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X

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THE

ELEMENTS OF MUSICAL ANALYSIS

BY JAMES CURRIE, A.M.,


PRINCIPAL OF THE CHURCH OF SCOTLAND TRAINING COLLEGE, EDINBURGH;

AUTHOR OF "EARLY AND INFANT SCHOOL-EDUCATION," ETC.



NEW EDITION.

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PREFACE.

THERE is no want of treatises for the professional student of music ; but it has seemed to the writer that there is room for a treatise sufficiently comprehensive, yet sufficiently limited, in its range for the purposes of the general student, and constructed in conformity with the recognised principles of modern teaching. If the present treatise should be found to be of this character, he will not regret the time taken from more regular engagements for its preparation.

The examples which have been introduced throughout the work have extended its size beyond what was originally contemplated ; but these could hardly be omitted without materially impairing its usefulness. References are also given to a number of miscellaneous examples of different characters ; which are, for the most part, easily accessible to the student, and which will readily suggest to the teacher others of a similar nature.

After reading this manual, the student should be in a position to take up almost any of the higher treatises on the science of Music. Meanwhile, should he desire fuller information on any of the topics referred to in it, he may consult with advantage the treatises of Marx, Röhner, or Catel.

Finally, whilst the main design of the work is to present as much of the science of Music as should be known by the well-educated teacher of a Common School, and, particularly, to furnish a suitable manual for those who seek to qualify themselves as certificated teachers under the Minutes of Council ; it is hoped that it may be found serviceable in a wider circle of readers ; as the extent of musical knowledge which it aims at conveying is not more than should be embraced in a liberal education.

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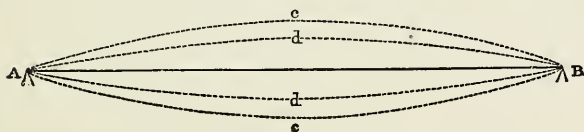
ELEMENTS OF MUSICAL ANALYSIS.

CHAPTER I.

THE DIATONIC MAJOR SCALE.

Introduction—Nature and Properties of Musical Sound.

1. Let A B be a piece of copper wire, perfectly flexible and of uniform thickness, and stretched by a weight or otherwise be-



tween two fixed points, A and B. Let it be twitched with the finger, or let a bow be drawn across it; and that peculiar motion called *vibration* will be given to it, by which it is made to occupy successively a series of positions, like c c, d d, &c. Reckoning as *one vibration* the motion of the wire from the moment of its leaving the straight, till, having occupied the position c c or d d, it return to the straight again, it is found that the time required for each vibration is the same. The vibratory motion of the wire produces a waving motion, or *undulation*, in the air. The sound produced by these undulations is a continuous, equable, agreeable sound; or, as it is called, a *musical* sound.

Again, if we take a regularly formed pipe or tube, of metal or of wood, and blow uniformly into it, either at its end by a mouth-piece, or at a hole in its surface, we produce a regular undulatory motion of the air within it, which also gives a musical sound.

Musical sounds may be produced in other ways, *e. g.*, by bells, glasses, &c. ; but these are the two most common, as we see from the construction of musical instruments. In the violin, the harp, and the piano, we see the vibration of strings employed to produce musical sound ; in the flute, the clarinet, the trumpet, and the organ, we see tubes used : the human voice is an example of the latter.

A musical sound, then, is produced by regular undulation of the air ; and is in this way distinguished from a non-musical sound or noise. When the term *sound* is used in this work, it is a musical sound that is meant.

2. The ear recognises different qualities in different musical sounds ; one is shrill or high, another deep or low ; one is of long duration, another of short ; one is loud or strong, another is soft or weak ; one is delicate and soothing, another firm and piercing. These different qualities all contribute to variety of musical effect.

3. Musical sounds are the materials out of which every tune or piece of music is constructed ; but a mere succession of sounds does not of itself constitute a tune. Suppose that we have before us an instrument capable of producing the whole range of sounds which the ear can recognise, from the lowest to the highest, such as the pianoforte, and that we strike it at random so as to obtain a number of sounds in succession,—though each sound is a musical sound, the whole is not a tune. Every tune must be drawn from a set or series of sounds bearing a determinate relation amongst themselves in respect of their height.

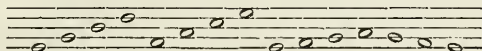
4. We must have the means of representing to the eye this series and all melodies which may be drawn from it, with the various qualities of the sounds employed in their construction. The collection of signs used for this purpose is called *musical notation*.

1. Pitch.

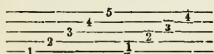
5. The most obvious distinction among musical sounds is in respect of their height. The relative height of a sound is called its *pitch*. To denote difference of pitch, an apparatus of five equidistant horizontal lines is used, called the *staff*. On the staff are placed certain marks to represent the sounds, which are called *notes*. Other expedients might be, and have been, employed to denote difference

of pitch ; but this, which is the one adopted, has the advantage of immediately suggesting through the eye the difference to be recognised through the ear. So that of two notes, that which the eye sees to be the higher on the staff represents the sound of higher pitch.

6. The notes are placed on the lines and in the spaces, thus:—



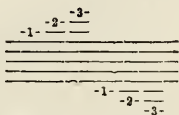
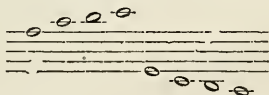
The lines and the spaces are reckoned numerically from the lowest.



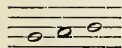
Reckoning both lines and spaces, and including the notes resting respectively above the highest line and below the

lowest, the staff can have upon it eleven notes : or, as it is said, contains eleven *degrees*. A note on the first space is one degree higher, and a note on the second line two degrees higher, than a note on the first line. A note on the third space is one degree lower, and a note on the third line two degrees lower, than a note on the fourth line ; and so on. . Thus in reckoning degrees on the staff the rule is this :—From line to line, or from space to space, is an odd number ; from line to space, or from space to line, is an even number.¹

7. When we wish to denote sounds of a higher or a lower pitch than any of the eleven denoted on the staff, small lines are added for the occasion above or below the staff ; upon and between which the notes are written. These lines are called *leger*² lines ; and are also reckoned numerically up and down from the staff, as first leger line above, second leger line below, and so on.



When we look at the notes on the staff



in this figure, we now know

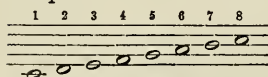
that the sound denoted by the second is higher than that denoted by the first, and that by the

¹ The staff consists of five lines; *not of a larger number*, because the eye would then less readily distinguish the individual notes from each other; *nor of a smaller*, because the number of sounds denoted on it would fall so much short of what is required for tunes in general, that ledger lines would have constantly to be added. Thus it combines simplicity with utility.

² Fr. *leger*, light.

third higher than that by the second or the first. But (1) how much higher is the second sound than the first, or the third than the second, or the third than the first? and (2) what is the actual pitch of the first from which that of the other two is reckoned? These two questions must be answered before we can have an adequate notation of pitch. To answer the first, we must know what the *scale* is, and how it is represented on the staff.

8. The scale is a series of eight notes, representing so many sounds having a determinate relation to each other in respect of pitch.¹ It is written on the staff in this manner :—



The difference of pitch between

the first and second sounds in the scale is called a *tone*,² so is the difference between the second and third: the second note in this series, therefore, represents a sound one tone higher than the first, and the third note a sound one tone higher than the second. The difference of pitch between the third and fourth sounds in the scale is less than that between the first and the second, and that between the second and third; it is a half-tone or *semitone*: the fourth note in this series, therefore, represents a sound one semitone higher than the third. Again, the difference of pitch between the fourth and the fifth sounds in the scale, between the fifth and the sixth, and between the sixth and the seventh, is a tone; therefore, the fifth note in this series represents a sound one tone higher than the fourth, the sixth note a sound one tone higher than the fifth, and the seventh note a sound one tone higher than the sixth. Finally, the difference of pitch between the seventh and eighth sounds in the scale is a semitone; therefore, the eighth and last note in this series represents

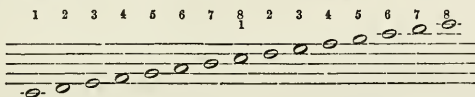
¹ The 'scale' is the basis of melody; and from a knowledge of it all musical instruction must start. It is here assumed that the pupil can recognise it when he hears it, and can sing it. Unless he has the musical conception of it thoroughly in his mind to refer to, he can as little understand any description of it, as he could understand what colour is from description alone without inspection.

² The word 'tone,' like other musical terms, is used very ambiguously. Sometimes it is used as denoting a sound of determined pitch (sometimes, also, the *character* of a sound as smooth or harsh, &c.), in addition to the meaning here assigned to it. It would, on the whole, be better to confine the word *tone* to the first of these three meanings, if we had a satisfactory term for the sense here given to it. But there is none such, and there is no probability of the word ever ceasing to denote one of the intervals on the scale. It appears best in these circumstances to confine the word to the sense here given to it, and to use the word *sound*, in default of a better, to denote the first sense of the word *tone*.

a sound one semitone higher than the seventh. Thus, if we know the pitch of any one of the sounds represented by these eight notes, we can estimate the pitch of any other.

The scale of sounds of which the representation has just been given is called the *diatonic* scale,¹ because its sounds rise above each other for the most part by tones, and never by greater steps. The semitones occupy a fixed position in the scale, viz., between the third and the fourth, and between the seventh and the eighth degrees. This scale is called, moreover, for a reason to be afterwards given, the *diatonic major* scale.

9. If the series of notes be continued upwards on the staff, thus—




they denote the same scale, in whole or in part; *i. e.*, a series of sounds having the same relative pitch from each other, as the sounds represented by the series of eight notes already considered. Let it be observed, however, that it is not the ninth note that is the first of the higher diatonic scale, but the eighth; which is thus the last of the one scale and the first of the other. The scale of sounds being the same, the semitones will occur between the sounds represented by the third and fourth notes and the seventh and eighth. So that, if one voice commencing on the sound of the first note sing up to that of the eighth, and another voice commencing upon the sound of the eighth note sing up to that of the last, they will both sing the diatonic major scale, and the ear will hear as it were but one scale performed. Again, if the series of notes be continued downward, we shall get the scale repeated below; and the position of the semitones in it may be calculated in like manner.

10. Knowing the difference of pitch between any two adjacent sounds in the scale, we can reckon the difference between any two sounds in it whatever. This difference of pitch between any two sounds is called the *interval* between them, and is denoted by the numerical distance of the degrees from each other. Thus the interval between the first and second sounds in the scale is one tone, and

¹ A term derived from ancient Greek music, meaning 'by intervals of a tone,' though it is now, and was anciently, applied to a scale comprising intervals of a semitone as well as of a tone.

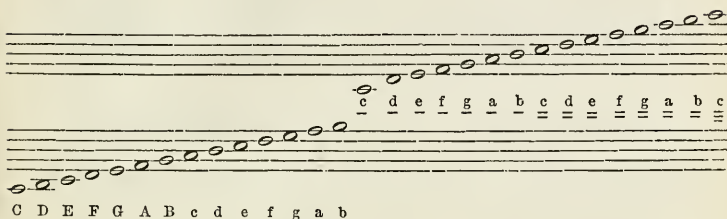
is called a *major second*; between the first and third is two tones, and is called a *major third*; between the first and fourth is two tones and a semitone, and is called a *major fourth*; between the first and fifth is three tones and a semitone, and is called a *major fifth*; between the first and sixth is four tones and a semitone, and is called a *major sixth*; between the first and seventh is five tones and a semitone, and is called a *major seventh*; between the first and eighth is five tones and two semitones, and is called *the octave*. Thus in the major scale all the intervals between the first sound and the others are termed major.

11. We now know how to find the relative pitch of the sounds denoted on the staff; it only remains that we should be able to determine the absolute pitch of any one of them. There is nothing in the staff or the notes themselves that can enable us to do this; for these appeal to the eye, whereas pitch appeals to the ear. *We select a certain note and assume that it shall represent a sound of a determined pitch.* The note selected is the note on the second line; and its pitch is ascertained by reference to a tuning-fork or other instrument. Any other of the eight sounds might have been selected to have its pitch assumed; but this one is commonly taken, and does as well as any other. A mark is put upon the staff to indicate the position of this note; the fact of its being on the second line not being sufficient, as will appear from the following section. It is of this form,  with the small circular curve in it bending round the second line; and it is called a *clef* (*i.e.*, key), as opening up to us the sound of the note on that line, and therefore of all the other notes.

