PROBLEMS OF PITCH, PATTERN AND HARMONY IN THE OCARINA MUSIC OF THE VENDA

by
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This paper aims both to describe some features of Venda ocarina music and to relate these findings to a problem of method in ethno-musicology.

The Function of Musical Transcriptions

In studying the music of a society, one of the first tasks is to discover the structural principles which underlie the musicians' creation of sound-patterns. Where there is no system of musical notation, analysis must inevitably be preceded by accurate transcriptions of the music performed.

In a recent discussion of the problems of musical transcription, Veenstra stresses that 'more thought' should be given 'to scientific method',[1] and maintains that a Western musical score is music 'to be performed', whilst a transcription of a recording is music 'already in existence'; he advocates special notation for transcriptions, the use of 'dual-beam oscillographs' and other commendable techniques, but he does not discuss the function of musical transcriptions. Even the most meticulous transcription of one performance of a single item of music is surely not evidence enough to justify an analysis of the structure of the music. Jones has already shown[2] how two good singers may perform the same song differently; and even two performances of the same music by the same performer may differ.

Unless we are specifically studying interpretation, we want to know what a musician sets out to do each time he plays a certain piece of music, not *exactly* what he did on one particular occasion.[3] 'Time-pitch' graphs and other mechanical devices may be helpful and necessary for the ethno-musicologist in the course of his analysis, but the final transcription should, if possible, be as straightforward and as easy to read as a standard musical score, which in any case is only a guide to musical performance and an approximation of the sounds produced.

The four musical transcriptions in this paper (Fig. 5) do not represent the exact sounds that are made every time two Venda boys play ocarina duets, but are a synthesis of several performances of the same duets. Detailed transcriptions of every performance that I heard or recorded are not given, since I do not consider that the early stages of an analysis need be printed any more than the field-notes of an anthropologist. The transcriptions are intended to represent the musical patterns desired by any two Venda who set out to play the duets.

Venda Ocarinas

The Venda ocarina (*tshipotoliyo*, pl. *zwipotoliyo*) has not, to my knowledge, been previously reported. Van Warmelo mentions the word *tshipotoliyo* in his Venda Dictionary (1937), but describes it as a 'reed-flute of herd-boys', an alternative name for *tshitiringo*,

[1] A. J. F. Veenstra, "The Begu Zulu Vertical Flute", *African Music*, Journal of the African Music Society, Vol. 2, N 1, 1958, p. 44.

[2] A. M. Jones, *Studies in African Music*, Vol. I, O.U.P., London, 1959, p. 234 ff.

[3] If we were studying, say, a Chopin Mazurka from the evidence of performances, as we study an item of folk music, we would have to transcribe several different pianists' interpretations before arriving at a transcription which resembled Chopin's score. Only then would we be in a position to understand the structure of the music. The actual performance of the folk musician is really equivalent to the composer's act of writing down the music on paper, so that the music 'to be performed' has already been 'in existence' in the mind of the composer; Veenstra's distinction, therefore, seems to be invalid.

which is a three-holed transverse flute. During the course of my fieldwork in Venda-land,[4] however, I only heard the Venda use the word *tshipotoliyo* to describe an ocarina, and all old people whom I questioned assured me that it had not been recently borrowed from the Tsonga, who live next to and amongst the Venda, and whose *shiwaya* ocarina has been reported by Kirby.[5]

Tsonga ocarinas are made from the shell of the 'kaffir-orange' (*Strychnos spinosa Lam.*). The Venda sometimes make their ocarinas from the same fruit (Venda: *shamba*, pl. *maramba*), but more commonly they use the smaller fruit of the *mutuzwu* (*Oncoba spinosa Forsk.* Wild Custard Apple). These fruits (*thuzwu*) are also filled with seeds or tiny pebbles and worn as leg rattles for dancing.[6]

Apart from their size, the main difference between the two fruits is that the shell of the 'kaffir-orange' is smooth (See Fig. 1A), whilst that of the wild custard apple is composed of sections (see Fig. 1B). Ocarinas made from the wild custard apple, therefore, tend to split at the base when dry, so that they can no longer be played.

