ANALYSIS AND ANALYTIC TECHNIQUES IN AFRICAN MUSIC
A Theory of Melodic Scales

by

LAZ. E.N. EKWUEME

In our article, "Concepts of African Musical Theory",[1] we debunked the contention (by A.M. Jones) that:

> (The African) is utterly unconscious of any organised theory behind his music. He makes his music quite spontaneously and it is with interest and the delight of discovery that the more educated African will listen to a demonstration of the basic principles which underlie his musical practice.[2]

We further demonstrated that from lots of available evidence the African is certainly conscious of a theory behind his musical practice, hence he may accept or reject certain tones as belonging or not belonging to his musical style,[3] and does recognise such things as tonal centres, e.g. *hombe,* around which other notes of his musical scale revolve.[4] Having not grown up in and with a tradition where the (western) system of reading and writing is the norm, the African may not be able to articulate these theoretical principles in unequivocal terms to a western researcher, particularly one working through informants.

In our present study, we intend to show that a systematic analysis of the music of black Africa reveals an internal structural government of extraordinary order and symmetry. This study deals with the theory of melodic scales. Our examples will be taken from one area of Africa, the music of the Igbo of Nigeria; we have, however, shown elsewhere that examples of the same or a similar system operating in the music of other areas of black Africa abound in large numbers.[5]

What is a scale?

The "Harvard Dictionary of Music" states that "the term (scale) which properly means 'ladder', denotes the tonal material of music arranged according to rising pitches".[6]

Bence Szabolcsi suggests that

> The major scale has a past of at least a thousand years if it was considered as a purely mechanical series of sounds, without reference to the vital inner functioning which produced note and mode, melody and music out of rows of notes.[7]

It is clear that a true "scale" cannot be just a mechanical series of tones, but that these have to be arranged in a certain (ordered) row, taking into account the "vital inner functioning" roles of the various tones which make up the series. Apel's definition does not fully explain this organisation of "the tonal materials of music", because, contrary to his contention, they need not necessarily be arranged "according to rising pitches". Perhaps a better definition is that offered in "Grove's Dictionary of Music and Musicians":

> Scales are a systematic statement of the most important notes which form the basis of music of various peoples and periods, arranged in stepwise order.[8]

Especially when concerned with the music of non-literate peoples, a scale determined for a song or a piece of instrumental music must demonstrate an arrangement which exhibits a schematic organisation of the notes employed in the song. Thus in a series of notes arranged in stepwise order as a scale, some notes are more important than others. As Hindemith has shown, certain notes are more significant than others in a song melody: these are the main notes of the tune which the subsidiary ones merely connect.[9]

In order to arrive at a fair assessment of the vital inner functions of the notes in a scale, certain features of the melody have to be considered.

Shape: The shape of the song is important. Western melodies (if one can generalise) tend to start at a comfortable (low) pitch and meander more or less smoothly up and down, reaching a high point or climax somewhere during the course of the tune, and gradually come down to a comfortable end. The climax may, of course, sometimes be a "low point", and certain modifications may be made for dramatic effects, but the general shape of tunes that have become popular tend to conform to this pattern. What about Igbo song melodies? What general shape do they follow?

Range: The span of a melody is an interesting feature of that melody. The "Star-Spangled Banner" is notorious for its supposedly very wide range; but the tune covers only an octave and a fifth (a 12th). Some operatic arias demand more in the compass of a performer, as indeed does "Londonderry Air" with a range of an octave and a major sixth.

Interval width: While scale passages may be easier to sing than wide leaps, it is known that certain cultural areas tend to favour some intervals and exclude others. Early western music, for example, did not accept the tritone as a melodic or harmonic interval. Songs of Eastern European countries are said to contain an abundance of fourths. Tunes based on most pentatonic scales exclude the semitone. Nketia shows thirds (rising, falling and interlocking) as being common in Ghanaian songs.[10]

Phrases: Melody may be briefly defined as a succession of single tones perceived by the mind as a unity. The mind discriminates as to the length of this unit. Smaller units may form parts of a larger one. It is the length and the concatenational organisation of these units or phrases which make a melodic line distinct. One may, for example, compare the length of a vocal phrase by Bach with one by Giordani. How long are Igbo melodic phrases? How many such phrases make up one song, and how are they ordered and balanced in the song?

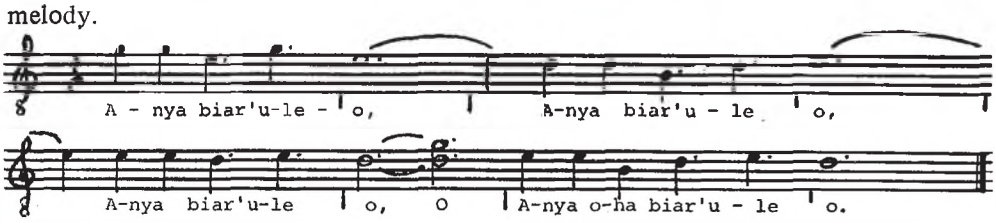
Resting notes: It is interesting to know what notes carry more weight – arising as a result of stress or accent, leaps or duration – contrasting them with the notes that may be termed "passing" or "transient" in the melodic line. Are there any notes commonly used at the beginning of songs, or at the end; or are dwelt on longer than

others, so that they mark off ends of phrases or sections of the song? Do these resting notes have any effect on the "colour" of the song, such that they suggest or determine a mode?

Analysis: It may be necessary to explain our approach to the analysis of song melodies. It is our plan to examine some sample songs with respect to the above-mentioned features of the song melody. By a "process of elimination" we shall further inductively determine the true scale of the song tune under investigation.

As each song is analysed, important observations made on the general character and theoretical foundations of the song melody will be assumed for future songs which exhibit similar characteristics. New observations will be made as they manifest themselves and added to the list, so that at the end of our analyses of the various songs, we would have established specific generalisations suggesting a typical "maqam"[11] for Igbo song melodies.

A look at the song "Anya Biara Ule" (Ex. 1) reveals interesting features of the melody.