We have now a notation which fully represents the pitch of the sounds by notes upon the staff.—But more than one clef is needed.

12. The range of notes in figure, § 9, comprehends two scales or octaves, that is, fifteen notes. The ordinary range of sounds that can be sung by the voices of women and children extends from the lowest sound denoted in that figure to the sound denoted just above the fifth line of the staff, *i.e.*, it is a scale and a half with one note more; but some voices can sing up to the end of the second scale on the second leger line. The voices of men can sing downwards from the lowest sound denoted there through as long a range; ordinary voices through a scale and a half, some voices through two scales. To denote all these sounds would require a very large number of notes on leger lines below the staff; so that it is better

to denote them by help of an additional staff. They may all be contained on two staves of five lines each and one intermediate leger line, *i. e.*, on a double staff of eleven lines, thus :—




As it is necessary often to speak of individual notes, and yet would be very inconvenient always to have to write down the staff to indicate any note, they are distinguished from each other by names, which are just the letters of the alphabet. These names are attached to the degrees on the staff, and are invariable. Seven letters only are needed ; the eighth note of the scale, from the closeness of its relation to the first, is called by the same letter ; and, as the scale repeats itself, the same series of letters repeats itself also, both above and below. To the intermediate leger line between the two single staves is attached the letter *c*. The degrees as they ascend are called successively, *d, e, f, g, a, b* ; and the third space is *c* again.¹ As there are four octaves, each letter used will occur four times, denoting four different notes ; but the letters are different as above.

The lowest octave is called the *great octave*, and its notes are designated by the great or capital letters. The second octave is called the *small octave*, and its notes are designated by the small letters ; the third octave is called the *one-lined octave*, and its notes are designated by the small letters underlined ; and the fourth octave is called the *two-lined octave*, and its notes are designated by the small letters twice underlined. Thus, when we speak of the note *C*, or *c*, or *c*, or *c*, the particular note we refer to is completely designated.²

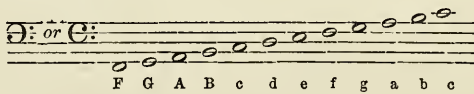
¹ The reason why the scale commences with *C*, and not, as we should expect, with *A*, is this :—The letters were originally applied in their order to a series of sounds different from that in our scale. The modern diatonic scale commences on what was the third of that series ; but instead of calling that the *A*, as being first in order, the former application of the letters was allowed to remain.

² The notation of the diatonic scale is sometimes called the *gamut* or *gammut*. This term—

14. There are used for ordinary purposes in singing about as many sounds as are denoted in three scales, viz., from F to g . Of these any one kind of voice can sing about a half, i. e., a scale and a half; which one staff easily contains. Thus the notes from c to g are what the highest kind of women's voices can generally sing. These are the notes upon the upper staff with the clef. These

voices are called *treble* or *soprano* voices; hence the clef  is called the *treble* or *soprano clef*. It is also called the *g* clef, because the name of the degree on which it is set is *g*.

15. The lowest kind of men's voices can generally sing the range of sounds whose notes extend from G to c or d , which are contained on the under staff. The under staff is therefore frequently written alone. But since there would be nothing on it to determine the names of its degrees, or the pitch of the sounds on them, another clef is used on this staff to determine both. It is placed on the fourth line, which is the degree having the name of *f*; and it is therefore called the *f* clef. Voices which sing these lower sounds are called *bass* voices; whence the clef is also called the *bass clef*. It is of this form F or C and is placed upon the staff in this way—

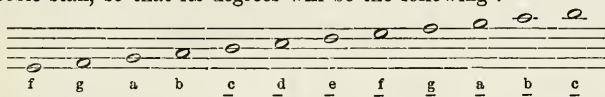



the two dots having the fourth line between them.

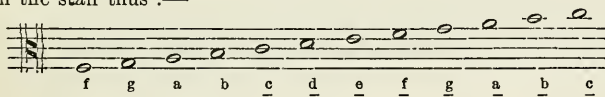
16. There are two other kinds of voices intermediate between the treble and the bass; the one lower than the treble and the other higher than the bass. The former can sing, in general, the range of sounds indicated by the notes from *g* to c . This kind of voice is the lowest voice in women and the highest in men, and is called the *alto* voice. When a melody is written for this voice,

compounded of *gamma*, the name of the third letter in the Greek alphabet, and *ut*, the first of the syllables *Ut*, *Re*, *Mi*, *Fa*, &c., originally used in singing the notes of the scale, but which is now superseded by *do*,—was at first applied to the note below *A* on the bass staff, to which the *ut* was attached, and then to a series of notes forming a peculiar scale which was reckoned from that note. That scale is now obsolete; so that the word, when used at all in modern music, is used only in the secondary sense above given.

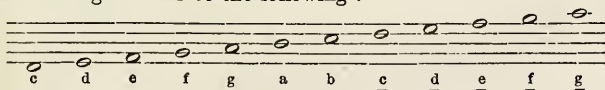
it is not convenient to write it on the treble staff, as the upper lines of that staff would never be used, and leger lines would constantly occur below it. It has, therefore, a staff for itself, consisting of the fourth and fifth lines of the bass staff, the intermediate line between the bass and treble staves, and the first two lines of the treble staff, so that its degrees will be the following :—



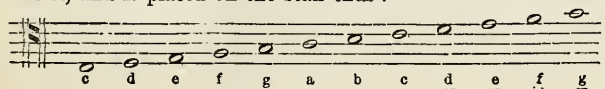
And, that the degrees may not be mistaken, this staff has a clef for itself, called the C clef, from the line on which it is placed, and which is also called the *alto clef* from the voice for whose use it is intended. The clef is of this form  and is placed on the staff thus :—



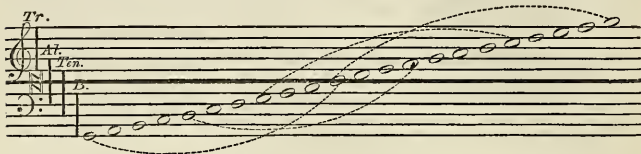
17. The remaining kind of voice is the second lowest kind of voice in men. Its compass extends generally from the sound denoted by d to that denoted by g. It is known as the *tenor* voice. When a melody is written for this voice, it is not convenient to use the bass staff, as the lower lines of that staff would never be used, and leger lines would constantly occur above it. It has, therefore, a staff for itself, consisting of the third, fourth, and fifth lines of the bass staff, the intermediate line between the bass and treble staves, and the first line of the treble staff, see fig. § 12; so that its degrees will be the following :—



And, that the degrees may not be mistaken, this staff has a clef for itself, called the C clef, from the line on which it is placed, and which is also called the *tenor clef*, from the voice for whose use it is intended. It is in form precisely the same as the alto clef, and is placed on the staff thus :—



18. The comparative range of these four voices¹ and the relation of their respective clefs is shown in the annexed figure :—



From this it appears that the treble clef is as many degrees above the C clef as the C clef is above the bass clef, the difference in the case of each two being five degrees or a major fifth.

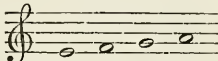
19. Frequently the alto and tenor clefs are not used, that the learner may be saved trouble. In this case, music for the alto voice is written on the treble staff, and is sung precisely as it is written ; the only thing remarkable being that all the notes occur towards the bottom of the staff and on leger lines below. And music for the tenor voice is written either on the bass or on the treble staff. If it is written on the former, it is sung as it is written ;

¹ The four common kinds of voice alone have been distinguished here with their clefs. For the higher purposes of the art of music it would be necessary to reckon more. Thus, between the treble or soprano and the alto, there are two ; the *mezzo-soprano*, as it is called, which is a little lower than the soprano, and the *contralto* (i.e., counteralto) between the mezzo-soprano and the alto. Both of these voices are voices of women. Between the *tenor* and the *bass*, there is a voice called the *barytone*. Each of these three voices has its peculiar clef, which is just one or other of the three clefs already referred to placed in a different position.

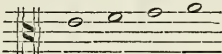
The explanation of the terms denoting the different kinds of voice, and used to designate the parts of a composition which they sing, is the following :—*Tenor* is from the Latin word *tenor*, *course*, or *direction*, because in early times that kind of voice sang the principal melody or subject of the composition (called plain-song, as plainer and less ornamented than the other parts), and the parts sung by the other voices were viewed as accompaniment. The name is still applied to the voice, though the function which it indicates is no longer peculiar to that kind of voice.—*Bass* and *treble* must be explained together. It has been seen that the range of notes available for singing by the human voice is, in all, about three octaves. Of these, the tenor uses the middle octave ; the bass is so called, as using the lowest octave, and thus being the basis (Gr. *basis*, Fr. *bas*) or foundation of the composition. The *third*, or highest octave, is that used by the voice above the tenor ; which is hence called the *treble* (Lat. *tres*, *triplex*). The tenor, however, was subdivided into a higher and lower ; the latter retained the name of *tenor*, the higher was called *contra-tenor* or *counter-tenor*, meaning the higher part drawn from the tenor octave (lit. *against*, i.e., answering to, or harmonizing with, the main tenor).—*Alto* (Lat. *altus*) was used to denote the part higher than the counter-tenor, and which was, therefore, high relatively to the tenor or plain-song. It sometimes appears as applied even to the high part we now call the treble ; but it only denoted a part higher than the counter-tenor, which was not necessarily as high as the treble. These are the terms most commonly used to denote the kinds of voice ; but there are some other terms that need explanation in connexion with these.—*Barytone* (Gr. *barus*, *heavy* in the sense of *low*, and *tonos*, *tone*) was formerly used to denote a voice that could sing the bass part ; but

only the notes all occur towards the top of the staff and on leger lines above. If it is written on the treble staff, it is not the sounds which the notes seem to indicate that are sung, but the sounds which are at the distance of one octave below these.¹

20. It is often necessary to be able to transfer a series of notes written on the staff for one voice to the staff for another. As an aid in doing this, we should reckon the position of the notes from *c*; a note whose sound is common to the range of all the four kinds of voice, and which therefore occurs on all their staves. From its position, this note *c* is also called *middle c*. Exam. Write on





the alto staff the four following notes :— 

Here the first note is the third degree above middle *c*, which is placed on the middle line in the alto staff; so that the first of this series must fall on the fourth line of that staff: the other notes proceed upwards diatonically. This is therefore their

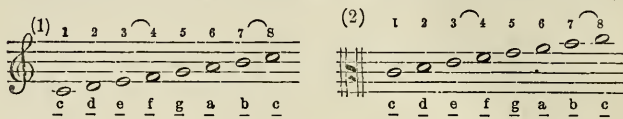
position:— 

21. Comparing now the position of the diatonic major scale

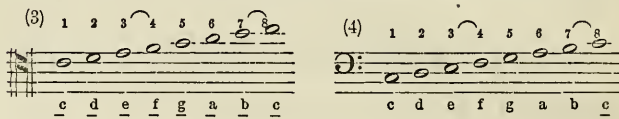
it now denotes a higher kind of bass voice,—a voice between bass and tenor.—*Contra-basso*, formed from bass, as counter-tenor is from tenor, denotes a lower bass (lit., a bass *against* or answering to the common bass); the prefix does not determine anything in itself as to pitch.—*Soprano* (Lat. *supremus*) is a modern term, used to denote the highest part in music, and therefore, often taken synonymously with treble.—*Mezzo-soprano* (Lat. *medius supremus*) denotes a soprano voice slightly lower than soprano, used only when we discriminate the different shades of voice with strict accuracy. This part is often also comprehended under the term treble.—*Contralto*, formed from alto, as counter-tenor from tenor, is a modern musical term, denoting the alto part when sung by a female voice; and therefore, a slightly higher alto than the common.—Lastly, *Canto* (Lat. *cantus, song*) is a term frequently used to denote the principal melody; formerly, therefore, associated with the tenor part, but now chiefly with the treble. The term *cantus* was applied to the melody or plain-song; and, in contrast to it, the other parts, or accompaniments of the plain-song, were called *descant* (Lat. *dis, i. e., diversus cantus*), a term which is now superseded by others, and has, accordingly, lost its old technical sense.

