, an African musician, gives demonstrations on the drum; when he makes a mistake it is significant that he says not that he HEARS he has gone wrong, but that he FEELS that he has gone wrong. (p. 36 op. cit.)

I witnessed some of the most striking evidence in support of Hornbostel's theory at the Third African Eisteddfod in Bulawayo (described elsewhere in this issue in the Section 'Notes and News'). All the Choirs had to sing set pieces of European composed music, arranged either for part- or unison-singing. These songs were conducted by the African teachers who coached the choirs: I was astonished to see that several of them gave vigorous up-beats on all the strong beats where I should have given a down-beat. An excellent example of this occurred in the song, "The Lass of Richmond Hill", where eight out of nine African conductors beat thus:—



On Rich - mond Hill there lives a lass,

Conductors' beat: down - UP down UP down UP down UP etc.

The average European conductor would have done the exact opposite. (It must be said that this upward thrust to the strong beat of the bar is considerably more lively than the downward beat common in European conducting). I discussed the matter



with some of the African teachers afterwards, and they said that they definitely felt the up-beat to be the strong beat.

These then are some of the thoughts which have occurred to me and some of the evidence I have been able to muster since I was struck so forcibly by the methods of conducting employed by some African teachers at the Bulawayo Eisteddfod. Hornbostel, I discovered, had drawn attention to the 'motor concept' in African rhythms as long ago as 1928; the full significance of what he said does not seem to have been appreciated.

I have written these notes in the hope that they will stimulate correspondence and views both for and against Hornbostel's notion from observers and research workers, and above all from African musicians themselves—for the last word in this matter must inevitably come from them.

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