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MODERN HARMONY

ITS EXPLANATION AND APPLICATION

BY

A. EAGLEFIELD HULL

Mus.Doc. (OXON.)



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CHAPTER III

SCALES—(A) MODAL INFLUENCES

It is doubtful if there ever has been a really fixed, stable, and definite scale. That the art has been, and still is worked out over an oscillating threefold basis, of which the constituents are almost as diverse as the colours red, blue, and yellow, only adds to its ever-increasing charm and vitality. This threefold basis is—

- (a) The modal system.
- (b) The pure temperament.
- (c) The equal temperament.

We have already referred to the tendency of the great composers at times to modify the diatonic scales in the direction of some of the modes. The modal influence is as vital to-day as ever, but in a less pure and subtler way. The chromatic scale, in its turn, has constantly oscillated between a system of harmony founded on the pure temperament and one based on the equal tuning. With many modern composers the capitulation of the former to the latter is now entire, leaving a twelve-note system founded on a central Tonic.

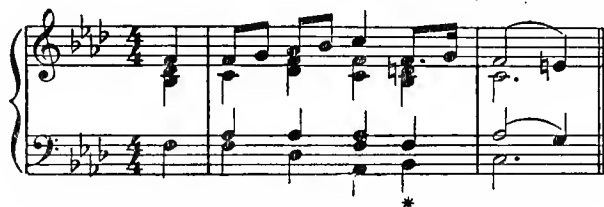
It is important to remember that any scale is a pure convention, a thing which exists only in the imagination.

No one permanent Scale. “The system of scales, modes, and harmonic tissues does not rest solely upon unalterable natural laws, but is at least partly the result of æsthetic principles which have already changed, and will still further change with the progressive development of humanity” (Helmholtz, “The Sensation of Tone,” chap. xii.). The influence of the modes re-entered music as imperceptibly as the modes have been temporarily obliterated formerly by the more modern diatonic scales. The arbitrary use of the “Tierce de Picardie” chords, and such chords as that in the

Mackenzie example, which Max Reger calls the “Dorian Sixth,” were perhaps the first steps in this direction.

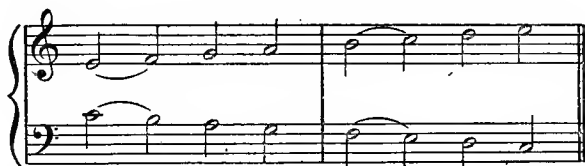
Ex. 49.

MACKENZIE, “The Bride.”



Amongst the many reasons which predisposed the modern French composers towards modal ideas was the view of the “relative” minor taken by their theorists, who hold that the following is a much more closely related minor to C major than A minor is:—

Ex. 50.



Taking Tartini’s downward origin of the minor common chord,* they have reason on their side, but a glance at the Example 51 will show that this scale is the old Phrygian mode.

The so-called “Tonics” and “Dominants” appertaining to the ancient Church use are here shown for the sake of completeness, although the modern composer is entirely unaffected by them. This indifference leaves the Æolian identical with the Hypo-Dorian, the Hypo-Mixolydian with the Dorian, the Hypo-Æolian with the Phrygian, whilst the Hypo-Lydian coincides with our major scale.

It will be readily understood how composers became more and more drawn to the mediæval modes, for here, instead of two scales in which to write, they have six, all differently constructed. Moreover, the whole field of transposition is

* Vincent D’Indy, “Cours de Composition Musicale,” I^e livre.

Ex. 51.

AUTHENTIC MODES.

Dorian.

Phrygian.

Lydian.

Mixolydian.

Æolian.

PLAGAL MODES.

Hypo-Dorian.

Hypo-Phrygian.

Hypo-Lydian.

Hypo-Mixolydian.

Hypo-Æolian.

equally applicable to them. appear, starting from C:

We give the new scales as they

Ex. 52.

Dorian.

Phrygian.

Lydian.