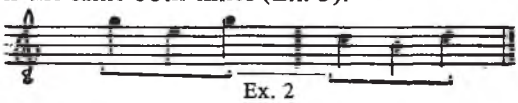


Ex. 1

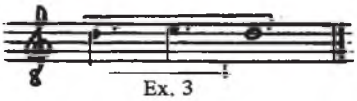
Shape: The general shape of the melody shows a downward movement. The highest note in the tune is sounded as the first note and dominates the first *okele.*[12] Only as an optional tone in the sixth *okele* is it reached again; otherwise the high point of the melody is also the initial point of this short tune. Thereafter, the melody drops slightly, gently meandering but dropping to the end. The lowest point is reached in the second phrase, and again in the last phrase.

Range: The downward direction of the melody is, on the face of it, not so striking because the tune has a narrow range – a minor sixth to be exact (from high G down to B on our notation). This range is covered in the first two phrases. What follows thereafter remains within this compass. The tune may therefore be said to be restricted in range.

Interval employment: Three intervals other than unison are used in this tune, two of which predominate – a minor 3rd, and a major 2nd. A perfect 4th appears once, in the last phrase, and it is also used (ascending) when the optional ending of the third phrase is employed. A sequence of a descending and ascending minor 3rd appears at the ends of the first two phrases (Ex. 2), while the approach to the last two phrases is the same both times (Ex. 3).



Ex. 2



Ex. 3

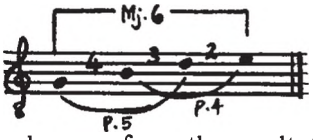
It is difficult to state categorically from this tune whether the intervals that predominate (minor 3rd and major 2nd) appear more frequently in the descending version than in the ascending. This is because a drop of the interval is often answered by a corresponding rise to the previous note as noted in the sequences. The factor of a more common direction (ascending or descending) of a certain interval will, therefore, be ignored here. Suffice it to say then that these intervals appear in the song, both ascending and descending: major 2nd, minor 3rd and perfect 4th.

Phrases: As has already been indicated, in this song there are four phrases of about equal length. Each phrase is made up of a succession of short notes, ending on a long held note.

Resting notes: According to our score (Ex. 1), the first two phrases rest on E, while the last two rest on D. The approach to the E is in the first phrase from above (a minor 3rd), but in the second phrase it is from below (a major 2nd). The cadence on D both times (phrases 3 and 4) is from above with a descending interval of a major 2nd (from E). It is noteworthy that the two resting notes are a major 2nd apart, and recur frequently in the song. The only 2nds in the melody, in fact, arise as a result of going from one to the other of these resting notes.

Ex. 4

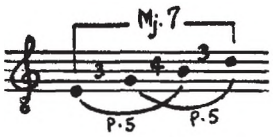
Scale: Several points have to be taken into consideration before we can truly determine the right scale for this song. The four notes that are used in the song, by our notation, appear in the order shown in Ex. 4. It is possible to arrange these four notes in order (without repeating any note) beginning with any one of them. For example, if in the customary western style of writing scales we arrange them upwards, beginning with G, we shall get a scale shown in Ex. 5.



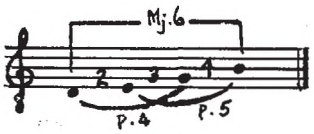
Ex. 5

An interesting pattern can be seen from the result. The notes span, from one to the next, intervals of decreasing size (major 3rd, minor 3rd, major 2nd) which, given in half-steps (semitones) regularly decrease by one (4, 3, 2). The total of half-step differences is nine. The range between the two notes that form the apices of this "scale" – the extreme outer notes – is a major 6th. The non-consecutive intervals (from one note to the next but one) yield a perfect 5th and a perfect 4th. Of all these intervals observed in the "scale", two do not appear in the melody in actual employment: there is no major 3rd or perfect 5th in the tune. Nor does the interval between the two apical notes (major 6th) conform to the actual range employed in the tune (minor 6th). There is, therefore, a lack of satisfaction with this order as the likely true "scale" of the song, even though the notes appearing in it are all used in the tune.

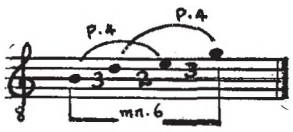
If we put the E as the lowest note, our "scale" becomes that shown in Ex. 6. This order gives the half-steps in a relation of 3, 4, 3, creating an interesting



Ex. 6



Ex. 7



Ex. 8

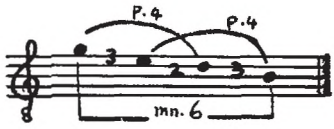
equilibrium between the outer intervals and the central one. These half-step differences (3, 4, 3) add up to ten, and the range of the apices in this "scale" is a minor 7th (E to D). The symmetry yields two equal, non-consecutive (interlocking) intervals of a perfect 5th each. But then again the intervals of the perfect 5th and the minor 7th are foreign to the content of the song tune itself which, therefore, casts a doubt as to the likelihood of this order of notes being the true "scale" for the song.

If we take D as the lowest note, we will have a "scale" (Ex. 7) which shows ascending increases of semitones (2, 3, 4) in differences between adjacent notes. Total number of half-steps is nine, range of apical notes, major 6th. Non-consecutive intervals yield a perfect 4th and a perfect 5th. This is, therefore, virtually a reverse order of the "scale" beginning on G, inheriting its foreign major 3rd, perfect 5th and major 6th.

If we start on B as the lowest note, we have a scale where the semitone distances are balanced in a 3, 2, 3 (totalling 8). The non-consecutive intervals are both a perfect 4th and the "apical range" is a minor 6th (see Ex. 8). This last "scale" displays several unique features in comparison with previous arrangements:

(a) It has the smallest sum of interval (half-step) differences between adjacent notes.
(b) The intervals between successive (adjacent) notes in the "scale" are actually employed in the song.
(c) The non-consecutive (interlocking) intervals actually appear in the song, not only in range, but also in actual notes (D – G, E – B).
(d) The range of the apical notes is the actual range of the song (minor 6th).

These features tend to emphasise that this is indeed the "scale" of the song. One important drawback is that this ascending "scale" never actually appears in the song itself. If, however, we take the shape of the song into consideration – observing that the highest note appears at the beginning and the lowest towards the end (the lowest note in the song comes in the last phrase) – we can see that the true "scale" of the song should be written downwards as in Ex. 9. Moreover, this is the order in which the notes actually appear in the tune, and this descending line is also used melodically in the song (Ex. 10).