¹ The four clefs named are those now used. Additional clefs were formerly employed; thus, there was the *barytone* (f) clef  for voices between the tenor and the bass; the *soprano* (c) clef as distinguished from the treble  for voices somewhat lower than the treble; the *mezzo-soprano* (c) clef for voices  somewhat lower than the soprano; and the high treble for  voices of higher compass than the ordinary treble. These clefs are now abandoned.

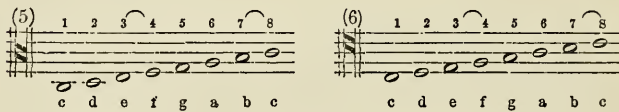
on the different staves, we see that the scale on the treble staff (1) corresponds to that (2) on the alto staff, and to that (3)



on the tenor staff; whilst the same scale, written an octave below

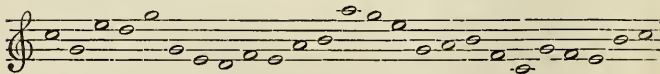


on the bass staff (4), corresponds to (5) on the alto staff, and to (6) on the tenor staff.

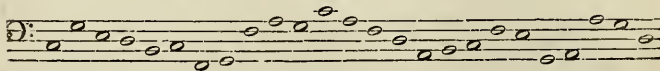


Exercises.

1. Write down the diatonic major scale on the treble staff, in two positions, with the names of the notes.
2. Write it similarly on the bass staff.
3. Write down on the double staff (treble and bass), (1) the notes on the lines and their names; (2) the notes on the spaces and their names.
4. Write down on the double staff, (1) a series of notes ascending by 'four degrees' between each two, commencing with G; (2) a series ascending by 'five degrees;' and, (3) a series ascending by 'six degrees;' adding their names.
5. Write the names of these notes on the treble staff:—



6. Write the names of these on the bass staff:—



7. Write the names of the notes in these degrees, (1) on the treble staff; and (2) on the bass staff: second space, third space, fifth line, first space, fourth line, first leger line above, third line, first leger line below, first space, first line, fourth space, second line, second leger line above.

8. Write down (1) on the treble staff, and (2) on the bass staff, the notes whose names are respectively b, c, a, f, b, e, g, b, a, d, d, a, f, c; and, C, c, A, d, d, g, G, e, e, f, d, a, B, c.

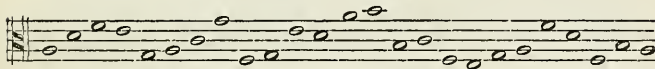
9. Tell the number of degrees between the first line and third space of the staff; between first space and fourth line; between third line and fifth line; and so on.

10. Write down the notes, on both staves, which show the positions of the semitones.

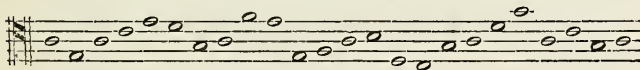
11. Write down in succession the following notes: C, c, c, b, e, e, e, E, G, g, g, d, d, d, D, A, a, a, a.

12. Write down on both treble and bass staves, four notes following each other by these intervals, 'tone, tone, semitone;' by these, 'tone, tone, tone;' by these, 'tone, semitone, tone;' by these, 'semitone, tone, tone.'

13. Write the names of these notes on the alto staff:—



14. Write the names of these on the tenor staff:—

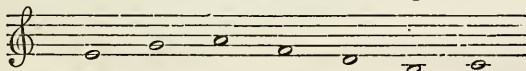


15. Write down on the alto staff the following notes: g, c, f, b, a, e, a, c.

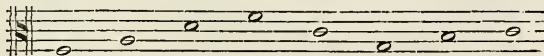
16. Write the following on the tenor staff: d, f, b, d, f, c, g, e, a.

17. Work the twelfth exercise on the alto and tenor staves.

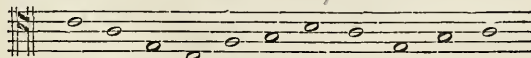
18. Transfer to the alto and tenor staves the following notes:—



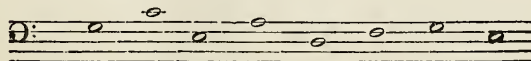
19. Transfer to the treble and tenor staves the following notes:—



20. Transfer to the alto and bass staves the following notes:—



21. Transfer to the tenor staff the following notes:—





22. Write down on the alto staff the notes common to the ranges of the treble and the alto voices.

23. Write down on the tenor staff the notes common to the alto and tenor ranges.

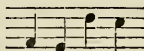
24. Write down (1) on the tenor staff, and (2) on the leger lines above the bass staff, the notes in respect of which the tenor range rises above the bass.



2. Duration.

22. The sounds of the notes in the scale may be different in length or duration. Duration is measured by number: thus, when we define a certain space of time, we say that it has so many seconds, or so many minutes, or so many hours; in a word, so many *units* of time. It is by number, also, that we measure the duration of musical sounds. Thus we say a sound is of such duration that we could count one, or two, or three, or four, at a certain rate, while it lasts. Difference of duration in the sounds is indicated by a difference of form in the notes which represent them.

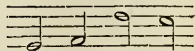
23. The note for a sound whose duration is measured by one beat or motion of the hand, of moderate quickness, is of this form ; or, when it occurs towards the top of the staff, ; it consists of a small circular or oval head, and a vertical line proceeding from it, and extending over about three spaces of the staff in height. When the line is above the head it touches it on its right side; when below, on its left. This note is called a *crotchet*,

and is placed on the staff thus:—



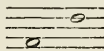
24. The note for a sound whose duration is measured by two such beats is of this form ; or, when it occurs towards the top of the staff, . It consists of a small linear oval head placed on the





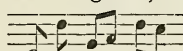
staff with one end somewhat raised, thus—



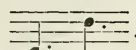




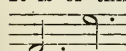
and having a straight line as in the crotchet. The line generally touches the head on the right side whether above or below it, but sometimes as in the crotchet. This note is called a *minim*.

25. The note for the sound whose length is four beats is of

this form \circ : this is the note that was used in the previous chapter. It is the same on whatever part of the staff it is written; and is placed on the staff like the oval of the crotchet, with one end somewhat raised, thus— . This note is called the *semibreve*.

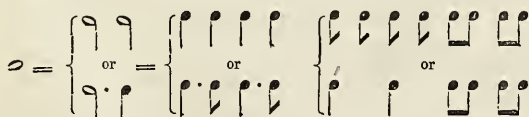
The notes for the sounds of intermediate length are derived from these three. Thus the note for the sound whose length is half a beat, or of which two go to one beat, is derived from the crotchet and is of this form,  or . This note is called a *quaver*. When two of them are written together, they often take this form  or ; thus— 

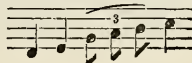
26. The note for the sound whose length is one beat and a half is also derived from the crotchet; it is of this form  or  and is placed on the staff thus— . The dot adds to a note half its own length. This note is called a *dotted crotchet*.

The note for the sound whose length is three beats is derived in the same way from the minim, the dot adding half its length to it. It is of this form  or  and is placed on the staff thus— . This note is called the *dotted minim*.

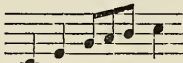
27. Here is the table of equivalence amongst the notes :—

2 quavers	.	.	.	.	.	make 1 crotchet.
3 quavers	.	.	.	.	.	„ 1 dotted crotchet.
4 quavers, or 2 crotchets,	.	.	.	.	„	1 minim.
6 quavers, or 3 crotchets,	.	.	.	.	„	1 dotted minim.
8 quavers, or 4 crotchets, or 2 minims,	.	.	.	.	„	1 semibreve.


$$\circ = \left\{ \begin{array}{c} \text{or} \\ \text{or} \end{array} \right. = \left\{ \begin{array}{c} \text{or} \\ \text{or} \end{array} \right. = \left\{ \begin{array}{c} \text{or} \\ \text{or} \end{array} \right.$$


Excep.—One crotchet is sometimes replaced by a group of three quavers; in which case there is generally some mark to the eye that this equivalence is exceptional, thus— 




But, even if there were no figure written, we should gather from the adjoining crotchets that the three quavers are, in this

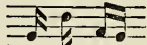
passage,  equivalent to one crotchet. Such

a group of three is called a *triplet*. The following passage gives an example of a triplet of crotchets, which is equivalent to one

minim :— 



28. The notes now exhibited are those in common use. There are other notes, however, shorter than the shortest of these, and longer than the longest.


The note for a sound whose duration is one-fourth of the crotchet beat, and of which, therefore, four go to one such beat, is derived from the quaver. It is of this form  or ; and is placed on the staff thus— . When two occur together, they



are often connected thus— . This note is called

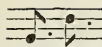
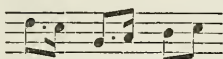
a *semiquaver*, because its sound is half that of the quaver in duration. A quaver is sometimes replaced by a triplet of semi-



quavers, thus :— 

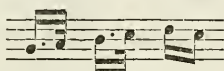
The note for a sound whose duration is one-eighth of the crotchet beat, and of which, therefore, eight go to one such beat, is derived from the semiquaver, and is of this form  or . When a number are written together they are often joined, thus—

. This note is called a *demi-semiquaver*.

29. There is a note for a sound of intermediate duration between that of the quaver and that of the crotchet, viz., the *dotted quaver*,  , which is equal to a quaver and a semiquaver, and has a sound three-fourths of the duration of that of the crotchet; thus



. A dotted quaver and a semiquaver are often written together, thus :— 

There is also a note for a sound of intermediate duration between the semiquaver and the demi-semiquaver, viz., the *dotted semiquaver*  or ; which is equal to a semiquaver and a half, and has a sound three-fourths of the duration of that of the quaver. A dotted semiquaver and a demi-semiquaver are often written

together, thus :— 

We have, therefore, another table of equivalents :—

2 demi-semiquavers	. .	make 1 semiquaver.
3 demi-semiquavers	. .	„ 1 dotted semiquaver.
2 semiquavers	. . . .	„ 1 quaver.
3 semiquavers	. . . .	„ 1 dotted quaver.
2 quavers, or 4 semiquavers	„	1 crotchet.

30. On the other hand, the note whose sound is eight crotchet beats in duration, is of this form ; and is placed on the staff thus— . It is twice the length of the semibreve, and is called the *breve*.¹ It is now little used, two semibreves being written in its place.

There is a note for a sound intermediate in duration between

¹ The names applied to the notes now in use are very inappropriate: thus, *breve* means the 'short' note, whereas it is longer than any we now use; and *semibreve* is *half-breve*, though it is our longest note. The explanation is as follows. In early times the notes in use were the five following :—

Maxima (greatest). Longa. Brevis (short). Semibrevis. Minima (least).




We have laid aside the three first of these, so that our longest note is the semibreve, and our next the minim; yet we have retained the names which they had when, instead of being the longest two in the series, they were the shortest. This is a similar incongruity to that which appears in the names of the notes (note, p. 8); and in our use of the terms 'alto' and 'tenor' (note, p. 10.)

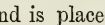
Crotchet, the term we give to our third longest note, is from French *croc*, a *crook*, and refers to the form of the note. *Quaver*, the term we give to our fourth longest, is immediately, perhaps, from Spanish *quibro*, but is certainly connected with our word 'quiver,' and refers to the shortness of duration of the note.

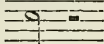
join with these in the production of musical effect, viz., notes of *silence*. The flow of sounds requires to be interrupted by pauses, just as the flow of intelligent language does. In neither case are these pauses mere cessation of utterance; they are necessary to the comprehension and feeling of what is uttered; and in both cases are they an essential part of the means for influencing the hearer. In music, then, they are to be reckoned as notes equally with the notes of sound. They are commonly called *rests*.

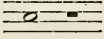
The rests correspond in duration to the notes of sound, each to each; and are denoted as follows:—

The rest whose duration is one beat, and which, therefore, corresponds to the crotchet, is called the *crotchet rest*: it is of this


form , and is placed on the staff thus:—


The rest whose duration is two beats, and which, therefore, corresponds to the minim, is called the *minim rest*; it is of this form , and is placed on the staff so as to be *on* one of its lines,

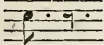

thus:— 

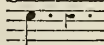

The rest whose duration is four beats, and which, therefore, corresponds to the semibreve, is called the *semibreve rest*; it is of the same form as the minim rest, but is placed on the staff so as to be *under* one of the lines, thus:— 

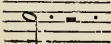
The rest whose duration is half a beat, and which, therefore, corresponds to the quaver, is called the *quaver rest*; it is of this

form , and is placed on the staff thus—

34. The rests corresponding to the dotted notes are formed from the rests now exhibited by the adding of dots. Thus the rest corresponding to the dotted quaver is of this form ,

and is placed on the staff thus:— . The rest corresponding to the dotted crotchet is of this form ,

and is placed on the staff thus:— . The rest corresponding to the dotted minim is of this form ,

and is placed on the staff thus— 

The rest for the triplet is just the rest corresponding to the note to which the triplet is the equivalent. Thus, the rest for the triplet of quavers is the crotchet rest, and the rest for the triplet of crotchets the minim rest.