Hypo-Dorian.

Hypo-Phrygian.

Mixolydian.

There are three ways in which modal influence comes into modern music:—

- (a) The pure and exclusive use of the notes of the mode.
- (b) Purely modal melody, with modern harmonic texture.
- (c) The conveyance of a remote modal feeling in any way whatsoever.

Few composers, however, use them entirely in the pure

manner by drawing their harmonic exclusively from the notes of the scale. Beethoven employs the Lydian thus in the slow movement of the String Quartet in A minor (Op. 132), whilst amongst modern composers who have achieved this successfully may be mentioned Count Alexis Rébikoff, Joseph Bonnet, Maurice Ravel, and Otto Olsson. The latter has written an important set of nineteen variations on the Dorian plain-song, "Ave Stella Maris," which is played entirely on the white keys throughout.

The Pure Modal Use.

Ex.53.

BEETHOVEN,
String Quartet. Op.132.

Molto Adagio.

Ex.54.

RÉBIKOFF, "Idylle hellénique"

Andante sostenuto.

Ex.55.

ELGAR, "Dream of Gerontius"

Andantino.

pp *dim.* *poco allarg.*

Al - le - lu - ia, From earth to heaven.

Ex. 56. Allegretto.

J. BONNET, "Matin Provençal."

(Org.) *mp* etc.

Many of the Irish airs arranged by Stanford, and the Russian folk-songs collected by Rimsky-Korsakoff, afford splendid examples of what pure modal treatment should be. Ravel has also followed on the same lines with his Greek airs for voice and pianoforte.

Ex. 57. Allegretto.

RIMSKY-KORSAKOFF, Russian Songs, No 53.

(Voice) *pp*

Other instances of the pure modal use occur in the device of "quotation," as in Harwood's Organ Sonata in C sharp minor, where the ancient song "Beata nobis gaudia" is given with the pure modal harmony; in his "Quotation and Allusion. Requiem," where the "Requiem Aeternam" is quoted; whilst the "Dies Iræ" is used with sardonic and ironical purpose by Berlioz in his "Faust" and in the "Symphonie Fantastique," and for a psychological reason by Strauss in "Also sprach Zarathustra."

The instances in which a modal melody is treated with all the resources of the modern harmonic technique are multitudinous. With Bach's wonderful treatment of chorales the melody itself frequently comes from a period akin to the mode, whilst in such cases as the "Song of the King of Thule" in Gounod's "Faust," we

Melodic Use.

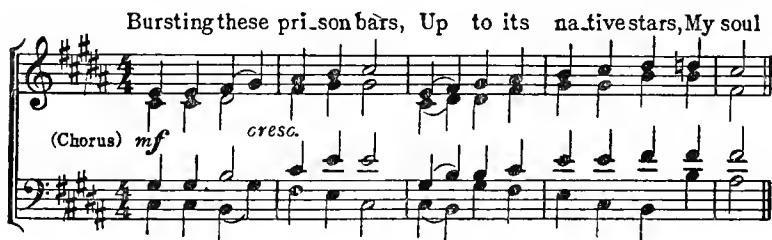
have a new and original melody founded on an old modal scale. The Pierné theme (Example 77) is interesting in this direction. It might be heard as the upper tetrachord of the Hypo-Phrygian mode, harmonized impressionistically.

The third method is more subtle—a matter of the spirit rather than of the letter. Sometimes the mere use of a succession of common chords in the root position will evoke this remote mediæval atmosphere; at other times it is merely a succession of a few exactly equal chords borrowed from the “duodecuple” system (see Chapter IV.). With the Tschai-kowsky extract it is merely the complete avoidance of the “A” which endues the passage with a certain awesome vagueness. Often it is something subtler still—the splendidly equipped modern temperament, with sympathetic gaze directed towards things mediæval, as in Walford Davies’ setting of the old morality play “Everyman.” The prominence given to the D sharp minor harmony in the Verdi extract gives it an unfamiliar feeling. The Ravel “Pavane,” although nominally in G, is permeated nevertheless by some subtle modal colouring. Mr. Felix Swinstead has caught the spirit very happily in the first of his Seven Preludes for the Pianoforte.