The Venda often boil *thuzwu* fruits in water, so that they can hollow them out more easily. A large circular hole (diameters between 9 and 13 mms, average diam. 11 mms, for 9 specimens measured) is cut at the top of the fruit, where it is attached to the branch of the tree. Two smaller circular holes (diameters between 6.5 and 8 mms, average diam. 7.4 mms, for 9 specimens measured) are cut about one-third of the way down the circumference of the fruit. These two holes are supposed to be of equal size, but they are often rather crudely and inaccurately cut. The Venda say that if the two holes on the side are not smaller than that at the top, the instrument will not sound well. The inside (*tshivhindi* lit. = liver) of the *thuzwu* is removed through the holes; it must not be thrown on the ground where fowls can eat it, as it is supposed to make them sick.

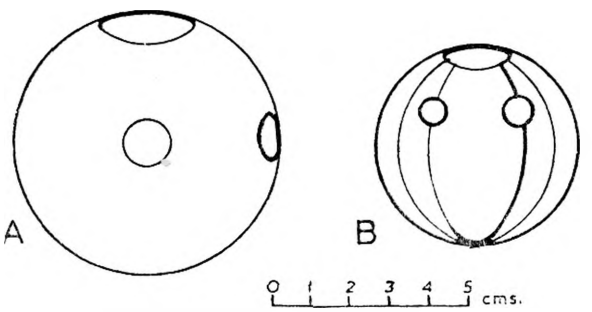


Fig. 1.—Diagrams of two Venda ocarinas, drawn to scale. A. Made from a 'kaffir-orange'. B. Made from a wild custard apple. Type A is rarely seen in Vendaland.

The tunes which the Venda play on *tshipotoliyo* are not complex, and the melodies are much influenced by the physical properties of the instrument. The largest of the three holes is always used as an embouchure, across which the breath is directed as in

[4] The information on which this article is based was collected during twenty-two months' fieldwork amongst the Venda of the Northern Transvaal, between 1956 and 1958. My work was sponsored and financed by the International Library of African Music, assisted by an *ad hoc* grant from the Union Department of Education, Arts and Science (National Council for Social Research). I wish to thank these two organisations for their financial assistance, and also the Director of the I.L.A.M., Mr. Hugh Tracey, for promoting and encouraging my fieldwork. I am also grateful to Mr. Andrew Tracey for helpful comments and criticisms made during the preparation of this paper.

[5] P. R. Kirby, *The Musical Instruments of the Native Races of South Africa*, O.U.P., London, 1934, d. 128 and Plate 44.

[6] P. R. Kirby, *op.cit.*, p. 5, Plate 3 C. The Venda were using the same leg-rattles in 1958.

playing the transverse flute, and the two smaller holes are stopped in one of two ways:

A. The instrument is held in the left hand and the holes are stopped with the thumb and first finger, or the first and second fingers.

B. The instrument is held in both hands, and the holes are stopped with the two index fingers.

For the best results, the instrument should be thoroughly soaked in water before playing. Four tones can quite easily be produced (see Fig. 2).

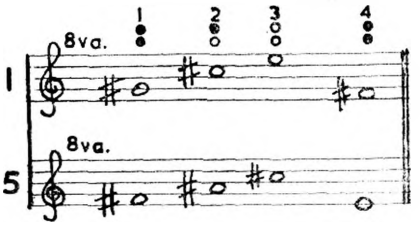


Fig. 2.—Fingering and approximate tones produced on ocarinas Nos. 1 and 5.

1. With both fingers on the holes.
2. With 'left' finger off (i.e. thumb or first finger in position A).
3. With both fingers off.
4. With both fingers on, but tilting the instrument towards the mouth and downwards, so that a larger area of the top hole is covered by the lower lip.

Since the two smaller holes are supposed to be the same size, there is generally no difference between the notes produced by lifting either the 'left' or 'right' finger.

The sound of *zwipotoliyo* is richer and more mellow than ordinary whistling, and the Venda very appropriately compare the 'songs' of *zwipotoliyo* and birds. It is possible to make similar sounds by cupping the hands blowing from the top, and manipulating the fingers to alter the pitch (see Fig. 3); Venda boys often do this, and explain that they are 'playing *zwipotoliyo*'.

Fig. 3.—Venda boy playing *zwipotoliyo* melodies with his hands.

When wild custard apples (*thuzwu*) are in season, between December and July, boys make *zwipotoliyo*, especially when they are out herding. I never saw nor heard of girls playing them.

The size of *thuzwu* does not vary greatly, so that the compass of most *zwipotoliyo* lies within the notes c″ and f‴. Several instruments are generally made at the same time, because duets are played more often than solos, and therefore it is necessary to select pairs of instruments which sound well together.