A table of equivalence may be formed amongst the rests just as amongst the notes of sound, thus :—

$$\text{—} = \left\{ \begin{array}{c} \text{—} \\ \text{—} \end{array} \right\} = \left\{ \begin{array}{c} \text{—} \\ \text{—} \end{array} \right\} = \left\{ \begin{array}{c} \text{—} \\ \text{—} \end{array} \right\}$$


35. The rests corresponding to the remaining notes are these :—

To the semiquaver ♪, thus 

To the dotted semiquaver ♪., thus 

To the demi-semiquaver ♪, thus 

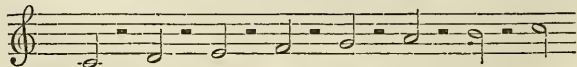
To the dotted semibreve —, thus 

To the breve, when it is used x, thus 

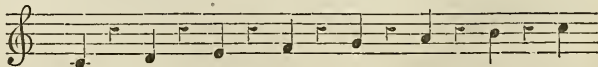
The double dotted notes have also corresponding rests.

36. The rests are commonly written in the third space of the staff; but they may be written in any of its spaces, or in the spaces between the leger lines.

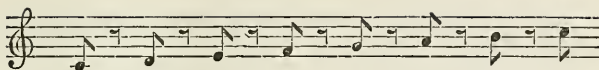
The following scale



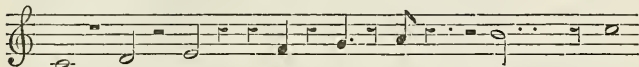
consists of two-beat or minim notes of sound, alternating with the corresponding rests. The following



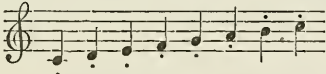
consists of one-beat or crotchet notes of sound, alternating with the corresponding rests. The following

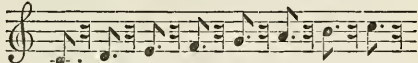


consists of half-beat or quaver notes of sound, alternating with the corresponding rests. In the following scale various notes and rests are employed :—



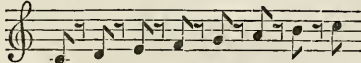
37. There is a peculiar way of writing notes by which the effect of a rest between each two is to be given, though no rest is written. When a series of notes is accompanied with a series of little dots just above or below them, the meaning is, that each note is not to be sustained for its full time, but that the time due to it shall be completed by rest. Again, when a series of notes is accompanied by a series of short commas just above or below them, this effect is to be increased,—the time of sound is to be diminished, and the time of rest increased. So that the scale as

now given—  would be sung

as thus written :— 

giving to each note three-fourths of its length in sound, and the remaining fourth as rest ; whilst the scale marked with

lines,—  would be sung

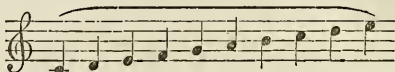
thus—  giving to each

note about half its length in sound, and the other half in rest. Sometimes, instead of the dots and lines, a word is used, and the passage is marked *staccato*.¹

38. Where no such marks occur, it is understood that each note gets its full length. A special mark is sometimes used to indicate this, however ; *e. g.*, after a staccato passage has ended,

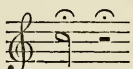
¹ *Staccato, It. detached.*

and especially where two or more notes are to be sung to one word or syllable. Where such a passage is of any length, it is marked *legato*,¹ and where it is short, consisting of a few notes, as is generally the case in vocal music, a curve is drawn over or under the notes so bound together, and is called a

bind, thus—  ; in which

case the effect is as if the sounds melted into each other. The practical effect of this mark in singing is to prohibit breathing between the notes bound together.

39. A peculiar effect is often obtained by lengthening indefinitely in a passage either a note of sound or a note of silence. In the one case, the voice sustains the sound for the necessary time ; in the other, the rest is lengthened. The mark for this is a semicircular curve, with a dot within it placed over the

staff thus—  . Such a mark is called a *pause*. It

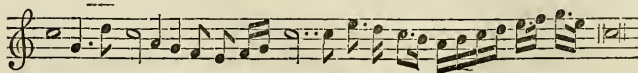
has no effect except upon the note or rest occurring under it.

Exercises.

Note.—In writing these exercises attend to the following directions :—

- a.* Notes of the same value should be equally distant from each other.
- b.* The notes of the longer sounds should be further apart from each other than those of the shorter.
- c.* The lines of the notes should be drawn vertically, and the position of the oval should be attended to.
- d.* Make the lines of the notes of the proper, and a uniform, length.
- e.* Make the outlines of the notes bold and distinct.
- f.* Similar remarks apply to the rests.

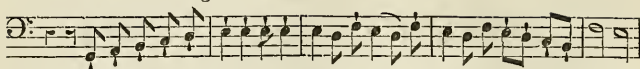
1. Write the names which indicate the duration of each of the following notes:—



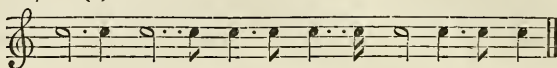
2. Write the duration of the same notes in beats.

¹ *Legato*, *It.* bound together.

17. And the following :—



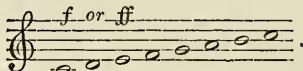
18. For the dots in the following passage write down (1) notes of the same duration, and (2) rests :—



3. Loudness.

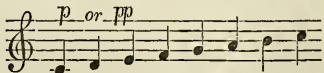
40. The sounds of the scale or of any melody may be sung with different degrees of loudness or intensity ; or some sounds in them may be sung more loudly than others. This feature of sounds can be denoted only approximately, as there is no standard of loudness to which we can refer. It can be denoted that one series of notes is to be performed softly, as distinct from loudly ; or that one series of notes is to be sounded more softly than a preceding ; but with what precise degree of softness cannot be denoted. The taste of the performer must determine this. The marks used to denote relative degrees of loudness are certain words—or their initial letters, and certain linear marks placed above the staff.

41. The scale may be sounded with any degree of loudness we choose ; there is nothing in itself requiring one degree of loudness rather than another. If we wish it to be sung loudly, the word *forte*, or its first letter *f*, is placed over the staff at the first note ; if very loudly, the letter is doubled thus :—



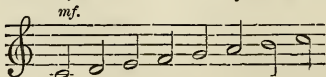
If we wish it to be sung softly, the word *piano*, or its first letter *p*, is placed in that position ; if very softly, the letter

is doubled, thus—

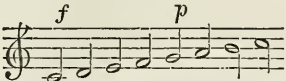


a moderate degree of loudness, the words *mezzo-forte* or the initials

mf. are used, thus—




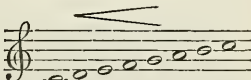
of it is to be sung loudly, and part softly, the letters *f* and *p* are placed so as to indicate the passages which are to be loud

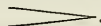
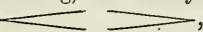

or soft, thus— . If we wish any

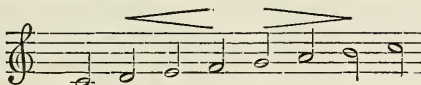
notes of it to be sung with peculiar force, we place over them the letters *sf.*, the initial of the word *sforzando*,¹ or a mark of this

form \wedge , thus:— 

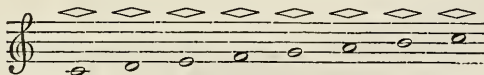
42. If we wish it to be sung softly at first, but with gradually increasing loudness, we write over it at the beginning the word *crescendo*,² or the letters *cresc.*; or we indicate it by this mark

 which is called a *swell*, thus— 

If we wish it to be sung at first loudly, but gradually diminishing in loudness, we write the word *diminuendo*³ or *dim.* at the beginning, or use this mark . If we wish to have it sung softly at first, then increasing, then softly again, we combine these two marks, thus, , which, when placed over a single note, take this form ; thus:—



or



43. The same *marks of expression*, as they are termed, are used to indicate these different effects in a melody or tune. But a melody has a meaning or sense in it as distinct from the scale, the perception of which, for the most part, determines the appropriate degree of loudness independently of the marks. Particu-

¹ *Sforzando*, It. forcing.

² *Crescendo*, It. increasing.

³ *Diminuendo*, It. diminishing.

larly is this the case with vocal melody, in which the sentiment of the words serves as a guide over and above the musical effect. So that in songs and psalm tunes, which are amongst the shortest of compositions, the marks for loudness are very little used ; the taste of the singer must suggest to him the light and shade which should be given to the performance.

4. Complexion.

44. Sounds may be the same in pitch, duration, and loudness, and yet seem to the ear to be of a different character, or colour, if we may speak so. Thus the sound of a violin differs from that of a flute, and both of these are different from that of a voice. The difference between them is one of *complexion*.¹ The variety of musical instruments in use indicates the varieties in the complexion of the sounds used for the production of musical effect. There are differences of complexion amongst voices ; even amongst voices of the same range, as amongst treble, tenor, &c. The musical effect produced by these voices is different ; but this is not a matter with which the theory of music is concerned, and is not indicated by any notation. The difference of complexion among voices is here taken account of only in so far as it involves a difference of range, making one voice treble, another alto, &c. ; in which case the clefs are the marks which denote it. But in instrumental music different instruments of the same range, *e. g.*, different kinds of treble instruments cannot be interchanged ; the writer indicates at the beginning of every staff the instrument that is to perform the sounds of the notes on that staff.

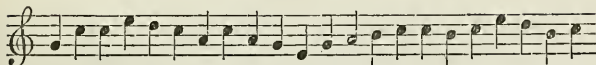
The scale we have been considering is at once recognised by whatever kind of voice or of instrument it is performed ; and it is from the same scale that melodies for all voices and instruments are alike drawn.

¹ The difference referred to is one of *physical character* in the sounds contrasted. There is no English word that is in general use to denote this feature of sounds ; hence the French word "timbre" is often used.

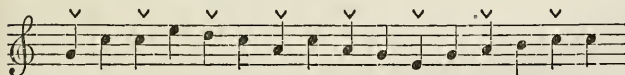
CHAPTER II.—RHYTHM

1. Rhythm.

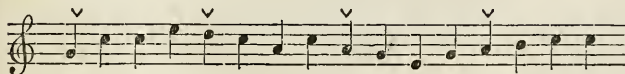
45. Let the following or any series of notes—



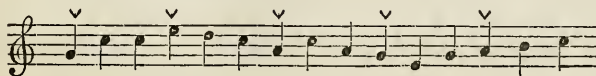
be sounded successively with exactly the same stress upon each, so that the ear shall not observe one sound to be more prominent than another; the effect is vague and unsatisfactory. Let the series of notes thus sounded be increased, and still more increased, and the effect is a sense of monotony and bewilderment. The mind loses itself in the very act of listening, instead of being stirred up to a consciousness of pleasure. But suppose that the series of notes is sounded so that the first of every two is made prominent by a stress upon it, thus—



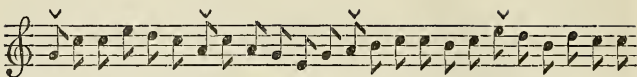
or the first of every four—



or the first of every three—



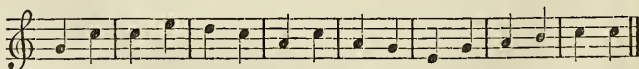
or the first of every six—



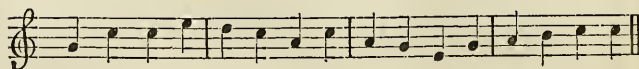
the mind becomes conscious of a decided and pleasant effect. This arises from the regular recurrence of stress ; which throws the sounds into groups of equal duration. The order of recurrence may be varied, and each order will produce a different effect ; but some order there must be, before we are conscious of musical effect. This recurrence of stress at regular intervals of duration is called *rhythm*, and the stress itself is termed *accent*.