CHOPIN, Nocturne in G minor, Op.37.
Ex.58. Andante sostenuto.



RUTLAND BOUGHTON,
“The skeleton in armour.”
Ex.59.



Ex. 60.

Moderato.

ELGAR, "Gerontius"

(Chorus) *pp* A - - - men.

(Semi-Chor.) Noe from the waters in a saving home

Detailed description: This musical example shows two systems of vocal and piano music. The first system consists of two staves: a vocal line in the treble clef and a piano accompaniment line in the bass clef. The vocal line begins with a whole rest, followed by a melodic phrase starting on a half note 'A' and ending on a half note 'men'. The piano accompaniment provides harmonic support. The second system also has two staves, with the vocal line in the treble clef and piano accompaniment in the bass clef. The vocal line continues with the lyrics 'Noe from the waters in a saving home'. The piano accompaniment features a steady rhythmic pattern.

Ex. 61. Andante cantabile.

TSCHAIKOWSKY,
5th Symphony, Op. 64.

(Vas, C. e B.) *p*

Detailed description: This musical example shows a single system of piano accompaniment in the bass clef. The music is characterized by a slow, cantabile tempo and features a series of chords and moving lines in the left hand, creating a rich harmonic texture.

Ex. 62.

VERDI, "Otello."

Detailed description: This musical example shows a single system of piano accompaniment in grand staff notation (treble and bass clefs). The music is in a 2/4 time signature and features a series of chords and moving lines in both hands, creating a rich harmonic texture.

Ex. 63.

M. RAVEL, "Pavane pour une Infante défunte."

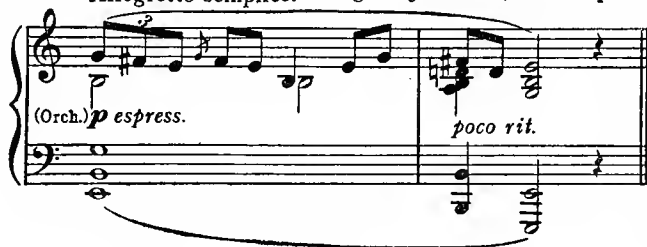
Assez douce, mais d'une sonorité large.

(Pf.) *p*

Detailed description: This musical example shows a single system of piano accompaniment in grand staff notation (treble and bass clefs). The music is in a 3/4 time signature and features a series of chords and moving lines in both hands, creating a rich harmonic texture.

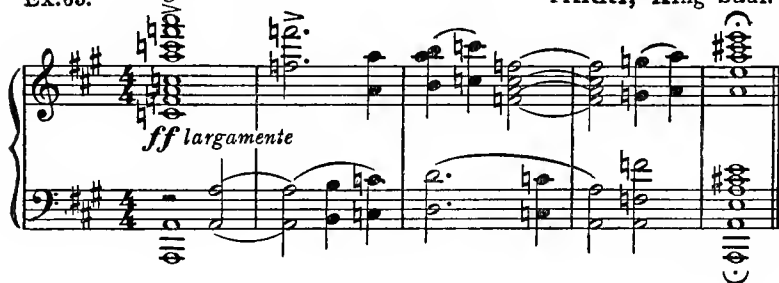
Other composers show the influence chiefly in their final Modal cadences. The close of "Saul's Dream" in Parry's Cadences. "King Saul," and the ending of Grieg's Pianoforte Concerto, afford instances of this.

Ex. 64. **E. GRIEG,**
Allegretto semplice. — Sigurd Jorsalfar, Suite. Op. 56.