TESTS OF PITCH-CONSCIOUSNESS AND MUSICAL TASTE

The tone and pitch of wind instruments may vary considerably because of such factors as changes in temperature or in the position of the player's mouth in relation to the embouchure. The pitch of ocarinas is particularly unstable, and they are therefore useful for testing the pitch-consciousness and the musical preference of performers.

I observed that Venda boys were not at all disturbed if the pitch of a single *tshipotoliyo* varied from one performance to another, even when the interval was as large as a whole tone. On the other hand, they were very particular about the relative pitch of ocarinas when playing duets; they were in some cases able to adjust the pitch of an instrument by altering the position of the mouth, but generally they made no further attempt to play duets on two instruments which did not immediately sound well. In playing solos, therefore, they appeared to have no accurate sense of pitch and were concerned only with overall patterns of melody. In playing duets, the problem of pitch became more important — though it was, of course, always a question of relative rather than exact pitch — and performers exerted more control over the physical properties of the instruments, to suit their own musical intentions.

I thought it worthwhile testing the truth of these observations, and so I engaged the help of two young men (Alfred Tshibalanganda and Flaubert Netshikwati) who were considered to be good musicians and *tshipotoliyo* players. I collected six good *ʒwipotoliyo* and recorded the sounds produced by each one, so that when I left the field I could measure their frequency with an audio-oscillator; the constancy of the speed of the tape was assured by sounding a tuning fork at intervals during the recordings.

First, Alfred Tshibalanganda played the three basic tones (fingering 1, 2, 3, in Fig. 2) on all *ʒwipotoliyo*, holding each note for about four to seven seconds, while Netshikwati checked that he was satisfied with the sounds. After Tshibalanganda had recorded the individual sounds of ocarinas 1 and 2, he played the first part of Tune I (qv) on ocarina 1, whilst Netshikwati played the second part on ocarina 2. The same process (of playing individual notes and then duets) was repeated with the pairs of ocarinas 3 and 4, and 5 and 6, and all stages of the test were recorded on tape. After a break of about an hour and a half, Tshibalanganda played again the three basic tones successively on ocarinas 1 to 6, as in the first stage of the test, blowing each note for about four to seven seconds. Finally, Tshibalanganda played Tune I successively on ocarinas 1 to 6, as for normal performance.

The frequencies of all the notes played during this test were subsequently identified with the help of an audio-oscillator. In order to make the test as objective as possible, I checked the measurements independently on three occasions. I converted the tunings to cents and transferred them onto one large graph for comparison.

In almost every case, the tunings for each ocarina differed considerably every time they were played, sometimes by as much as 220 cents; the same sound was produced by the same fingering in only thirteen instances. In this paper, I am not so concerned with the causes of the variations in tuning[7] as with the fact that my two informants were sure that they were playing the same notes on each occasion and were quite satisfied with the results. The tunings produced by the performance of Tune I were generally less erratic than those that were played individually. This is significant: that the performance of musical patterns produced greater uniformity than that of individual tones.[8]

[7] For instance, the tendency for some tunings to rise may be due to an increase in the temperature as the test progressed throughout the day.

[8] The ability to reproduce the pitch of a given tone is generally regarded as one of the criteria of musical ability. Tests of this nature are clearly of little consequence when applied to people to whom the concept of an isolated tone is foreign; but they may also be of doubtful value even in the context of a culture where isolated tones are recognized. I have, for example, come across Europeans brought up in the Western musical tradition, who were unable to reproduce the pitch of any single given tone; when asked to reproduce a musical phrase, however, they were able to sing it accurately and in tune, and even musically. The musical phrase, or pattern, was clearly a more meaningful structural unit than the isolated tone, or even two adjacent tones.

Since there were considerable variations in the 'scales' played on the six ocarinas, all of which were accepted by two competent Venda musicians, I can see no objection to a synthesis of all these variations, derived from the details of the graph. The averages of the tones produced on ocarinas 2, 3, 4, and 6 are given in Fig. 4. Those for ocarinas 1 and 5 have already been given in Fig. 2.