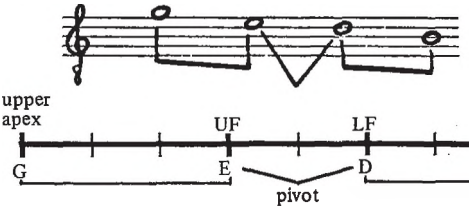
Ex. 9

Ex. 10

Having thus arrived at the true scale of the song, let us examine its characteristics. It exhibits a symmetry that is amazing. The interval of a major 2nd in the centre is flanked by a minor 3rd on both sides. There appears to be a *pivot* in this scale, made up of the two resting notes E and D. So this may be called a *pivotal* scale. E may be called the *upper focus* (to be abbreviated UF), and D the *lower focus* (LF). G is the *upper apex* of the scale, and B the *lower apex;* G and B are the apices of the scale.

The pivotal notes are the resting notes in the song. It is on them that the cadences fall. The first two phrases of the song end on the UF, and the last two end on the LF. The UF, therefore, tends to act as a "dominant" would in western tonal music, and the LF, while it may not be called the "tonic" of the scale, tends to perform the function of a tonic (final). At cadential points, for example, the approach to the UF is sometimes descending (end of phrase 1), sometimes ascending (end of phrase 2). The intervallic approach to it also varies – in descending it is a minor third, in the ascending, a major 2nd, and specifically from the UF, thus creating the "perfect cadence" of UF – LF, in a "dominant-tonic" relationship.

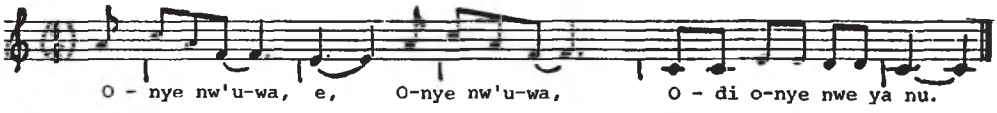
Ex. 11 is therefore the scale of the song "Anya Biara Ule". This scale pattern may be graphically illustrated as in Fig. 1, with the calibration representing semitones.



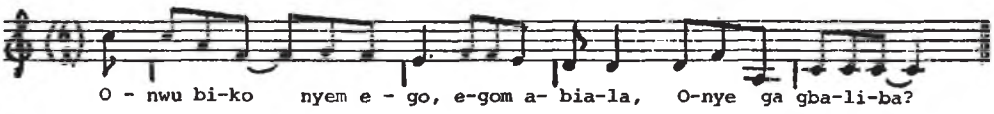
Ex. 11

Fig. 1

"Onye Nwe Uwa" (by the Item Women's Singing Party) is a song that divides into two parts. The response in each part is different, but both of them are obviously constructed of the same musical material, and certainly belong to the same scale (Ex. 12 a & b).



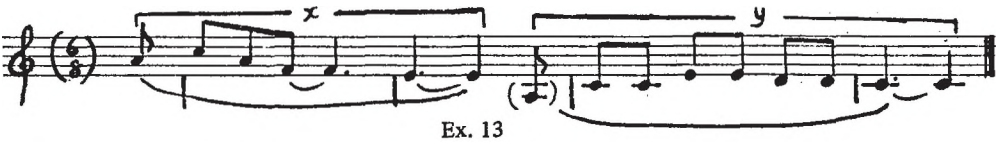
Ex. 12 (a)



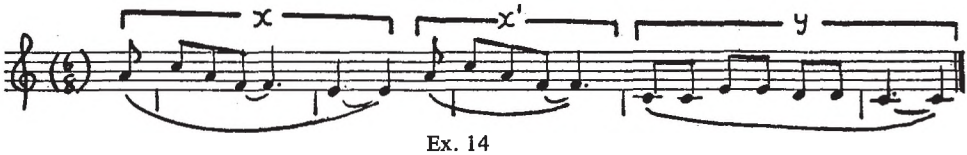
Ex. 12 (b)

Shape and phrases: A noticeable feature in this melody is the employment of the octave, not as a melodic interval, but as a usable compass in the song. One apex of this octave comes in the first *okele,* in fact, on the first "down-beat" of this refrain, and the other appears as the last note. The shape of version (b) of the tune is clearly one of starting high (the highest note is the first note and also the first "down-beat"), and, like the tooth of a rip saw, gently making its way down to the lowest part of the melody which comes at the end. Version (a) of the tune shows an extension of

the melody to make a five *okele* phrase. This extension is achieved by a repetition of the material of the first *okele* at about the middle of the song. Instead of getting a balanced two-phrase tune which might have been made up as in Ex. 13, we have the first part (x) repeated (x'), before the second part (y) enters (Ex. 14). Apart from this little artistic modification, therefore, the general shape of the melody, like that of version (b), is one of starting high and working its way down to the end.



Ex. 13



Ex. 14

Range: Version (a) of the tune is exactly an octave in range – on our notation, from middle C to an octave above. Version (b) extends this octave range downwards by a minor 3rd, giving us a total range of a minor 10th, from C above middle C to A below middle C.

Interval employment: A strong feature of this song is the triadic opening which occurs at the beginning of both versions. The widest interval actually employed is a minor 6th, from F to A downwards, towards the end of version (b). Other intervals, from unison to a perfect 4th, occur in one version or the other of the song. While the rest of these intervals occur both ascending and descending, the minor 2nd (between F and E) occurs only descending, and only between these two notes. The intervallic structure of the song may be summarised thus:

minor 2nd		descending only
major 2nd	ascending and	descending
minor 3rd	"	"
major 3rd	"	"
perfect 4th	"	"
minor 6th		descending only

Resting notes: Each version of the melody (as notated here) ends on middle C. Version (a) begins on A before reaching the climax at C, while version (b) begins right on the climax, C. It is also noticeable that A, an octave below the initial A in (a), is the lowest note in (b). This does suggest that while A is not a resting note, it does receive emphasis in each version of the tune:

it is the initial note in version (a)
it is the lowest note in version (b), extending the compass of the song by a minor 3rd
it receives special emphasis as the note preceded by the widest interval in the song, the only minor 6th occurring

F and E are very important long notes in the middle of the song. The complete phrase (x) ends on E (approached from F); the shortened version (x') ends on F; and the consequent (y) climaxes on E. In version (b) of the refrain, the accent of the end of the first phrase is also on E (beginning of second *okele*) again approached from F. Thus F and E are very important resting notes.