Musical score for Ex. 64, showing piano and orchestra parts. The piano part is in treble clef and the orchestra part is in bass clef. Dynamics include *p espress.* and *poco rit.*

Ex. 65. **Allegro vivace.** **PARRY, "King Saul,"**



Musical score for Ex. 65, showing piano and orchestra parts. The piano part is in treble clef and the orchestra part is in bass clef. Dynamics include *ff largamente*.

Ex. 66. **Andante maestoso.** **GRIEG, Concerto in A minor, Op. 16.**



Musical score for Ex. 66, showing piano and orchestra parts. The piano part is in treble clef and the orchestra part is in bass clef. Dynamics include *ff* and *ff marcatissimo*.

The image displays a musical score for piano, consisting of two systems of staves. The first system features a treble and bass staff. The treble staff contains a melodic line with a forte (*f*) dynamic marking, and the bass staff contains a corresponding bass line. The second system shows a treble staff with chords and a bass staff with a complex, dense texture, marked with fortissimo (*ff*) and sf dynamics. The score is written in a key signature of two sharps (F# and C#) and a 2/4 time signature.

Many of the effects of the modal use are common to the "duodecuple" system, which is treated in the next chapter. For there, as in the modes, we shall constantly meet *unexpected* major and minor triads whenever we find ourselves temporarily lapsing into the diatonic major and minor ways of listening.

CHAPTER VII

ALTERED NOTES AND ADDED NOTES

IN the older method the chromatic scale is not a mode, but an alteration of the major or minor scale, as the case may be.

The Chromatic Scale is not a Mode. Thus the minor second is an inflected Supertonic, the augmented fourth a raised Subdominant, and so on—that is, so far as chromatic notes and chords go. In this fact lies the explanation of all the chromatic harmony on the older lines. As a most convenient method for analysis and explanation, there is much to recommend it, for the simplest explanations are always preferable. Nothing has called forth so much well-deserved wrath from composers as the attempt of theorists to foist some subtle explanation on to their chords.

If the theory of “altered notes” be allowed to run on one of **Four Appli-** four paths, there is little which cannot be explained **cations.** by it. A chord may have one or more chromatically altered notes, and the four applications produce—

- (a) Passing chords resolved simply.
- (b) Passing chords resolved freely.
- (c) These chords attacked freely.
- (d) “Escaped” notes or chords.

Those at (a) result from single passing notes, or from a combination of two or more passing notes, and depend chiefly on the *tempo* and relative accentuation as to whether they are heard as chords or passing notes. In all probability nearly all the new chords were discovered in this way. Certainly this was the case with the early discord of the seventh.

The chords in the second class are approached as passing notes or passing chords, and are quitted as chords on their own responsibility.

The third class attacks these chords freely, and resolves them according to an agreeable or significant leading of the parts.

A fourth class neither prepares nor resolves them, and under this category perhaps come the "escaped chords," those cleverly arranged strange "resultants" heard in the more highly coloured harmonic web of Ravel and Florent Schmidt, of Strauss and Stravinsky.

The first class—passing chords—need little explanation beyond saying that in this and in all classes, any one, or all of the notes, may be chromatically altered upwards or downwards. As passing chords the upward inflections will resolve by rising, the lowered by falling—that is, they will continue to move in their natural course.

Passing
Chords.

The fifth or the third (or both) of a common chord may be thus treated. The same modifications may be meted out to the chords of the seventh, of the ninth, eleventh, and thirteenth.

TABLE OF
ALTERED NOTES IN COMMON CHORDS.

Ex. 164.

I IV I VI I^b IV I[♯] VI etc.

V IV V II II V II V etc.

II IV[♯] II I^b or etc.

Ex.165.

ALTERED NOTES IN CHORDS OF 7th, etc.