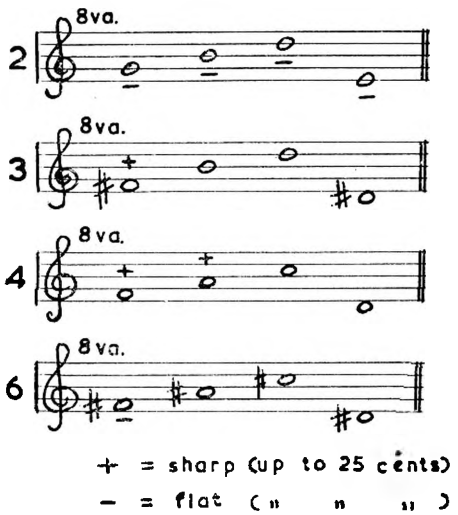


Fig. 4.—Average tunings of ocarinas 2, 3, 4 and 6, derived from a test with two Venda informants.

The second test which I set my informants was concerned with a problem of musical taste, and hence with certain aspects of the structure of Venda music. Total patterns of sound, rather than isolated tones or intervals, seem to be the basic materials of the Venda musical tradition. For instance, when a qualified instrument-maker cuts a set of twelve reed-pipes (each of which produces a single tone), he will not guarantee that they are in tune until he has collected a group of people to play a tune on them. Only then can he adjust, by reducing the length, or throwing out the 'mad ones' (*mavhavhi*) which do not sound well. I never found a Venda who could explain why he preferred one sound pattern to another, or why it was more in keeping with the structural basis of Venda music; but on the other hand most musicians were generally quite certain about what they could or could not accept. Thus, when I asked my informants to play Tunes I and II on every possible combination of the six ocarinas and give me their opinion about each combination, they rarely played more than a few bars of Tune I before giving me an unanimous verdict.

Owing to the breakdown of my recording machine and the departure of Netshikwati to Johannesburg before I had it once more in working order, I was not able to record every combination that my informants tried and so had to be content with on-the-spot measurements made with a set of tuning forks. As in the first test, the informants did not always produce the same tones on the same instrument: for instance, when playing Tune I with ocarinas 2 and 3, they said that the combination was unsatisfactory because ocarina 2 was pitched too low (i.e. 'too big'); later, when playing the same tune with ocarinas 3 and 2 (i.e. 3 now took the leading part), they said that the combination was unsatisfactory because both ocarinas sounded alike!

In spite of the obvious deficiencies of the test, certain factors seem to emerge clearly, giving some indication of Venda musical preferences when playing *zwipotoliyo*:

1. The pitch of the two instruments must not be the same. This is 'not interesting' (*a zwi andani*).

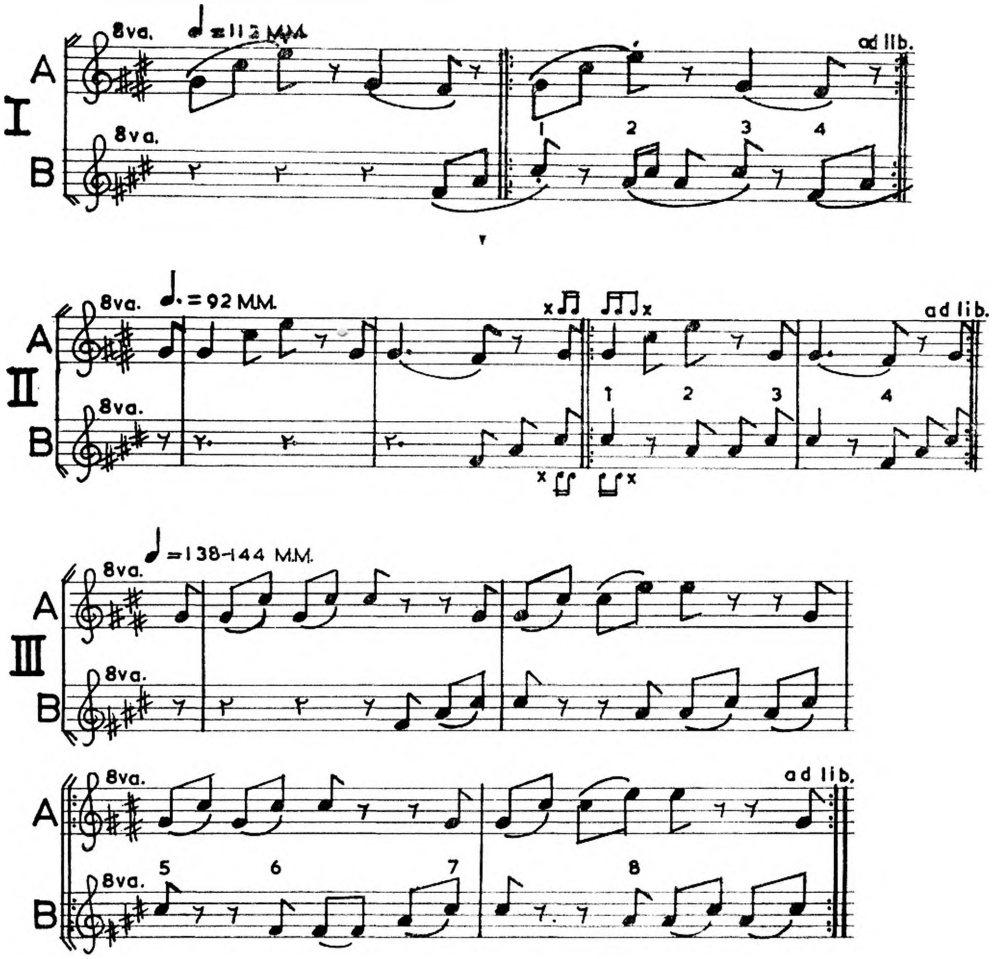
2. The second instrument (*bvumeli* = chorus) may be pitched above the first (*musimi* = chanter, song-leader), but the duet sounds better when it is pitched lower.