46. So grateful to the ear is rhythmic motion, that a series of non-musical sounds rhythmically arranged conveys more of musical effect to it than a series of musical sounds, even in scale relation, without this arrangement. The music of rude nations is little more than rhythmical noise, *i.e.*, it is formed by the rhythm in spite of the absence of musical sound. And amongst ourselves, any marked succession of sounds which are in themselves not musical, will immediately fix the attention and interest ; *e.g.*, the measured tread of a military march, the sound of a horse's feet in gallop, or the beat of the drum. A musical sound is individually pleasant to the ear ; but a series of musical sounds depends for its meaning and effect on rhythm. It is rhythm which reduces the aggregate of individual sounds to a unity, and which inspires that unity with life and character.

47. In figures § 45 the rhythm is indicated by marks placed above the notes which are sounded with the accent. This is not distinct enough for the purposes of notation, and vertical lines drawn across the staff are used ; in such a way that the accented notes shall occur immediately after the lines. Thus, Ex. 1, where the first of two notes is accented would be written as follows :—



Ex. 2, where the first of four is accented, thus—



Ex. 3, where the first of three, thus—



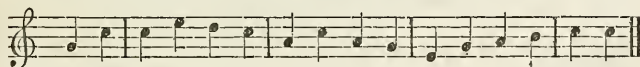
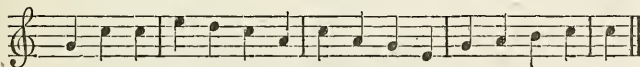
Ex. 4, where the first of six, thus—



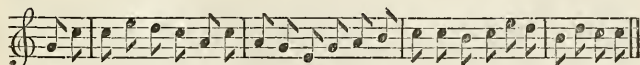
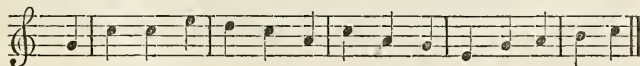
48. The accent may not always occur on the first sound of a passage ; thus, the accent occurs on the first of two, though the first note of the series be not accented, thus—



In Ex. 2, in which the accent occurs as one in four, there are evidently three ways of distributing it besides the one given above, thus—

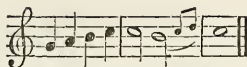


So in Ex. 3 and 4, where the accent occurs as one in three and one in six respectively, the series of notes may be differently grouped, *e.g.*—

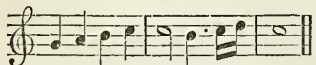


49. Each of the parts of a melody between one accented note

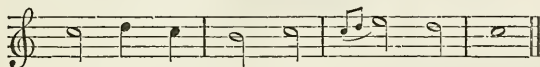
more notes than its just allowance, thus,



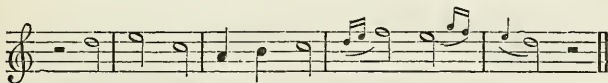
Here the second measure seems to the eye to have more notes than it should have. It is a mere expedient in writing, however; for its time in performance is the same as that of the adjoining measures. The above passage is sung as if it were written thus—



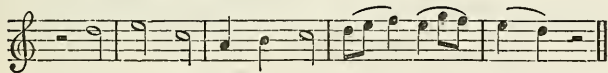
before the note to which they are added, thus—

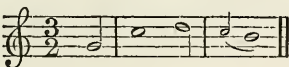


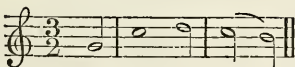
Other notes than the quaver are inserted in this way, thus—



which is sung as if it were written—



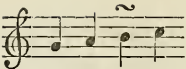
Again, this passage  is sung as if


written . The flow of the rhythm

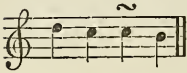
in the melody is not affected by such notes—*appoggiatura*¹ notes as they are called—whether single or double; the sounds of which are merely ornamental to those of the notes to which they are attached. Such notes are generally supposed to deduct one-half from the duration of the notes to which they are attached; sometimes it is less, however, whilst from dotted notes they take two-thirds.


Nor is the rhythm affected by the occurrence of such other melodic graces as that called the *turn*, which indicates that this

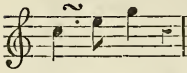
¹ *It Appoggiare, to lean on.*


measure, *e. g.*,  is to be sung as if written

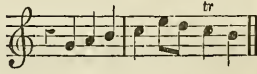
thus—  ; or that this measure

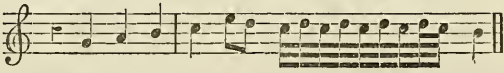
 is to be sung as if it were written


thus—  ; or that this measure

 is to be sung as if it were written thus—

 . Nor is it affected by the *shake* (or trill, denoted by the initial letters *tr*, placed over the staff),

indicating that the passage written  is to be performed as if written



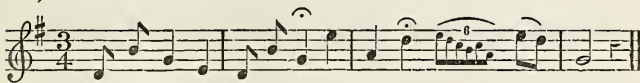
or that the passage written thus—  is to be performed as if it were written thus—



In each of these cases the value of the measure is unaltered by the ornamentation.

There are but two cases in which license is given to prolong any measure : the one is when the pause is placed over a note ; the other when, in the ending or final *cadence* of a melody, an

ornamental series of notes is introduced just before the final one, thus :—



2. Kinds of Rhythm.

52. The simplest kind of rhythm is that in which every alternate beat is accented, *i. e.*, which has two crotchets in a measure, the first accented, the second unaccented. This has already been exemplified, figure § 47.¹ The measures themselves sufficiently show the rhythm, but it is common to have a mark indicating the rhythm placed after the clef, thus—



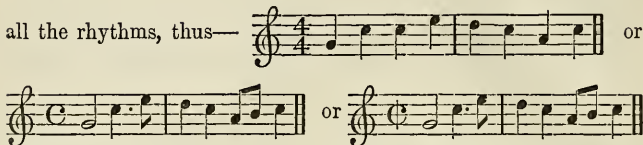
The lower of these two figures means the fourth part of a semi-breve, the semibreve being assumed as the note from which the length of the other notes is reckoned, and the upper figure denotes the number of these parts in the measure ; so that $\frac{2}{4}$ means two crotchet sounds in a measure.

Whilst the crotchet is the standard note in this rhythm, the two-quaver substitute for it is very freely used ; but the minim is almost never introduced. The character of this rhythm is therefore lightness and elegance.

53. By combining two of these measures into one, we obtain a rhythm by four beats, denoted by four crotchets in a measure. Hence, whilst the first note is the accented part of the measure as compared with the other three, there is a secondary accent on the third part of the measure ; the second and fourth parts of the measure are the unaccented parts. This rhythm is marked $\frac{4}{4}$; it is also marked by a **C** on the staff (sometimes with a vertical line

¹ It may be proper here again to insist on the necessity of putting the pupil in possession of the musical conception of the different rhythms as well as of the explanation of them. Unless he has the former, he cannot understand what is being explained to him. Musical conception must accompany the understanding throughout the study of the entire subject of music.


through it, thus, C^1) because it is perhaps the most common of all the rhythms, thus—



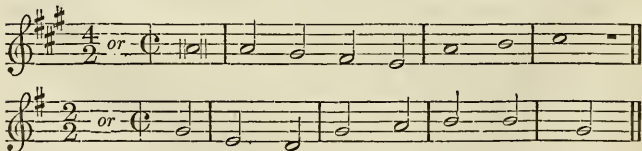
Whilst the crotchet is the standard note in this rhythm, the length of the measure admits of the free use of the minim. The minim is accordingly much employed in it, and even also the semibreve; the quaver but little. From this circumstance, as well as from the greater duration of the measures themselves, this rhythm is characterized by strength and solidity. It is the prevailing one in sacred music.

From the intimate connexion between the rhythm by fours and that by twos, they are both spoken of as *duple*² rhythm, though that term applies in strictness only to the latter.

54. Of rhythm by threes or *triple* rhythm, as it is called, there are various species. (1.) There is that of three beats in the measure, denoted by three crotchets; the first accented, the other two unaccented. The signature of this rhythm is $\frac{3}{4}$, thus—(see

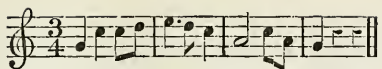
¹ The rhythm indicated thus  is common rhythm, with a quicker motion.

It is the symbol of the old *allabreve* rhythm, in which the early church tunes were commonly written; so called, because formed with reference to the *breve* as the standard of duration among the notes. The semibreve and minim are therefore to be viewed as shorter notes when this notation occurs. There were two varieties of the *allabreve* rhythm; one in which the measure was of the duration of the breve, the other in which it was of the duration of the semibreve. The former would now be indicated by $\frac{4}{2}$, the latter by $\frac{2}{2}$, the minim being the shortest note in the measure. Both alike were marked by C , *e.g.*—

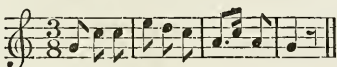


And in both the minim would be sung as very little more in value, if any, than our crotchet, and the sounds of the other notes in proportion.

² The word 'common' is sometimes used instead; a term which it is desirable to get rid of, because the fact which it assumes is very doubtful, and also because the term is used in different senses. Some use it as equivalent to duple; others as equivalent to $\frac{4}{4}$, which is one species of duple.

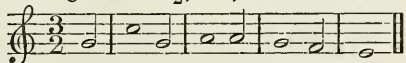
fig. § 47)—. This rhythm corresponds in character with the duple rhythm $\frac{4}{4}$.

(2.) There is that of three half or short beats in the measure; denoted by three quavers, of which the first is accented, and the other two not. Its signature is $\frac{3}{8}$, i.e., three-eighths of a semi-

breve, thus—. This rhythm

is of the same character amongst the rhythms by threes as the $\frac{2}{4}$ is amongst the duple rhythms.

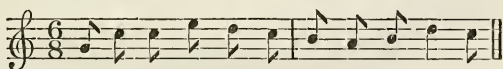
(3.) There is that of three double or long beats in the measure; denoted by three minims, of which the first is accented, and the other two not. Its signature is $\frac{3}{2}$, i.e., three halves of the semi-

breve, thus—. This

is the most serious and stately of the triple rhythms.¹

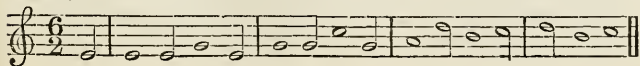
55. The duple and triple rhythms just explained are designated by the general name of *simple* rhythms, to distinguish them from the class of rhythms now to be mentioned, which are formed by a combination of duple and triple, and which are therefore designated as *compound*.

56. Combining two measures of the $\frac{3}{8}$ rhythm into one, we obtain a rhythm denoted by six quavers in the measure; of which the first is the accented one, but of which the fourth has a secondary accent. The measure thus consists of two greater parts, and the rhythm is predominantly duple. The signature is $\frac{6}{8}$, thus

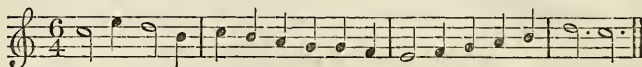
(fig. § 47)—

The number six may be viewed as consisting either of two threes or of three twos; but a measure of $\frac{6}{8}$ rhythm is never to be viewed as three-part. The character of this rhythm, the most common of all the compound rhythms, is vivacity.

¹ There is a rhythm of $\frac{6}{2}$, related to this one as $\frac{4}{2}$ is to $\frac{2}{2}$; but, like it, used only in church music, e. g.,—



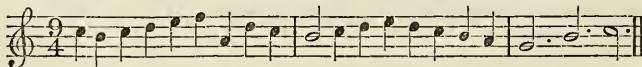
57. Combining two measures of $\frac{3}{4}$ rhythm into one, we obtain a rhythm denoted by six crotchets in a bar, of which the first is the accented one and the fourth has a secondary accent. A measure of this rhythm is viewed as consisting of two threes, so that it is also predominantly a duple rhythm. Its signature is $\frac{6}{4}$ thus—



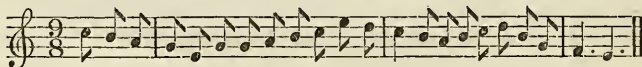
It is not of frequent occurrence.

58. There is a third species of compound duple rhythm sometimes used, that of twelve short or half beats in a measure, denoted by twelve quavers, and figured $1\frac{2}{8}$. The measure is of four parts, being in fact four measures of $\frac{3}{8}$ rhythm combined into one; so that, while the first quaver has the principal accent, the fourth, seventh, and tenth have secondary accents.