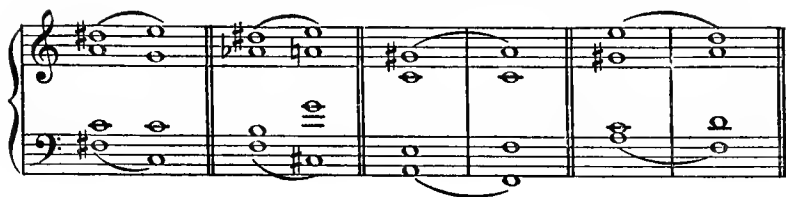
The musical notation for Ex. 165 consists of two systems of piano accompaniment. Each system has a treble and a bass staff. The first system contains five measures, and the second system contains four measures. The notation shows various chords and altered notes, with the final measure of the first system ending with "etc.".

The second class attacks these altered chords without preparations, but still resolves them in the most natural way according to the original diatonic formation. It is noteworthy that many of the characteristic chords of the augmented triad, the diminished seventh and Neapolitan sixth, the Dorian sixth chord, the so-called "minor thirteenth," etc., may be explained most simply thus:—

Ex.166.

The musical notation for Ex. 166 consists of piano accompaniment with a treble and a bass staff. The notation shows various chords and altered notes, illustrating the resolution of altered chords.

All this leads up to the modern practice of taking a chromatically altered chord, with or without preparation, and resolving it freely. Once established, the altered chord immediately "becomes of age," and acts "on its own rights." As these rights are analyzed in detail in Chapter IX. on Resolutions, a few examples will suffice here.



Or the resolution may be suspended over a long chain of apparently alien chords, the last of which resolves satisfactorily.

Ex.167.

Andante.



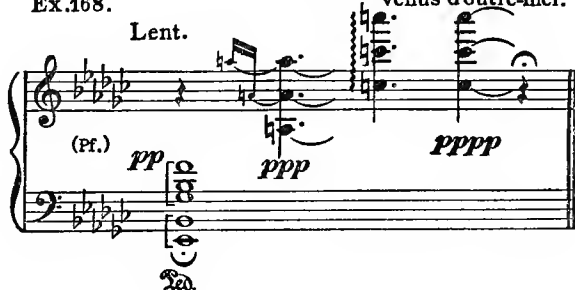
The “escaped” chords, which appear mostly in the chromatic forms, are dealt with in Chapter XII. They are neither “prepared” nor “resolved” in the conventional sense of the term, but are allowed to “evaporate.” They are not chords in themselves, but only additions to the normal harmony.

“Escaped”
Chords.

Ex.168.

RAVEL, “Les grands vents
venus d’outre-mer.”

Lent.



The principle of adding notes to the simple chords is one of the most ancient usages. The third inversion of the so-called "chord of the eleventh" is thus accounted for, as its now more common designation, the "added sixth," implies. These chords doubtless owe their origin to sounding the principal note together with the passing note, but they have now reached a stage of development far distant from this simple beginning. The Beethoven extract shows how these "added note" chords may have been suggested through the pursuance of imitation, whilst the two Wagner passages show clearly how some of the newer chord-formations came into being.

Ex.169.

Allegretto. ($\text{♩} = 76.$)

BEETHOVEN, 7th Symphony.

Ex. 170.

Rhine-Maidens-

WAGNER, "Rheingold."

Ex.171.

Schnell.

Alberich.

WAGNER, "Rheingold."

(Min. F.S. p.95.)

mighty, lash me to mad-ness.

W.W. & Hns.

(Str.)

7 7 7 7

Detailed description: This musical score is for a piano accompaniment of Wagner's 'Rheingold'. It features a bass line with a vocal melody and a piano accompaniment. The key signature is two flats (B-flat and E-flat), and the time signature is 8/8. The tempo is 'Schnell'. The piano part is marked '(Str.)' and includes dynamic markings 'f' and 'ff'. The score is divided into two measures. The first measure shows the vocal line and a piano accompaniment. The second measure shows the vocal line and a piano accompaniment with a '7 7 7 7' marking below it.