3. The second instrument must not be pitched too low. For instance the following combination is unacceptable:

Leading ocarina (*musimi*) — g♯″, c♯‴, e‴.
Second ocarina (*bvumeli*) — f″, a″, c‴.

It will be clear that this combination would produce intervals that are not used in Venda music, such as a minor second at the end of the first ocarina's second phrase in Tune I. (See Fig. 5.)

4. The combination which my informants considered by far the most satisfactory, and with which they had chosen to play previous recordings, is that of ocarinas 1 (*musimi*) and 5 (*bvumeli*). The transcriptions given below are of duets played by this combination of instruments, and the analysis of them will show quite clearly why these are preferred.



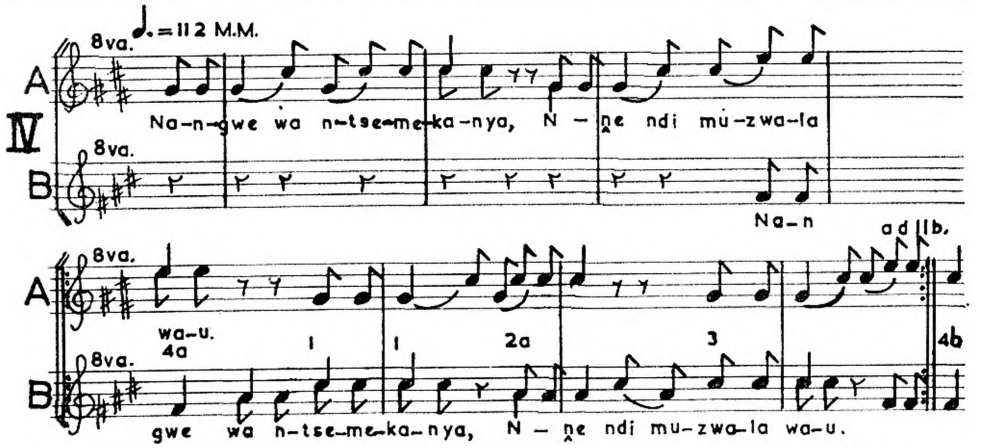


Fig. 5.—Transcriptions of four duets played on ocarinas 1 and 5. Ocarina 1 (marked A) plays the part of chanter (*musimi*), and ocarina 5 (marked B) plays the chorus (*vhumeli*). Some players vary the melodies by repeating notes quickly (marked X—X in the transcription); the effect is rather like that of flutter-tonguing.

The melodies of both parts A and B in the ocarina duets begin on the instruments' 'fundamental' tone, with both finger-holes closed; the entries of part B, especially in Tunes I and II, present few difficulties to the player. The periods of four beats in Tunes I and II, and of eight in Tunes III and IV are the most common in Venda music, and the use of polyrhythm in Tune IV (3 beats in part B against 2 in part A) is a standard technique. The symmetrical musical phrases of both parts are, like the rising fanfare melodies, unique in Venda music, where chorus and solo parts are very rarely of equal length and even then they are not regularly 'staggered', as they are in these ocarina duets.