Scale: So far we have seen that four notes are prominent in this song: C – the ending note, Middle C, and the initial C an octave above, which is the climax of the tune – A, F and E. If we represent these four notes in open notes, and other notes used in the song in closed notes, we shall have the "scale" shown in Ex. 15.

Ex. 15

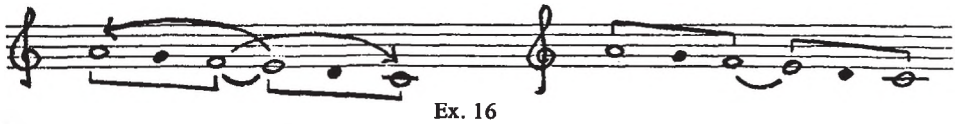
We have put the initial C in parentheses for several reasons:

(i) From what we have seen of the shape of tunes so far examined, the high point lies at the beginning. So this C appears to be an octave transfer of the middle C (which is certainly a very important note in the scale, being the final note in both versions) to a higher register in order to achieve the initial climax. The octave range of version (a) further implies this.

(ii) The range of our first song does not cover an octave. Many Igbo songs have a range of less than an octave. The repetition of a note at the octave in writing out the scale of a song, therefore, seems unnecessary – there is no convincing rationale for it. If we repeat the C, we should also indeed repeat the A which is duplicated at the lower octave in what is essentially an octave transfer of the initial A in version (a). Repetition of notes at the octave may therefore be ruled out in the statement of our song scales!

(iii) The emphasis on A as an initial note in version (a) and the lowest note in version (b) does suggest that it is probably an apex of the scale of this song.

(iv) The introduction of the upper C destroys the symmetry of a scale that is really so well balanced as shown in Ex. 16.



Ex. 16

Observations:

1. The upper half is separated from the lower half of the scale by a semitone – the only half-step occurring in the song.
2. Each half spans a major 3rd, enclosing two major 2nds.
3. The interlock of the internal apices of the two halves to their external opposites, E to A, F to C, form the two perfect 4ths occurring in the song; the lower to the upper half (E to A) forms the ascending 4th, and the upper to the lower half (F to C) forms the descending 4th.

Here, then, is another pivotal scale, this time a hexachord, A G F E D C. F is the UF, and E is the LF. But while symmetrically balancing on its focal points, this scale is heavily weighted on its lower apex for its tonal "centre". This note acts as

the final note in the song melody, the climax of its initial high points, and the lowest note of its scale. It is therefore to be called the *apical final* or, for short, the *final.* Hence we shall term this a *pivotal scale with lower (apical) final* (see Fig. 2).

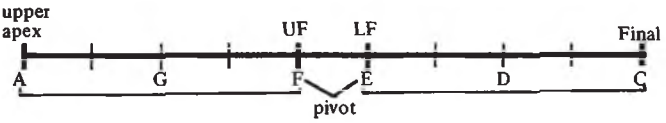
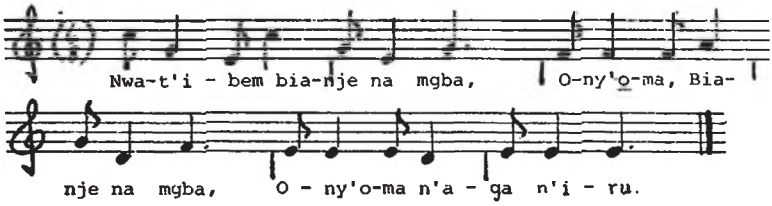


Fig. 2

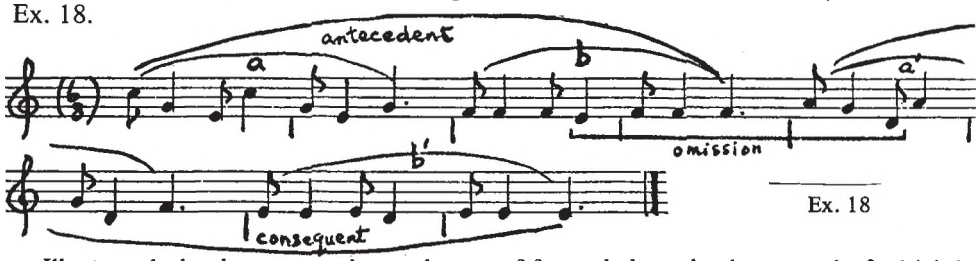
The children's game song, "Nwata Ibem Bianje na Mgba" (Ex. 17), also displays interesting melodic features. The highest point in this melody, like the high points of the two tunes previously examined, appears at the beginning of the song, and the lowest part lies near the end, thus creating again the "tooth of a rip saw" in its melodic direction.



Ex. 17

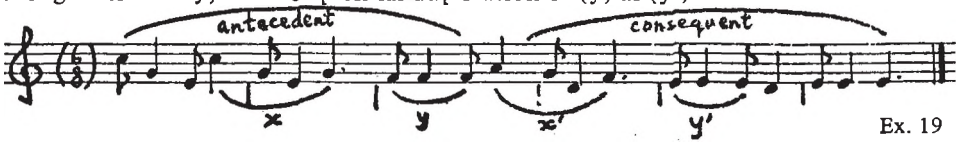
From the highest note to the lowest spans an interval of a minor 7th – the total range of the song. This is only a minor 2nd more than the largest interval employed in the tune itself – a minor 6th (from E to C on our score) in the opening *okele.* Notably, the larger intervals in the song are more frequent near the beginning, and the smaller ones are more frequent near the end.

A strong feature of this song is the employment of sequences. The tune is apparently an artistic shortening or abbreviation of what is basically a melody in two parts, the consequent of which is a sequential replica of the antecedent, as shown in Ex. 18.



Ex. 18

Illustrated clearly are two large phrases of four *okele* each, the second of which is a tonal transposition of the first. When the two middle *okele* (the last of the first phrase and the first of the second phrase) are omitted, the melody is then shortened to six *okele* and the actual sequences are not so apparent (Ex. 19). Even here the sequential duplication of the figure marked (x) stands out clearly in (x'). So also, though less clearly, is the sequential duplication of (y) as (y').



Ex. 19

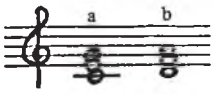
The resting notes here are not held notes, but are broken up into syllables on a monotone (y, and y'). These form cadential points at the ends of phrases, with the approach being downwards from the note above. The approach to (y) is a major 2nd; the approach to (y') is a minor 2nd. Notice that (y') continues, to bring about a major 2nd *lower* approach at the very end.