They are not always prepared for in this way, and may resolve with the natural or the freer progressions; or they may form part of a purely *timbre*-creating combination, and merely "evaporate," as is the case with the "escaped chords."

Ex.172.

MAC-DOWELL,

"To a waterlily."

Con molto sonnolente.

(Scheme)

(Pf.) *p*

pp * *pp*

Detailed description: This musical score is for a piano accompaniment of MacDowell's 'To a waterlily'. It features a piano accompaniment with a key signature of three sharps (F#, C#, G#) and a time signature of 3/4. The tempo is 'Con molto sonnolente'. The piano part is marked '(Pf.)' and includes dynamic markings 'p' and 'pp'. The score is divided into three measures. The first measure shows a piano accompaniment with a 'p' marking. The second measure shows a piano accompaniment with a 'pp' marking. The third measure shows a piano accompaniment with a 'pp' marking and a '*' marking. The score is labeled '(Scheme)'.

Ex.173.

KARG-ELERT,
Pastel. Op.92, N°3.

Grave.

(Org.) *fff* *lunga*

Tri Pedali

Detailed description: This musical score is for an organ accompaniment of Karg-Elert's 'Pastel Op. 92, No. 3'. It features an organ accompaniment with a key signature of three sharps (F#, C#, G#) and a time signature of 4/4. The tempo is 'Grave'. The organ part is marked '(Org.)' and includes dynamic markings 'fff' and 'lunga'. The score is divided into two measures. The first measure shows an organ accompaniment with a 'fff' marking. The second measure shows an organ accompaniment with a 'lunga' marking. The score is labeled 'Tri Pedali'.

Many passages in Strauss and Reger seem to prove that a Dominant or a Tonic may be added to any combination in the key, and the device of adding to the piquancy, or increasing the colour of chords by altering or adding notes, is now very common. In this connection the transformation of Wagner's "Rheingold" themes are particularly interesting.

Ex.174. STRAUSS,
"Till Eulenspiegel."

Musical score for Ex. 174, Strauss "Till Eulenspiegel." The score is for piano (Orch.) and is marked *ff*. It features a 3/8 time signature and a key signature of one flat (B-flat). The melody is in the right hand, and the bass line is in the left hand. The piece is characterized by its rhythmic complexity and chromaticism.

Ex.175.

Allegro leggiero.

J. HOLBROOKE,
"Acrobats" Op.2, N^o4.

Musical score for Ex. 175, J. Holbrooke "Acrobats" Op.2, N^o4. The score is for piano (Pf.) and is marked *p dim.*. It features a 2/4 time signature and a key signature of two sharps (D major). The tempo is marked "Allegro leggiero." The piece is characterized by its light and playful character.

Ex.176.

Modéré, très franc. $\text{♩} = 176.$

RAVEL, "Valse Nobles." N^o 1.

(Scheme)

Musical score for Ex. 176, Ravel "Valse Nobles" N^o 1. The score is for piano (Pf.) and is marked *f*. It features a 3/4 time signature and a key signature of one sharp (F major). The tempo is marked "Modéré, très franc." with a quarter note equal to 176 beats per minute. The piece is characterized by its elegant and sophisticated character.

Ex.177.

LANDON RONALD,
Pensée Musicale.

Andante.

(Pf.) *p* *dim.*

Ex.178.

WAGNER, Götterdämmerung.

Further, these “added note” chords may be subject to chromatic alterations, partial or total; and this is frequently a more effective way of dealing with the five forms of the “augmented sixth” chords than the “tonal” explanation, as the combinations at (d) and (f) cannot be called “tonal” chords.

Ex.179.

a) b) c) d) e) f)

(Scheme)

Chromatic alterations may be applied also to the newer chords formed by fourths and fifths, equal or unequal, and also to the “mixed” structures; and the device of *appoggiaturas* is applied to these chords quite as freely as to the simple and diatonic forms. More fundamentally still, this practice of chromatic alteration may be applied to those

diatonic structures of thirds for chord and scale-formation which are used by the ultra-modern composers in the "harmonic studies" mentioned in Chapter XI.