SUMMARY

The duets played by Venda boys on *ŋwipotoliyo* (ocarinas) illustrate some of the principles that underlie Venda music, though melodically and formally they are atypical.

The pitch of *ŋwipotoliyo* differs according to the size of the finger-holes and the *thuŋwu* fruits of which they are made; thus it is virtually impossible to produce to order an instrument of determined pitch. Furthermore, the same player does not always produce the same tones each time he plays an instrument, so that there may be some variation in pitch between one performance and another. This does not worry the Venda, however, as in the case of ocarina music they are concerned with relative patterns of sound rather than exactly-pitched melodies.

The acceptance of variable pitch and the preference for certain 'harmonic' patterns were demonstrated by tests which I set two Venda informants. My two informants were unanimous in preferring to play the duets on two ocarinas which produced intervals of little tension (fourths) alternating with intervals of greater tension (tritones and minor sevenths); this gave the duets an implicit 'harmonic' framework which, in Western terminology, might be described as a regular shift between second inversions on the Tonic and sevenths on the sub-dominant. Another important feature of the duets, which is found in other items of African music, is what I have called the 'root-progression'; the duets are held together structurally by a *canto fermo* which moves a whole-tone above and below a tone which may be regarded as a 'tonal centre'. Combined with the unresolved 'harmonic' progression, this gives the music the quality of perpetual motion, and there is no point which might be called a cadence. The Venda either stop playing abruptly at the end of a phrase, regardless of the harmonic implications, or they prolong the lowest note of the root-progression; this ending is unexpected and harmonically unprepared, but similar endings are found in other musical tradition

E STRUCTURE OF THE OCARINA DUETS

The unbroken rising fanfare pattern which dominates the duets has no parallel in the Venda vocal music that I have heard; a falling fanfare could, of course, be played on *ʒwipotoliyo*, but even this motif is very rare in Venda music. Both the intervals and the rising patterns of melody arise largely out of the physical properties of the instruments. The Chopi of Moçambique manage to produce more than four different tones on their ocarinas[9], but the Venda seem to make no attempt to produce melodies that are more akin to the general style of their music by breaking the bonds imposed upon them by the instrument. Even the melody and the words of Tune IV defy Venda musical tradition, whereby melodic patterns are related to the speech-tone patterns of the text.

Tune IV is the only ocarina song with words that I encountered. The words may be sung by two boys alone as a round, or in company with two *tshipotoliyo* players; *musimi*'s part (A) may also be sung as a solo. The words do not appear in any other context, and are associated only with *ʒwipotoliyo*:

Nangwe wa ntsemekanya,
Nne ndi muʒwala wau.
Although you are always quarrelling with me,
(Don't forget that) I am your cross-cousin.

There is a close bond between cross-cousins, especially as cross-cousin marriage is preferred and in fact quite common. The singer reminds a quarrelsome cousin of the significance of their kinship ties; he is in fact saying, "You had better be nice to me; remember that my sister could be your wife." The other three songs are called simply 'marching songs' (*nyimbo dza u tshimbila*), and they have no words. Herd-boys may play them when out herding, and especially when they are driving their animals home.

The relationship between the melodies of ocarinas A and B (i.e. 1 and 5 in Fig. 4), and the reasons why my informants preferred this to all other combinations, may be best explained by analysing the 'harmonic' framework which seems to underlie the duets. The patterns of many other Venda melodies may be similarly explained in terms of basic 'harmonic' progressions, and I have heard much music from other parts of Africa where the same principles apply. It might be argued that because of my own training in Western music, I am trying to fit Venda melodies, that are conceived as pure melody, into an 'harmonic' framework which simply does not exist in the minds of the performers. My contention is that this 'harmonic' framework does exist, at any rate in the minds of Venda musicians, and I offer my informants' choice of ocarinas as evidence of this.[10]

(In the ensuing discussion, I wish to make it clear that when I speak of 'fifths', 'fourths' and other intervals, I refer to approximate intervals. I have not yet been able to make enough accurate measurements to establish the intervallic norms, if any, of Venda music.)

When more than one Venda sings, and especially in antiphonal music for solo and chorus, parallel singing and the use of intervals of the octave, fourth and fifth, may occur. When these intervals are used, the movement of the melody remains the dominant feature of the music. There are, however, three other intervals which are sometimes used, and they create tension and add 'harmonic' significance to the melody; these are the third (generally minor), and more especially the tritone and the minor seventh.