Here, therefore, we have the two most important notes in the song F and E, and the subordinate (approach) notes to these final resting points, G above F, and D below E, as shown in Ex. 20.

Ex. 20

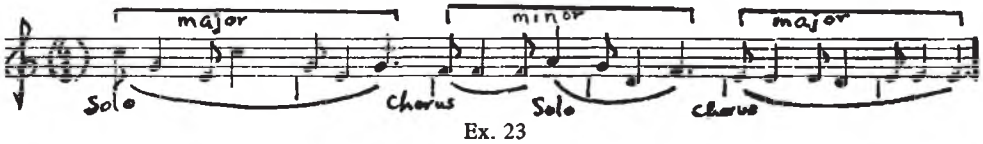
Ex. 21

Only two other notes occur in the song: C and A. As these are the two notes that begin the main sections of the song (both in the actual version and in the hypothetical version), it would appear that they are likely apices of the song scale (Ex. 21). The transfer of middle C to an octave above is apparently (as in the last song) another case of register transfer to achieve an initial high point at the beginning of the song.



Ex. 22

Furthermore, this song is made up of material from two triads. The solo call is made up of the material of a major triad (Ex. 22a), used in inversion. The first chorus response and the second solo call are both made up largely of the material of a minor triad: (Ex. 22b).



Ex. 23

The last chorus response (see Ex. 23) belongs to the first (major) triad. The song, therefore, displays the following triadic formation:

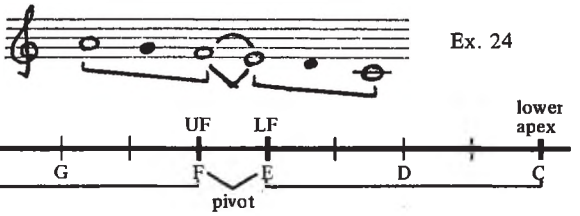
Solo	Chorus	Solo	Chorus
major triad	minor triad	minor triad	major triad

The sections containing the material of the major triad are long, while those of the minor are short:

Towards the end of the section in minor, G is introduced, which belongs to the major triad. This G is the highest note of the major triad (when in root position). Similarly, at the end of the second section in major, D, a note which belongs to the minor triad, appears. This D is the lowest note of the minor triad. The appearance "out of context" of G and D tends to emphasize the *passing* function of these two notes. Not only do they function as approach notes to the cadential points of the scale, but they also serve to break the strictness of the triadic appearance of the song. The fact that C functions as the root of the major triad used in the song, further suggests that its "original" position (middle C) is in the low apex (base) of the song scale. The octave transfer effected in the song is but a melodic function in

an attempt to create a climax at the beginning of the song in keeping with the general shape of Ibo tunes.

Here again, therefore, is a pivotal scale, where the two halves are separated by the only minor 2nd (half-step) occurring in the whole song, connecting the two focal points in the song. Each half spans a major 3rd, equally divided into two major 2nds. The first half of the song ends on the UF; the final phrase of the melody cadences on the LF (see Ex. 24 and Fig. 3).



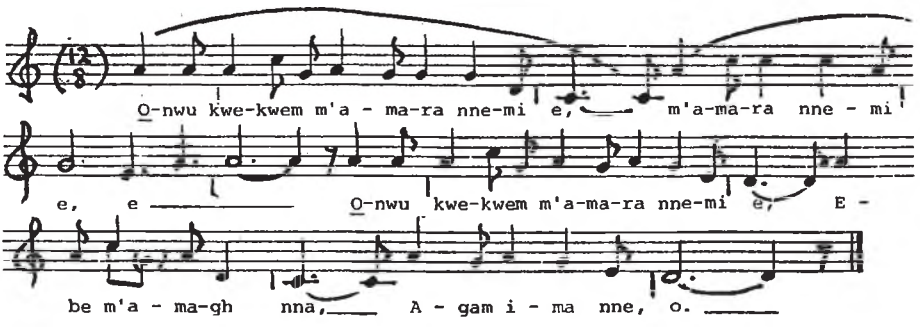
Ex. 24

Fig. 3

One of the few Ibo songs which uses a five note scale is the song by Olokoro women, Umuahia, called "Onwu Kwe-kwem", (Ex. 25). The song has four phrases, each of which follows the established shape of Ibo songs – starting high and ending low. The total range of the song is an octave, (in our score) from middle C to the octave above it. Intervals employed in the song (between adjacent notes) are:

major 2nd	ascending	6 times
	descending	9 times
minor 3rd	ascending	5 times
	descending	5 times
perfect 4th	descending	only 3 times
perfect 5th	descending	once
	ascending	once (between 2 phrases)
major 6th	ascending	only 2 times (also between phrases or sub-phrases)

From the above it is clear that smaller intervals are more frequent, and that descending lines are preferred.

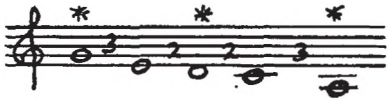


Ex. 25

Of the five notes employed in the song

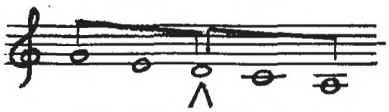
A	occurs	17 times
G	"	12 "
E	"	2 "
D	"	4 "
C	"	8 "

The frequency of occurrence of A and G suggests that they are important notes in the song scale. A ends the phrase that forms the half-way mark in the song. It does not, however, end the song itself. D performs this function, in addition to ending other phrases in the tune. Although D does not appear as frequently as A or G in the song, it does seem to be a very important note in the song scale. The organisational functions of these notes (A, G and D) suggest that they are probably the pivot and apices of a scale that could be arranged as in Ex. 26.