Owing to the enharmonic nature of the equal temperamental tuning, the alteration is frequently something more subtle than all this, and consists in the alteration of the view taken of it by the addition and substitution of extra notes, which put the chord into a different context. We cannot ignore the enharmonic view, as otherwise the theory and practice of all chords constructed on a system of perfectly equal intervals works round in a vicious circle. The equal system produces many interesting results, but the use of the discoveries on the "reflection" lines in reality entails the annihilation of all the processes of chord inversion. The enharmonic method alone supplies the outlet. It is applicable to all equal chords—diminished sevenths, augmented triads, perfect fourth chords, perfect fifths, and the "tonal" formations.

A hitherto unsuspected advantage has been taken of the chameleon-like nature of these equally divided chords. Whatever the notation of the chord of the diminished seventh may be, composers of the Strauss, Schönberg, and Stravinsky order claim the right of changing any of the four supposed "generators" at will. They apparently waive aside all temperamental questions, evidently accepting the equal tuning as being sufficiently near to the natural series. The device produces some startling treatments of the "minor ninth" formation:—

Ex.180.

(Enharmony.)

thus



Does the mind view the sustained chord kaleidoscopically, or accept the equal tuning once and for all? The recent return by Strauss and others to the Dominant generator theory for this chord, supplying possible generators in succession, tests this theory almost to breaking-point.

In the "prepared" manner the sounding of the various roots in the bass is somewhat analogous to the method used with the sounding of simple "escaped" notes in the upper register. But they are taken unprepared and in a connected manner in Arnold Schönberg's compositions. The sequential progression of the bass in minor thirds (or augmented seconds) is of common occurrence in Wagner, Strauss, and Bantock, and belongs to the duodecuple or "twelve-note" scale technique, but the following treatment is somewhat novel:—

Ex.181.
Poco lento.

mp e lusingando

pp Red.* Red.* Red.* Red.* *

The *arpeggio* treatment is almost revolutionary, and the passing-note system may be constructed on four distinct scales, thus:—

Ex.182.

Ex.183.

Ex. 183 consists of two systems of piano music. The first system contains two measures. The right hand plays a chromatic line of eighth notes: G4, A4, B4, C5, B4, A4, G4. The left hand plays a chromatic line of eighth notes: F3, E3, D3, C3, B2, A2, G2. The second system contains three measures. The right hand plays a chromatic line: G4, A4, B4, C5, B4, A4, G4, F4, E4, D4, C4, B3, A3, G3. The left hand plays a chromatic line: F3, E3, D3, C3, B2, A2, G2, F2, E2, D2, C2, B1, A1, G1.

Ex.184.

Ex. 184 is a piano piece in 4/4 time. The right hand has a static chord of G4, A4, B4, C5. The left hand has a chromatic line of eighth notes: G3, F3, E3, D3, C3, B2, A2, G2, F2, E2, D2, C2, B1, A1, G1. Labels (a) and (b) are placed under the first and second measures of the left hand respectively.

The older practice admitted the chromatic alteration of a chain of passing notes either singly or doubly in the following manner:—

Ex.185.

Ex. 185 consists of two systems of piano music. The first system is labeled "Alteration" and shows a chromatic line of eighth notes: G4, A4, B4, C5, B4, A4, G4, F4, E4, D4, C4, B3, A3, G3. The second system is labeled "(Scheme)" and shows a similar chromatic line: G4, A4, B4, C5, B4, A4, G4, F4, E4, D4, C4, B3, A3, G3.

The modern composers "touch up" their passages by chromatic alterations in any way which suits their fancy (see Examples 134, 135, and 136).