[9] Recordings of six tunes for Chopi ocarinas (*sigowilo*) are given on Record TR 11 (B) in the Sound of Africa series issued by the International Library of African Music, Roodepoort. I shall publish an analysis of these tunes at a later date.

[10] It is not my purpose to discuss whether this 'harmonic' sense arises from contact with the music of peoples from other parts of the world, or from recognition of the harmonics of stretched strings, as Professor Kirby has convincingly argued (Kirby, *op.cit.*, and other works), or whether there is yet another factor to be considered. I am here concerned with an analysis of the phenomenon in one small item of Venda music.

The melodies of much Venda music appear to be based on an implicit 'harmonic' framework; the individual melodies of the ocarina tunes, however, are clearly influenced by the physical resources of the instrument, but when they are combined for duets, 'harmonic' interest is added by the production of points of more or less tension.

Thus in all four tunes (see Fig. 5), the points of least tension are at 1, 3, 5 and 7, where the two parts combine to produce the interval of a fourth. 2, 8, 2*a*, and 4*a* are points of greater tension, where intervals of a tritone, a minor third and a minor seventh are used. 4, 6, and 4*b* are points of implicit tension; for although unisons and fifths are used, the structure of the melodies and their 'harmonic' progressions does not allow these to be treated as points of rest. A summary of the 'harmonic' structure of the tunes is given below. In most recordings of the duets, especially those of Tunes III and IV, what I have called the 'root-progressions' emerge very clearly as pillars in the patterns of sound.

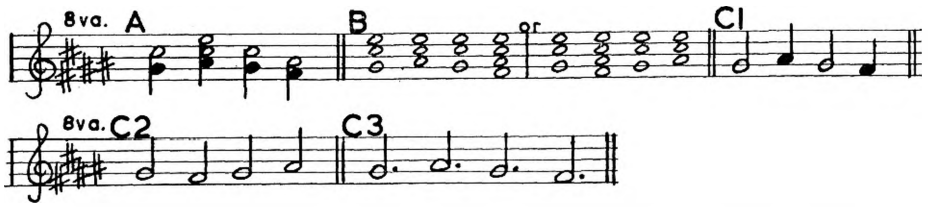


Fig. 6.—A.—Actual 'harmonic' framework of Tune I. Root-progressions are shown with black notes.
B. Basic 'harmonic' framework implicit in all four tunes.
C1—C3.—Root-progressions of Tunes II, III and IV.

The regular movement of the root-progression a whole-tone above or below a tone which may be called the 'tonal centre' of the progression, is a feature of much Venda music. Similar progressions are found in the music of the Chopi of Moçambique, the Luba and Kanyoka of the Belgian Congo and several other African societies, and even in the Tonic-Subdominant-Dominant strumming that one often hears on guitars and old pianos. For the Venda, the shift of tonality implicit in the movement of the root-progressions appears to be the most important structural feature of the music.

If we judge the duets by the principles of European classical music, however, we cannot say that any one of the notes of the root-progressions in Fig. 6 is equivalent in function to the Tonic; c♯‴ is really the Tonic of all four tunes. Since the 'chords' on g♯″ in the transcriptions have the effect of a second inversion of a chord on the Tonic c♯‴, they provide only a temporary point of rest, and the music is always thrust on to the next point of tension.

The combination of regularly moving root-progressions and unresolved 'harmonies' gives the music that quality of perpetual motion, which is a prominent feature of much African music. Very often, the music continues until it is stopped suddenly and without any musical preparation; each player or singer may break off at the end of a phrase, and since (because of the polyrhythmic basis of so much African music) these phrases rarely coincide, there is no point which might be compared to the Western cadence. The Venda sometimes finish a tune by prolonging (*-kokodza* = lit. to pull) a certain note; for instance, in Tunes I and II, my informants often prolonged the f♯″ at point 4. Harmonically, of course, this cadence is quite unexpected and out of keeping with the pattern of the music. It is only comprehensible if we consider it in relation to the root-progressions; after weaving above and below the tonal centre of g♯″, the root-progression finally descends to f♯″, which thus becomes a point of rest. Such unexpected endings occur in many of the items of African music that have been recorded by the International Library of African Music (Sound of Africa series); they are often heard in jazz music, and Kirby reports[11] similar endings in the songs of American Negroes.

[11] P. R. Kirby, "A Study of Negro Harmony", *The Musical Quarterly*, Vol. XVI, No. 3, July 1930, pp. 412 and 414.