Ex. 26

This arrangement places D as the focus of a pivotal scale, with each half spanning a perfect 4th from the focus. A, as the lower apex of the song scale, is that important note which occurs most frequently in the song and is used at the resting point of the only ascending cadence, half-way through the song. G, at the upper apex, is the next most frequently occurring note, and is used as an approach note to the lower apical note (A), especially at cadences. The pivot of the song scale D, is the final note of the song. The remaining notes of the song scale are in either direction the interval of a major 2nd from this focus. From the apical notes to these inside notes (in each half of the symmetrically balanced scale) is a minor 3rd (four semitones). These two intervals (major 2nd and minor 3rd) are used most frequently in the song. It is obvious that octave transfers of the lower apical note and its upper neighbour (A and C) have taken place to achieve initial high points in the song. This song, therefore, employs a scale which can be justifiably arranged in this order, based on the functional aspects of the notes, and the symmetry displayed by this order in agreement with the system of ordering of previous song scales. It would appear, however, that when an even number of notes is employed in a song, the pivot is formed by the two adjacent notes spanning the smallest interval employed in the song; when an odd number of notes is used, however, the scale is pivoted on one note equidistant in intervallic quantity from the apical notes. We therefore have in this song a *pivotal pentatonic* scale (see Ex. 27 and Fig. 4).



Ex. 27

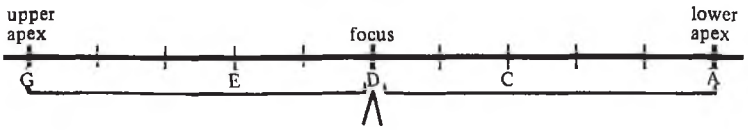
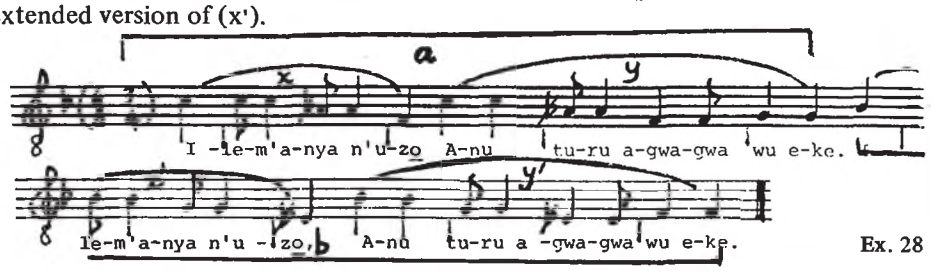


Fig. 4

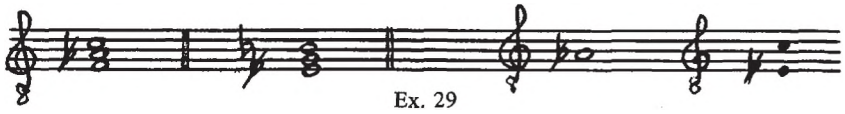
"Anu Turu Agwa-gwa Wu Eke" (Ex. 28) falls into two main sections, (a) and (b). Section (a) is the antecedent, (b) is the consequent. Section (b) is simply a tonal transposition of (a), creating a sequence. Each section is sub-divided into two phrases: x, y, and x', y'. (x) is taken by the solo, and (y) by the chorus. (y) is, indeed, a repetition of (x), extended to a cadential point. Similarly (y') is an extended version of (x').



Ex. 28

In each of the four phrases the highest point appears at the beginning. The highest note, which is the first note of the solo section (x), is reached again only when the chorus replies with the same material at (y). Section (b) follows the same pattern. Each phrase, therefore, follows the melodic shape of starting high and working its way down. Even the consequent is a downward transposition of the antecedent.

The range of the whole song is a sixth. The quality of this sixth will be discussed later. Intervals used in the song include 2nds, 3rds and 5ths.



Ex. 29

Neutral 3rds and 7ths: Like the last song discussed, this one is made up of triadic material. Section (a) comprises largely the triad shown in Ex. 29a, while section (b) is made up largely of the triad shown in Ex. 29b. The triad in section (a) contains a third which has been notated as a semi-flat (Ex. 29c).

This is to show that the note is not really A♭. It lies mid-way between A♭ and A, hence the ♭ is crossed out. This note which is the 3rd of the triad is neither a major 3rd (from the root) nor a minor 3rd, but may be called a *neutral* 3rd, half-way between the major and the minor.

If the major 3rd is achieved by the 4/5 division of a monochord, and the minor 3rd by a 5/6 division,[13] the neutral 3rd lying somewhere in between, may be approximated to a 9/11 division, worked out thus:

Major 3rd		Neutral 3rd	Minor 3rd		
4	8	9	10		5
5	= 10	11	12	=	6

Thus in section (a) of the song we have a triad made up of root, neutral 3rd and perfect 5th. This is neither a mjaor nor a minor triad, but something rather in between the two. It has the unique character of dividing the perfect 5th with two equal 3rds. A major triad has the perfect 5th divided into a lower major 3rd and an

upper minor 3rd; the minor triad reverses the order of the thirds. This triad, however, has both lower and upper 3rds equal – a neutral 3rd in each case. Thus the triad, perfectly balanced, displays yet another level of that symmetry which we have observed in the form of Ibo songs[14] and in the organisation of the scales of the songs so far examined. Because of this perfect balance, we may call this triad the *perfect triad.* Because it employs the neutral 3rd (and perfect 5th), it may also be termed a *neutral triad.*

The triad of section (b), however, is not so balanced. It has a neutral 3rd below, and a minor 3rd above. This is because the fifth is not perfect, but lies between the perfect and the diminished. Such a triad has an "imperfect" 5th, as well as being unequally divided into thirds. Thus a triad formed with the root on the *neutral 7th* (lying between the major and the minor) degree of an otherwise diatonic major scale, may be termed an *imperfect triad.*

With the definition (hereby arrived at) of the neutral 3rd and the neutral 7th we find that this song contains the following intervals between adjacent notes:

Neutral 2nd (between major and minor)	ascending only
Major 3rd	" "
Minor 3rd	" and descending
Neutral 3rd (between major and minor)	descending only
Imperfect 5th (between perfect and diminished)	ascending only
Perfect 5th	" "

The range of the whole song is a neutral 6th, as shown in Ex. 29d..

Notes used in the song are, therefore, as shown in Ex. 30. From the above we can see that the scale of the song divides naturally into two halves. Each half is made up of three notes spanning a total interval of a neutral 3rd, divided into a major and a neutral 2nd. Both halves are separated by a neutral 2nd.

Ex. 30

Ex. 31

Resting notes: Only the notes of the lower half of this scale take part at cadential points. For example, phrase (x) (Ex. 31) ends on F, but does not have an approach note (in the functional aspect of scale notes), because it is not a real cadence. But the end of the whole section as marked at phrase (y) shows this real cadence with an approach note, F – G, as shown in Ex. 32.