In applying all the alterations and additions, with the exception of the "enharmony" practices, the original chord formation or the foundation diatonic scheme should always be borne in mind, the main objects of all these devices being the securing either of increased variety and power in modulation, or of ever richer harmonic colouring.

TWENTIETH- CENTURY



HARMONY

Creative Aspects and Practice

BY VINCENT PERSICHETTI

Ex. 1-20

Allegretto
(Organ)

But harmony that is clouded may remain so and be effective; both cloudy and clear chordal materials are essential ingredients in musical composition. The overtone series is useful in measuring the aural difference.

OVERTONE INFLUENCE

Any tone generates a series of overtones or partials that reach upward indefinitely, though not all are audible.

Ex. 1-21

Overtone series

Partials 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16

A tone has both vertical and horizontal implications; its overtones may be used simultaneously in chordal structures or consecutively in melodic lines. Some sounding bodies produce higher overtones than others. A tone produced on an instrument capable of generating high overtones recognizable by the ear can have a quality that is resonant and relatively dissonant because of the crowding of the upper partials. The same note played on a medium

having overtones that stop aurally with the lower or middle partials will sound relatively consonant, but lack resonance. Such are some of the differences that help give instruments their individual tone quality.

Basic harmonic materials may be traced to the overtone series, but only general facts concerning chordal structure and resonance are indicated by the partials. A triad is formed by partials 1-3-5 (root, fifth, and third), a seventh chord by 1-3-5-7, a ninth chord by 1-3-5-7-9, the whole-tone chords by 7 to 11, chords by fourths by 6-8-9, and the augmented fourth chord by 6-8-11. However, deduction concerning harmonic implications of partials beyond the 6th is not wholly practicable because the tempered scale does not coincide in pitch with the 7th, 11th, 13th, and 14th partials. It is quite possible to relate multi-note chords by thirds to the series but the overtones produce limited resonance. The major triad (partials 1-3-5) is clearly in tune. But the seventh partial is slightly less than a minor third from the sixth, and if considered as the seventh (in chords by thirds) misinterprets the natural phenomenon. Our tempered aural thinking can include tones up to the sixth partial but beyond that point the aural perception is merely rational. The acoustician's observations are useful to the composer only if blended with artistic intuition.

The fifth (partial 3) is a lower partial than the third (partial 5) and consequently is more powerful; this is an important factor in understanding relationships of tones, chords, and tonalities. Resonant harmony is not formed by seeking higher and higher overtones but by using overtones of overtones. For example, in a C-E-G-B chord, the seventh (B) is the fifth above the third (E). In this sense both C and E are accompanied by their fifths and therefore have strong relationships with these other tones. If we wish to add an additional resonant tone, we should add not a higher, weaker overtone of C (such as F#) but a lower and stronger overtone of an overtone (such as G# which is partial No. 5 of E).

Ex. 1-22

← No. 5 of E

No. 5 of C

Chordal structures are most resonant when the distances between the members are somewhat similar to those in the overtone series (wide spacing in the lower register and close spacing in the upper register). The overtone series sets a norm for brilliance. For maximum brilliance, let the lower tones of the chord be accompanied by their own overtones.

The resonant properties of an instrument or of objects surrounding the performer create additional sonority that underpins the sound. The principle of supporting resonance by lower sonority is occasionally applied to chordal structures. This color device is used primarily when the composer works with chords in the upper register and needs to fill in toward the bass. In lower registers, the addition of tones is limited by the danger of muddy progressions. Most effective supporting tones are the fifth or ninth below the bottom tone of the chord because the fifth is a strong and resonant interval and the ninth is a fifth below the fifth. Bases plucking the fifth or ninth below the actual bass line cast a reflected sheen over the harmony.

Example 1-23

(♩ = 80)

Str. (arco)

D.B. (pizz.)

MEDIUM

The medium to which a musical idea is given has a direct bearing upon harmonic writing, as do intervallic texture, spacing, and dynamics. The following passages are built upon the same chordal