59. Of compound triple rhythm there are two species in common use: (1.) That of nine beats in a measure, denoted by nine crotchets, and figured $\frac{9}{4}$. Its measure is a combination of three measures of $\frac{3}{4}$ rhythm; so that, whilst the first has the principal accent, the fourth and seventh have secondary accents.



(2.) That of nine half or short beats in a measure, denoted by nine quavers, and figured $\frac{9}{8}$, thus—

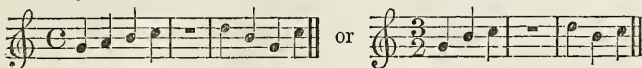


The measure is a combination of three measures of $\frac{3}{8}$ rhythm; so that, whilst the first quaver has the principal accent, the fourth and seventh have secondary accents.

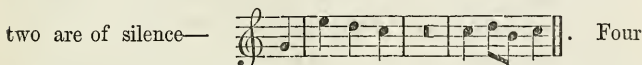
There is a third species of this rhythm very rarely used, consisting of nine quarter beats in a measure, denoted by nine semi-quavers, and figured $\frac{9}{16}$.


There is a peculiar rhythm, neither duple nor triple, which should be mentioned. It has five crotchet beats in the measure, and is figured $\frac{5}{4}$. This is the rarest of all rhythms, because the most unrhythmical.

60. When a measure of silence occurs in a melody, it is indicated by the semibreve rest, whatever the rhythm be, thus—

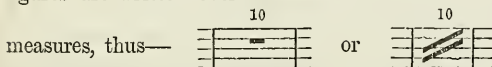


Two measures of silence are denoted by a short line drawn across the space : thus of the four measures in the following passage,



measures of silence are indicated by such a line drawn across two spaces, thus—  and so on ; very commonly, however,

figures are written over the staff to indicate the number of silent



3. Time.

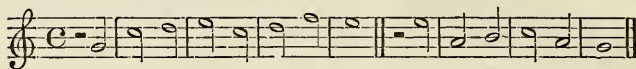
61. A series of notes arranged in any one of the rhythms may be sounded at different rates of speed ; quickly, slowly, or moderately. Thus there is quick duple rhythm, and slow ; quick triple rhythm, and slow ; and so on. The rate of the performance does not affect the nature of the rhythm ; the ear recognises sameness of rhythm amidst differences of rate. The rate at which a piece of music is performed is called its *time*.¹

62. That the same series of notes may be performed in different 'times' is explained by this consideration, that, whilst the minim represents a sound twice the duration of that represented by the crotchet, the semibreve a sound four times that duration, the quaver a sound half that duration, and so on, the length of the sound denoted by the crotchet is itself indeterminate. Sometimes it is longer, sometimes shorter ; the sounds of all the other notes becoming proportionably longer or shorter along with

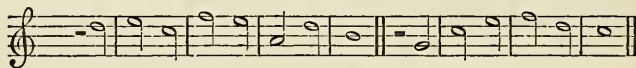
¹ The confusion that prevails in the use of musical terms is remarkably shown in the use of the words 'time' and 'rhythm.' The word *rhythm* is very seldom used, but 'time' is used in its stead, whilst it is also used in its own proper sense of *rate* of performance ! The ideas denoted by the terms are very distinct, and should by no means be confounded.

it. Thus the time of a piece of music is determined by the duration we assign to the sound of the crotchet, or whatever other note is shown in the rhythm to be assumed as the standard of duration. As the character of a piece may be entirely altered if we mistake its time, it is very important to know how we are to judge of the proper time.

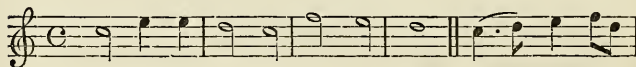
63. In vocal music the means of judging of time are plainer than in instrumental. The sentiment of the words is a sure guide ; by it we can determine very approximately the general time of the piece. There is thus no difficulty in determining the proper time for psalm-tunes or songs, or longer vocal pieces ; so that little external aid is given. Compare the two following tunes :—



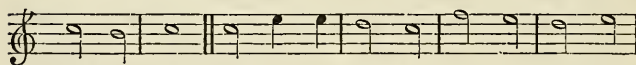
In God my glo - ry plac - ed is, And my sal - va - tion sure;



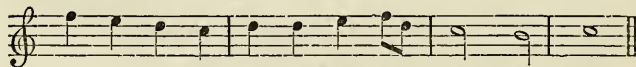
In God the rock is of my strength, My re - fuge most se - cure.



I'll thee ex - tol, my God, O King; I'll bless thy



name al - ways. Thee will I bless each day, and will Thy



name for ev - er praise, Thy name for ev - er praise.

In the first case, the sentiment in the words is that of a dignified and solemn expression of confidence, which requires a dignified and solemn expression in music, as it does in reading. A quick time for this tune would therefore be felt as incongruous and offensive. In the second case, the sentiment in the words is that of praise and triumph, which requires an animated expression in music just as in reading ; a slow and solemn time would prevent the utterance of such feelings and would therefore be felt in this tune as incongruous.

Besides the sentiment in the words, the musical effect will aid a cultivated taste in coming to a correct judgment on the time proper to a piece.

64. As external helps in determining the time, however, certain Italian words are used as marks of expression, of which the following are the principal :—

1. *Andante*, denoting the medium degree of quickness, the crotchet beats approximating to those of the seconds pendulum.

Of slower motion there are two degrees :—

2. *Largo* or *Grave* or *Lento*, denoting (though with shades of difference) a motion about half as quick as the former, the crotchet beat being about two seconds in duration.

3. *Adagio*, denoting a motion between the two previous in point of speed.

Of quicker motion there are three principal degrees :—

4. *Allegro*, denoting a quick, lively motion, about twice the speed of andante.

5. *Moderato*, denoting a speed between that of andante and that of allegro.

6. *Presto* or *Vivace*, denoting a still quicker motion than allegro.¹

These words are modified in various ways to denote intermediate degrees of speed, *e. g.*, *andantino*, almost as quick as andante ; *allegretto*, almost as quick as allegro ; *prestissimo*, very quick.

Frequently in course of a piece there is a part in which the time is left to the performer's own discretion, it being understood that there is to be a deviation from the general time of the piece. This is indicated for the most part by the words *ad libitum*, or *ad. lib.* (at pleasure). Sometimes it is desired that the time shall relax or become slower, in which case the term *rallentando* (*It.* relaxing) is written above the staff ; sometimes that it shall become quicker, in which case the word *accelerando* (*It.* accelerating) is put down. When the original time is to be resumed, this is indicated by the words *a tempo* (to the time).

¹ *Andante*, lit. going ; part. of *It.* *andare*, to go.

Largo, *Grave*, *Lento*, *It.* from *Lat.* *largus*, large ; *gravis*, heavy ; *lentus*, slow.

Adagio, *It.* leisurely, from *Lat.* *ad* and *otium*.

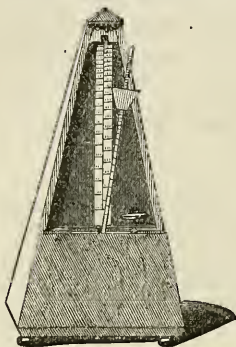
Allegro, *It.* cheerful, from *Lat.* *alacer*.

Moderato, *It.* from *Lat.* *moderatus*, moderate.

Presto, *It.* quickly, from *Lat.* *præsto*, at hand.

Vivace, *It.* lively, from *Lat.* *vivax*, lively.

65. A contrivance for indicating time more exactly is now in general use. This is an instrument called a *metronome*, which



consists of a small pendulum swinging in front of a graduated scale. By varying the length of the pendulum we may make it oscillate any number of times we please in a minute. The composer indicates at the beginning of a piece the duration of a beat, by stating how many of them are to be in a minute; and the pendulum is set accordingly. Thus he may set down

$\text{♩} = 60$, meaning that there shall be 60 crotchet beats in a minute, or one in a second; which is *andante* time.

He may set down $\text{♩} = 60$, meaning that there are to be 60 half-beats in a minute, or one crotchet beat in two seconds; which

corresponds to *largo* time. He may set down $\text{♩} = 80$, meaning that there shall be 80 half-beats in a minute, or one crotchet beat in $1\frac{1}{2}$ seconds; which corresponds to *adagio* time. He may

set down $\text{♩} = 60$, meaning that there shall be 60 double or minim beats in a minute, *i.e.*, one crotchet beat in half a second; which

corresponds to *allegro* time. He may set down $\text{♩} = 90$, meaning that there shall be 90 double or minim beats in a minute, or one crotchet beat in a third of a second; which corresponds to about

presto time. He may set down $\text{♩} = 88$, meaning that there shall be 88 crotchet beats in a minute, or one such beat in about $\frac{2}{3}$ of a second; which corresponds to *moderato* time, or the time half way between *andante* and *allegro*. The intermediate degrees of

speed are in this way more exactly indicated: *e.g.*, $\text{♩} = 108$, meaning 54 crotchet beats in a minute, or nine such beats in every ten seconds, corresponds to *andantino*, but by altering the number

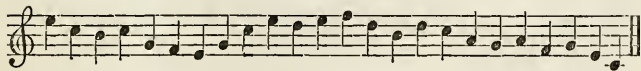
slightly we should have different shades of *andantino*. So $\text{♩} = 50$ meaning 100 crotchet beats a minute, or five such beats every three seconds, is slightly slower than *allegro* time, and corresponds to *allegretto*. In $\frac{6}{8}$ rhythm we may have an indication like this

♩. = 72 ; the half measure being in this rhythm the convenient unit of time. This means that the duration of a crotchet and half is the seventy-second part of a minute, *i. e.*, that there are 108 crotchet beats in a minute, or nine such beats in five seconds ; which corresponds to a time slightly slower than allegro, or to a quicker shade of *allegretto* than that in last sentence. Thus each *term* used to denote time has different shades of meaning, which are all distinguished from each other in the signs for the metronome.

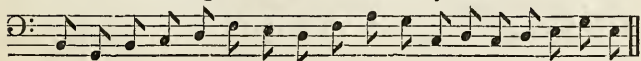
66. It was shown in the preceding chapter that the first essential characteristic of melody is that the musical sounds of which it is composed are all drawn from a scale whose sounds have a determinate relation to the first and to each other in respect of pitch. The substance of what has been taught in this chapter is that, as the second essential characteristic of melody, the musical sounds of which it is composed must have a determinate relation to each other in respect of rhythm. The rhythm may be different, and the rates or 'times' of the same rhythm may be different ; but rhythm there must be. Neither of these essential characteristics by itself will produce musical effect ; sounds in scale-relation but without rhythm do not constitute melody ; rhythm without sounds in scale-relation to act upon does not constitute melody. A clear distinction should be made between these two essential characteristics of melody, and the accidental attributes by which their form may be varied : on the one hand, between sounds being in scale-relation and the duration, loudness, or complexion of the sounds which are in scale-relation ; on the other, between rhythm and the varieties of rhythm or the times of rhythm.

Exercises.

1. Write the following series of notes in these different rhythms,— $\frac{2}{4}$; $\frac{3}{4}$; $\frac{4}{4}$; $\frac{6}{4}$.



2. Write the following series in three different rhythms :—



3. Write down a passage of six measures in $\frac{2}{4}$ rhythm, varying the notes in the different measures.

4. Do the same, introducing the different rests, and commencing with an unaccented part of the measure.

5. Write down a passage of six measures in $\frac{4}{4}$ rhythm, varying the notes in the different measures.

6. Do the same, introducing the different rests, and commencing with the part of the measure which has the secondary accent.

7. Write a passage of six measures in $\frac{3}{4}$ rhythm on the bass staff, varying the notes in the different measures.