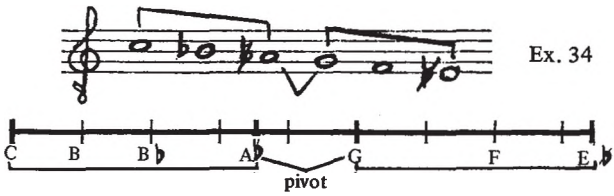
Ex. 32

Ex. 33

Similarly with section (b). Phrase (x') ends on E♭, without an approach note, but (y') ends with a cadential rise, E♭ – F. Thus at these end points, only three notes (E♭, F and G) take part in forming cadential ends of phrases and may justifiably be called resting notes. The semi-cadence is formed by a rise, F – G; the final cadence by a smaller rise, E♭ – F. Thus F appears to be the most important note among these, with the two extreme notes of this three-note half acting as *auxiliary* notes. F

is therefore the final. The scale of the song falls into two equal divisions, making it a pivotal scale. But the final falls in the *mid* of the lower half of the scale. This may, therefore, be described as a *pivotal* scale with *lower mid final.*

Furthermore, this scale interlocks the two kinds of triads used in the song, the perfect triad and the imperfect triad, formed with the alternating notes in the scale (Ex. 33). The perfect triad is the dominant one here in that it begins the song, and the end falls on its root. A hexatonic scale of this sort becomes pivotal in that it is broken into two equal halves, balanced by a separating small interval in the middle; but it also becomes triadic, with the root of the main triad (in this case, the perfect triad) forming a final resting point. This scale may, therefore, also be said to be pivotal-triadic (see Ex. 34 and Fig. 5).

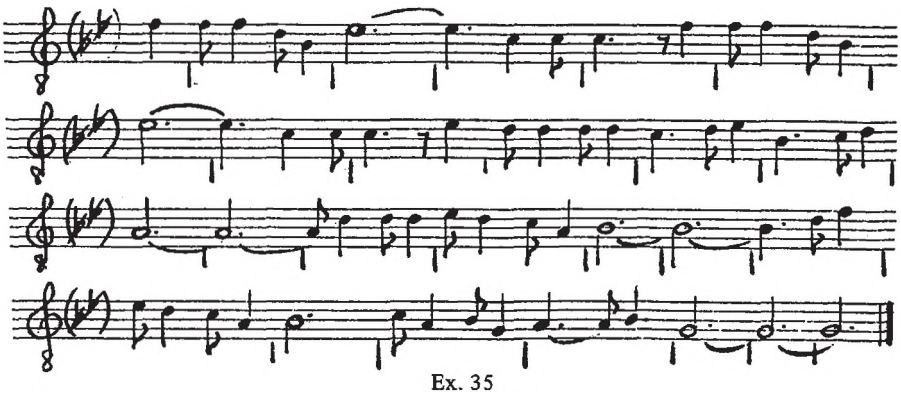


Ex. 34

Fig. 5

Diatonic scales: The two songs that follow originated in Igbo land in the 1950's. They have both, to some extent, been subject to foreign (western European) influence. They do not, consequently, belong to the class of the "average Igbo song".

The first song is from a popular dance that originated in Onitsha in the early 1950's, called *Amakekwu. Amakekwu* was really a song-dance, but there was not much actual dancing involved. The young men (belonging to the age-group of young adults who had their business in an urban centre) simply shuffled along the road as they sang this type of long tune in antiphonal response to the leader, accompanied by very few (generally one or two) percussive instruments. This example, titled "Onye Oma Elina", typifies the *Amakekwu* song style (Ex. 35).

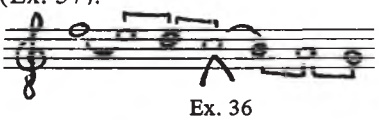


Ex. 35

It follows the same common shape of Ibo tunes already discussed; the highest note is the very first note, and the lowest is the very last. The song spanning a total range of a minor 7th works its way down from the initial high point through the use of sequences and repetitions as marked in the phrasing. It has a total of six phrases, two of which are repetitions (a, a', b; c, c', d). There are thus four real phrases

falling into two main divisions.

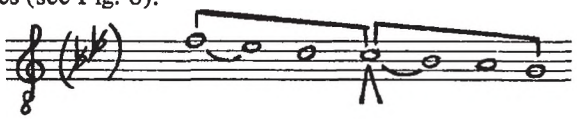
The key signature here is enclosed in parentheses, because in some renditions of this song, the neutral 3rds and 7ths do not appear, but become major 3rds and 7ths – evidence of European influence. In some performances, however, the neutral intervals are still present and distinct. The seven notes used in the song are represented in our notation by the notes in Ex. 36. Here again we see that the notes divide into two equal halves focussing on C, each spanning a perfect 4th made up of two whole tones (⌐¬) and a semitone (⌒). The top note of the lower half is at the same time the bottom note of the upper half. Even when the neutral intervals are employed, the pivotal shape of the scale hinged on C (⋀), remains the same (Ex. 37).



Ex. 36

Ex. 37

Although one note, E(♭), is prolonged, that is, has a fairly long duration at one point in the first phrase of the song, only notes of the lower half are used as resting notes at ends of phrases. The final note does not appear in the song until the last phrase, but when it does, it definitely has a feeling of finality at the very end. Thus with this diatonic scale, we have a pivotal scale with *lower* (apical) final, just as we had in the second song discussed in this paper, "Onye Nwe Uwa" (Ex. 12). We may also call it a diatonic pivotal scale, as shown in Ex. 38 with the key signature in parentheses (see Fig. 6).