8. Do the same, introducing different rests, and commencing with an unaccented part of the measure.

9. Write a passage of six measures in $\frac{3}{8}$ rhythm, varying the notes in the different measures.

10. Do the same, introducing different rests, and commencing with an unaccented part of the measure.

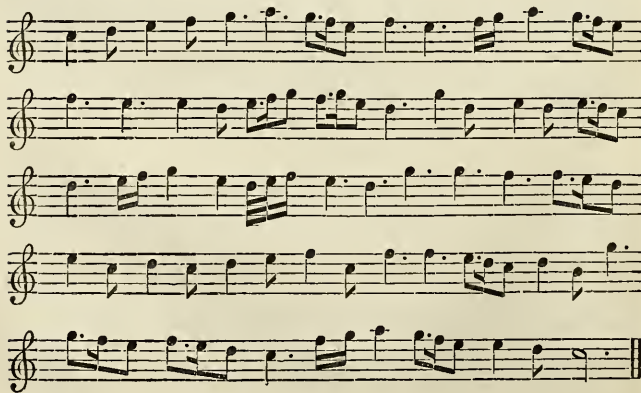
11. Write a passage of six measures in $\frac{3}{2}$ rhythm, varying the notes in the different measures.

12. Do the same, introducing different rests, and commencing on an unaccented part of the measure.

13. Write a passage of six measures in $\frac{6}{8}$ rhythm, varying the notes in the different measures, and commencing with the part of the measure which has the secondary accent.

14. Do the same, introducing different rests, and commencing with an unaccented part of the measure.

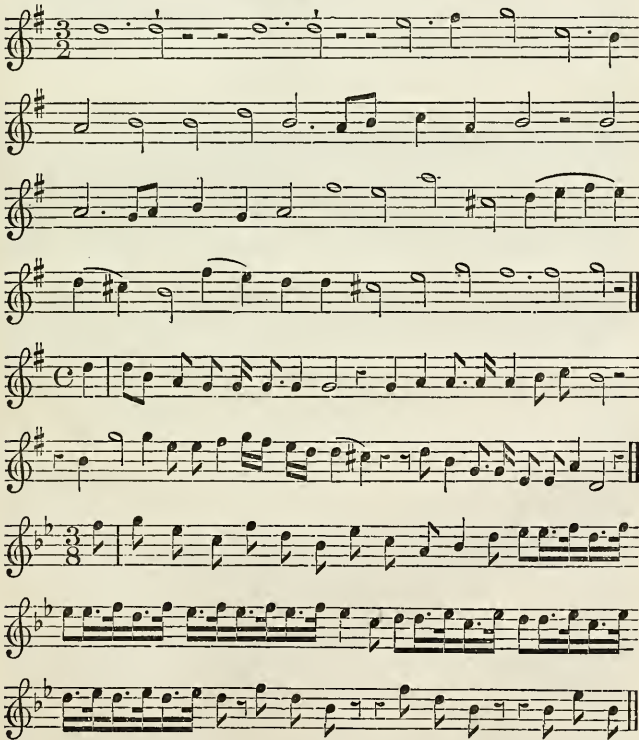
15. Bar the following passage (1) in $\frac{1}{8}$ rhythm, (2) in $\frac{6}{8}$ rhythm, (3) in $\frac{3}{8}$ rhythm; the first note beginning the first measure.



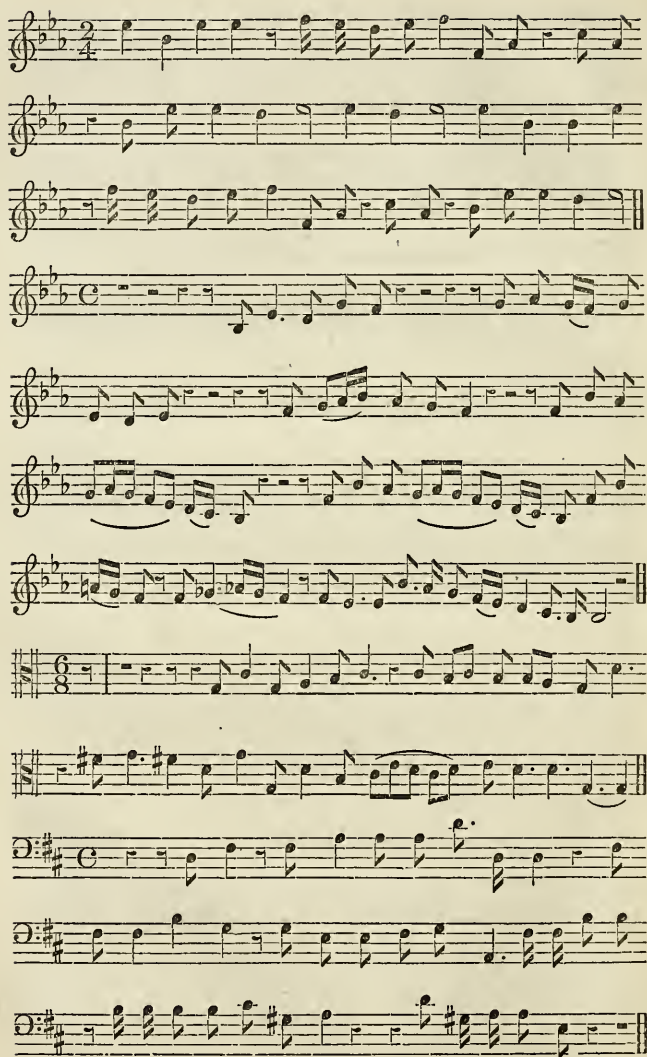
And the following (1) in $\frac{2}{8}$; (2) in $\frac{3}{8}$ rhythms.

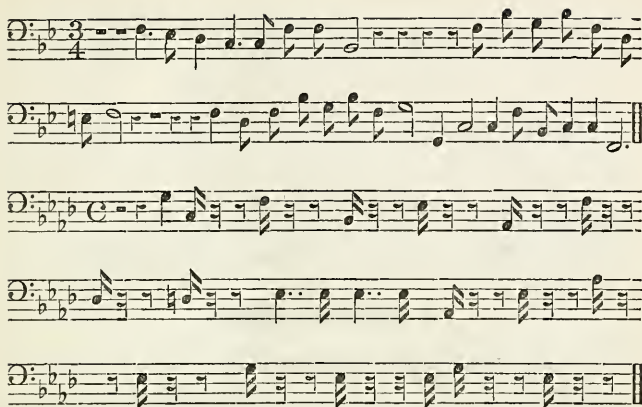


16. Bar the rhythm in the following passages, the first measure commencing with the first note or rest unless otherwise specified¹ :—



¹ The signatures, or accidental sharps and flats, need not here be noticed at all.





17. Bar in $\frac{2}{4}$ and $\frac{4}{4}$ rhythms this passage with triplets.



18. Indicate by *words* (§ 65) the times denoted by the following directions for the metronome:—

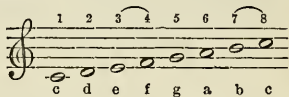
♩ = 72, ♪ = 104, ♩ = 88, ♩ = 120, ♩ = 152, ♩ = 72, ♪ = 100,
 ♩ = 112, ♪ = 50, ♪ = 84, ♩ = 88, ♪ = 65.

CHAPTER III.

NOTATIONS OF THE DIATONIC MAJOR SCALE.

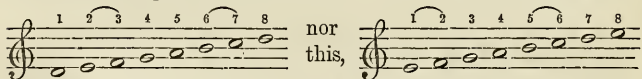
1. Scales with Sharps.

67. When the diatonic major scale is written on the treble staff, it occupies this position,



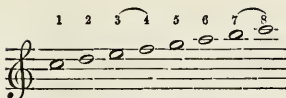
There is no particular reason for its doing so. It might just as well have occupied one of several other positions; thus its first note might have been placed where the d is, or on the first line of the staff, or on the first space, or elsewhere. But this position of the scale is *assumed*; in which the semitones lie between the first and second, and between the fifth and sixth, degrees of the staff respectively.

68. This being so, any other series of eight notes placed on the staff will not represent the diatonic scale. This series will not—



because in neither of them do the semitones occur between the third and fourth, and between the seventh and eighth, notes. So if we take any one of the first seven notes of the scale, and write a series of eight upon it, the series will not represent the scale. The proper number of tones and semitones will be represented by each series; it is not merely the presence of five tones and two semitones, however, that makes the scale, but the presence of them in a certain order. There is but one other position in which the scale can be written on the treble staff, and that is, as before seen (§ 9), the one commencing with the last note of the scale already

written, thus—



69. But we can *sing* the scale, commencing at any sound we please : taking the sound represented by d, or e, or f, or any other, we can sing the scale up or down from it as from a first sound. Were it not so, were we limited to the scale of sounds beginning with one invariable pitch, music would be an art of comparatively narrow resources. We must have the means of *representing* on the staff, therefore, the scales which we can *sing*. How is this to be obtained ?

70. Suppose we sing the scale commencing with the sound of the note g. Write down on the staff a series of eight notes, be-

ginning with this note, . The first

A musical staff in treble clef showing a series of eight notes starting with G. The notes are labeled 1 through 8 above them. The notes are G, A, B, C, D, E, F, and G.

five intervals we *sing* are ‘tone,’ ‘tone,’ ‘semitone,’ ‘tone,’ ‘tone ;’ the first five intervals *represented* by this series of notes are just the same ; it therefore represents correctly so far the sounds of the scale. The last two intervals we *sing* are ‘tone’ and ‘semitone ;’ the last two intervals *represented* in this series of notes are ‘semitone’ and ‘tone ;’ the series, therefore, does not represent what we have sung in respect of its last two notes. There must be some mark used to indicate that the seventh note of this series represents a sound a whole tone above the sixth, and consequently only a semitone below the eighth. The mark employed for this purpose is of this form \sharp , and is called a *sharp*, because it indicates that the sound of the note before which it is placed is made sharper or higher by one semitone. The series of

notes in this form represents cor-

A musical staff in treble clef showing a series of eight notes starting with G. The notes are labeled 1 through 8 above them. The notes are G, A, B, C, D, E, F#, and G. A sharp sign is placed above the seventh note (F#).

rectly the diatonic major scale upon g.

71. Again, suppose we sing the scale commencing with the sound represented by f. Write down on the staff a series of eight

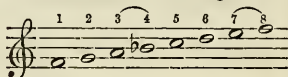
notes beginning with f, . The first

A musical staff in treble clef showing a series of eight notes starting with F. The notes are labeled 1 through 8 above them. The notes are F, G, A, B, C, D, E, and F.

two intervals we *sing* are ‘tone’ and ‘tone ;’ the first two inter-

vals *represented* by this series of notes are just the same ; it therefore represents correctly so far the sounds of the scale : the next two intervals we *sing* are 'semitone' and 'tone ;' the next two intervals *represented* by this series of notes are 'tone' and 'semitone' ; the series therefore does not correctly represent what we have sung in respect of these two intervals. There must be some mark to indicate that the fourth sound is depressed a semitone, so as to be only a semitone above the third, and consequently a tone below the fifth. The mark employed is of this form \flat , and is called a *flat*, because it indicates that the sound of the note before which it is placed is made lower or flatter by one semitone. The last three intervals we sing are 'tone,' 'tone,' and 'semitone ;' the last three intervals represented by this series of notes are the same, so that it correctly represents these as we have sung them.

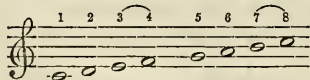
The series of notes in this form



represents correctly the diatonic major scale upon \underline{f} .

Here, then, we have got the notations of two positions of the diatonic scale from its original notation commencing on \underline{c} by the change of only one note in each case. If we were constructing, as we might do, a representation of the scale commencing on any other note, we should find it necessary to change more notes than one. How is it that in the case of the representations of the scale commencing with \underline{f} and \underline{g} respectively it is necessary to change but one note of the series representing the scale upon \underline{c} ?

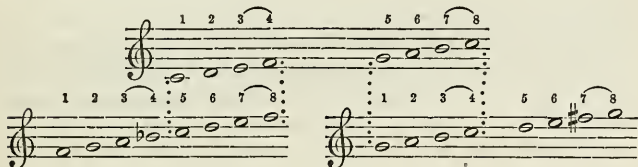
72. If we examine the representation of the scale, we find that it falls into two parts, $\overset{1}{c}-\overset{2}{d}-\overset{3}{e}-\overset{4}{f}$, and $\overset{5}{g}-\overset{6}{a}-\overset{7}{b}-\overset{8}{c}$,—



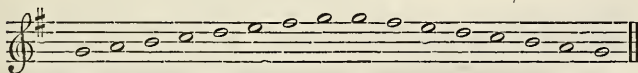
, in which the succession of intervals is precisely the same, viz., 'tone,' 'tone,' and 'semitone ;' the connecting interval between the two parts¹ being a tone. If, then, we construct the representation of a scale upon \underline{g} , we are sure that the first part of it, $\underline{g}-\underline{a}-\underline{b}-\underline{c}$, will require no change of its notes, because the succession of intervals between its sounds is the same as the succession of intervals between the sounds of the first part

¹ Each of these parts is sometimes called by the ancient term *tetrachord*, from its containing four degrees of sound.