Ex. 38

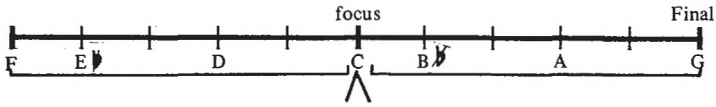
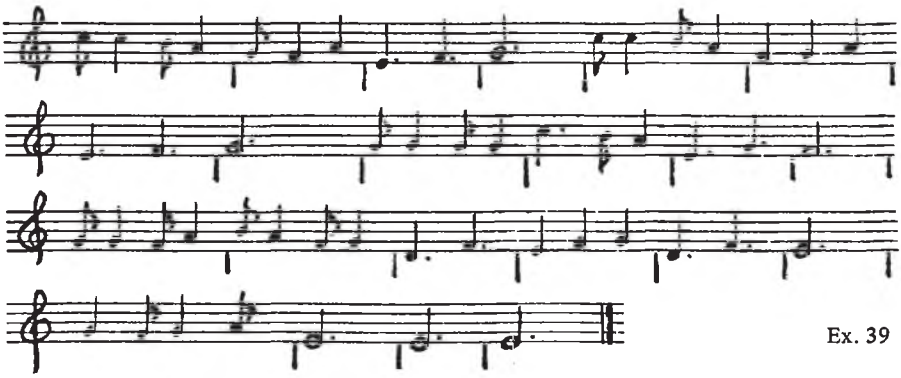


Fig. 6

Our second diatonic scale displays a particularly interesting feature. It is, incidentally, a welcome song which also originated in the 50's and became very popular as an opening item for school concerts and shows (Ex. 39).



Ex. 39

Like all the other songs we have looked at, this one begins high and ends low. It has a total range of a minor 7th. There are repetitions and sequences.

Seven notes (of the western diatonic major scale) are used in this song, but only three are employed as resting notes. These three notes also predominate in the song, occurring more frequently than others. The notes employed will tend to yield a scale arranged as shown in Ex. 40.

Ex. 40

Ex. 41

Following our experiences with other songs, however, (see, for example, "Onye Nwe Uwa") it is fair to assume that the presence of C (in our notation) at the opening of this scale is actually an octave transfer to effect a high-point opening, and that the true position of the C in the scale belongs at the bottom (Ex. 41).

This song is, therefore, centred around the three notes in the middle, flanked on either side by two other notes forming a total interval of a major 3rd. Such a scale may be called a *tri-central diatonic scale* (see Fig. 7).

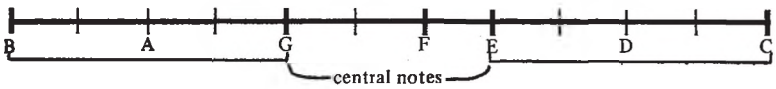


Fig. 7

Conclusion

The symmetry created in African art forms – drawing and painting, carving, sculpture, drama and dance – is reproduced consistently in music. We have shown how this is maintained in musical forms. The same principle is carried into the scales of Igbo tunes. Most of them are *pivotal,* that is, divisible into two equal parts, balanced in the middle. This pivot may be made up of two different notes separated by a narrow interval (not more than a major 2nd), or it may be a single note having the unique responsibility of belonging to both halves of this symmetrical balance of which it is the focal point.

As a descending line is the norm in singing and general music-making of the Igbo,[15] a descending order must logically be the sequence of notes in a scale. Especially as most songs have a range of less than an octave, repetition of notes in the scale at the octave is ruled out in assessing or notating Igbo song scales.

Tetratonic and hexatonic scales are common. These are generally balanced on two central (pivotal) notes of which the lower is the main note. Pentatonic and heptatonic scales (by virtue of the odd number of notes) tend to have one central *focal point* belonging to both halves of the total scale. Sometimes the tonal centre or final of the scale will lie in the lower half of the scale, either the lower apical note, or the middle note of this lower half.

Although heptatonic scales are diatonic, they may have some notes of the scale (equivalents of the third and seventh of the western diatonic major scale) slightly flattened yielding neutral intervals: between the major and the minor. It may be worth observing that the neutral 7th eliminates the obnoxious tritone which was anathema to early European musicians.

As a result of our investigation of Igbo tunes, the following scale types are categorized:

(a)	Pivotal, with Lower Focal Final	Tetratonic
(b)	Pivotal, with Lower Apical Final	Hexatonic
(c)	Pivotal, with Lower Mid Final	Pentatonic
(d)	Pivotal Pentatonic	
(e)	Pivotal Diatonic, and	Heptatonic
(f)	Tri-Central Diatonic	

NOTES

1 Ekwueme, Laz. E.N. "Concepts of African Musical Theory" *Journal of Black Studies*, Vol. 5, No. 1, September 1974, pp. 35-64.
2 Jones, A.M. *African Music in Northern Rhodesia and Some Other Places* (Lusaka): Rhodes-Livingstone Museum, Occasional Papers no. 4, 1949, p. 18.
3 Ward, W.E. "Music in the Gold Coast", *Gold Coast Review*, Vol. 3, No. 2, July-December 1927, pp. 199-223.
4 Tracey, Hugh. *Chopi Musicians*, London: Oxford University Press (for the International African Institute) 1948, p. 124.
5 Ekwueme, Laz. E.N. *Igbo Choral Music: Its Theory and Practice*, in the process of publication by NOK Publishers, New York.
6 Apel, Willi. *Harvard Dictionary of Music* (18th printing). Cambridge: Harvard University Press, 1967, p. 662.
7 Szabolcsi, Bence. *A History of Melody* (translated by Cynthia Jolly and Sara Karig). London: Barrie and Rockliffe, 1965, p. 47.
8 *Grove's Dictionary of Music and Musicians* (5th edition), ed. Eric Blom. New York: St. Martin's Press, Inc., 1954, Vol. VII, p. 438.
9 Hindemith, Paul. *The Craft of Musical Composition*. New York: Schott Music Corporation, 1939, Vol. I – Theoretical Part (Fourth revised edition), Melodic analysis.
10 Nketia, J.H. Kwabena. *African Music in Ghana*. (Evanston): Northwestern University Press, 1963.
11 "Maqam" here means mode or style as established by the "colour" or tone of the music.
12 As we have shown in "Concepts of African Music Theory", the bar line when employed does not divide the music into measures in the Western sense, but into equal divisions of time called *okele*, based on pattern markers and other delimeters. See also Chapter IV, Form, in *Igbo Choral Music*.
13 Proportions demonstrated by Zarlino in his 1558 book, *Le Institutioni Harmoniche:* see *The Art of Counterpoint* by Gioseffo Zarlino, translated by Guy A. Marco and Claude V. Palisca (New Haven: Yale University Press, 1968), p. xix. These ratios are generally accepted: see, Alexander Wood: *The Physics of Music* (London: Methuen & Co. Ltd., 1962), p. 52.
14 See Chapter IV, Form, of *Igbo Choral Music*.
15 Ekwueme, Laz. E.N. "Linguistic Determinants of Some Igbo Musical Properties", *Journal of African Studies* Vol. 1, No. 3, Fall 1974, pp. 335-353.