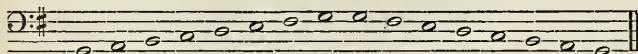
of the scale. The second part of this scale requires, as already seen, the change of one note, viz., f to f \sharp , thus, d-e-f \sharp -g; the connecting interval of a tone is correctly represented by c-d. Again, if we construct the representation of a scale on f, proceeding downwards, we are sure that the upper part, f-e-d-c, will require no change of its notes, because the succession of intervals between its sounds is just the succession of intervals between the sounds of the second part of the scale. The lower part of this scale requires, as already seen, a change of one note, viz., b to b \flat , one of the notes representing the connecting interval; so that it becomes b \flat -a-g-f. Thus, the lower part of one scale is the upper part of another; and the upper part of one scale is the lower part of another. This figure represents the derivation of the scales of g and of f from that of c.



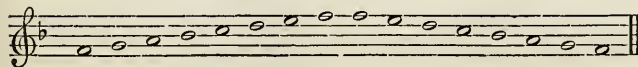
73. In the repetitions of the scale of g above and below this one, all the f's are sharp; and in the repetitions of the scale of f above and below this one, all the b's are flat. To save the trouble of writing the sharp or the flat again and again as its note occurs, it is common to write it at the beginning of the scale once for all, just after the clef, thus—



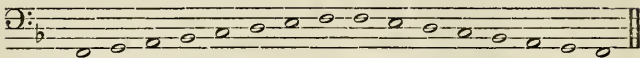
or on the bass staff, thus—



and thus—



or on the bass staff, thus—



The number of sharps, or of flats which belong to the representation of a scale, when placed together after the clef, is called the *signature* of that scale. And the different positions of the scale are distinguished by the names of the notes they begin upon. Thus the scale upon c is called the scale of c major, that upon g the scale of g major, and that upon f, the scale of f major. The signature of the scale of g major is one sharp; of the scale of f major one flat.

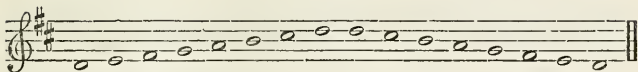
74. From each of these scale representations others may be derived in a similar way, and by the same amount of change. Thus the upper part of the scale of g is d-e-f \sharp -g; which notes will correctly represent the lower part of a scale beginning on d, since the intervals between their sounds are 'tone,' 'tone,' 'semitone.' The connecting interval, which is a tone, is correctly represented by g-a. Completing the series of notes upwards, we shall have a-b-c-d, the intervals between the sounds of which will be those of the upper part of the diatonic scale, 'tone, tone, semitone,' provided the c be sharpened; so that the complete series of notes required to represent the scale on d, compared with those in the scale of g becomes—

$$\begin{array}{c} g-a-b-c-d-e-f\sharp-g, \\ d-e-f\sharp-g-a-b-c\sharp-d. \end{array}$$

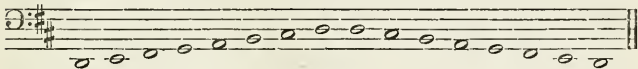
Again, the lower part of the scale of g is g-a-b-c, which is the upper part of the scale of c. If we complete the scale downwards, we get the scale of c, which, since we began with the scale of c, is no new scale. This figure represents the scales of d major and c major as derived from that of g major.



The signature of the scale of d major is two sharps, thus—



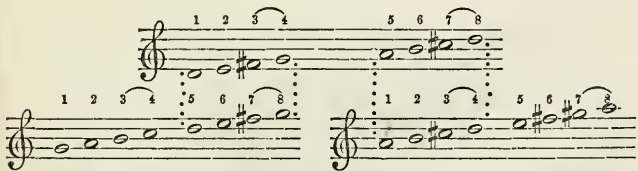
or on the bass staff, thus—



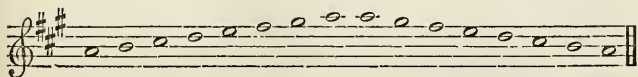
75. The upper part of the scale of d major is a-b-c[#]-d ; which notes will correctly represent the first part of a scale begun upon a, since the succession of its intervals is 'tone, tone, semi-tone.' The connecting interval, which is a tone, is correctly represented by d-e. Completing the series of eight notes upwards, we get e-f-g-a, the intervals between the sounds of which will be those of the upper part of the diatonic scale, 'tone, tone, semi-tone,' provided the g be sharpened ; so that the series of notes required to represent the scale of a, compared with those in the scale of d, will be

d-e-f[#]-g-a-b-c[#]-d ;
a-b-c[#]-d-e-f[#]-g[#]-a.

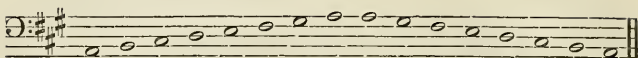
Again, the lower part of the scale of d is d-e-f[#]-g ; which is the upper part of the scale of g. If we complete the scale downwards, we get the scale of g ; which is, in the circumstances, a new scale. This figure represents the scales of a major and g major, as derived from that of d major,—



The signature of the scale of a major is three sharps, thus—



or on the bass staff, thus—



76. From the examples now given, it appears that the derivation of the scale-representations from each other proceeds according to certain laws; which, as respects the scales that require sharps, may be thus expressed:—

(1.) A series of scale-representations may be derived, one from another, by the change (*i.e.* sharpening) of a single note for each new scale.

(2.) Each new scale-representation thus derived, commences on the fifth note of that from which it is derived.

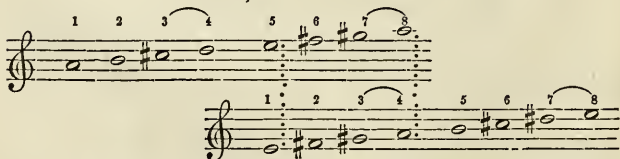
(3.) The note which requires to be changed or sharpened in each is always the seventh note.

(4.) From each scale a scale may also be derived by beginning on its fourth note and going downwards: each derivation also implying the change of one note (removing of sharp). In the case of the scales with sharps, however, these are not new scales, but scales previously derived.

77. Proceeding with the derivation:—the upper part of the scale¹ of a major is e-f#-g#-a, which represents correctly the lower part of a new scale on e. The connecting interval of a tone is correctly represented by a-b. The remaining notes of the series of eight are b-c#-d-e, of which the seventh, d, must be sharpened. Thus the notes in the scale of e, compared with those in the scale of a, are—

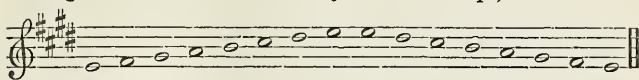
a-b-c#-d-e-f#-g#-a;
e-f#-g#-a-b-c#-d#-e;

or as written on the staff,—

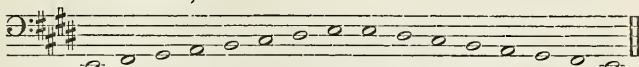


¹ Though the word 'scale' is used here and subsequently for convenience sake, the student must not confound the scale as a succession of sounds with the scale-representation as a succession of notes; amidst the variations of the latter, the former remains the same, only beginning at a different pitch.

The signature of the scale of e major is four sharps, thus—



or on the bass staff,—



78. The upper part of the scale of e major is b-c \sharp -d \sharp -e, which represents correctly the lower part of a new scale upon b. The connecting interval of a tone is correctly represented by e-f \sharp . The remaining notes of the eight written upon b, are f \sharp -g \sharp -a-b; of which the seventh, a, must be sharpened. Thus the notes in the scale of b, compared with those in that of e, are—

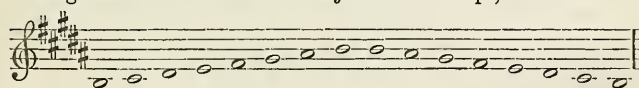
e-f \sharp -g \sharp -a-b-c \sharp -d \sharp -e;

b-c \sharp -d \sharp -e-f \sharp -g \sharp -a \sharp -b;

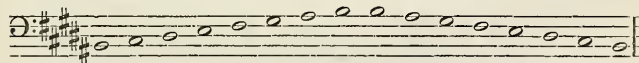
or, if written on the staff—



The signature of the scale of b major is five sharps, thus—



or on the bass staff—

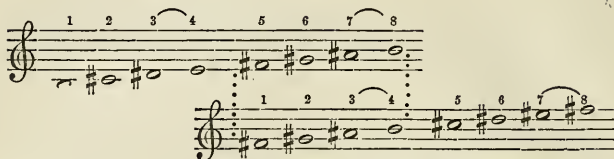


79. The upper part of the scale of b is f \sharp -g \sharp -a \sharp -b; which represents correctly the lower part of a new scale upon f \sharp . The connecting interval of a tone is correctly represented by b-c \sharp . The remaining notes of the eight written from f \sharp are c \sharp -d \sharp -e-f \sharp , of which the seventh, e, must be sharpened. Thus, the notes in the scale of f \sharp , compared with those in that of b, are—

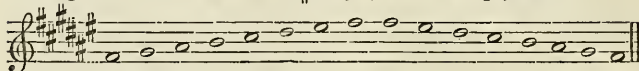
b-c \sharp -d \sharp -e-f \sharp -g \sharp -a \sharp -b;

f \sharp -g \sharp -a \sharp -b-c \sharp -d \sharp -e \sharp -f \sharp ;

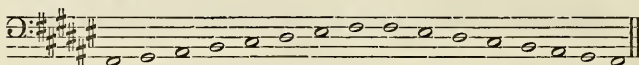
or, if written on the staff—



The signature of the scale of $f\sharp$ major, is six sharps, thus—



or on the bass staff—



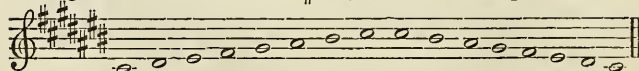
80. The upper part of the scale of $f\sharp$ is $c\sharp-d\sharp-e\sharp-f\sharp$; which represents correctly the lower part of a new scale upon $c\sharp$. The connecting interval of a tone is correctly represented by $f\sharp-g\sharp$. The remaining notes of the eight from $c\sharp$ are $g\sharp-a\sharp-b-c\sharp$, of which the seventh, b , requires to be sharpened. Thus the notes in the scale of $c\sharp$, as compared with those in the scale of $f\sharp$ —

$$\begin{aligned} f\sharp-g\sharp-a\sharp-b-c\sharp-d\sharp-e\sharp-f\sharp; \\ c\sharp-d\sharp-e\sharp-f\sharp-g\sharp-a\sharp-b\sharp-c\sharp; \end{aligned}$$

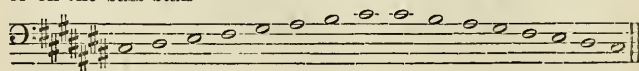
or, as written on the staff—



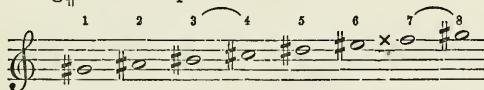
The signature of the scale of $c\sharp$ major, is seven sharps, thus—



or on the bass staff—



81. The scale upon c^\sharp has all the notes in it sharpened ; being in fact the scale on c raised in all its degrees one semitone. We have come back to a scale in which the name of the first note is the name of the first note in the original scale, though the degrees of sound differ by a semitone. If we continue the derivation, we shall get a set of scales, having the same letters for the names of their first notes, as the set already got, *only sharpened* ; we shall get scales formed on $g^\sharp-d^\sharp-a^\sharp-e^\sharp-b^\sharp$. And just as the scale of c^\sharp has seven sharps, *i.e.*, seven sharps more than the scale of c ; so the scale of g^\sharp shall have eight sharps, *i.e.*, seven sharps more than the scale of g ; and the scale of d^\sharp nine sharps, *i.e.*, seven sharps more than the scale of d ; and the scale of a^\sharp ten sharps, *i.e.*, seven sharps more than the scale of a ; and so on. In these scales, some (or all) of the notes must be twice sharpened. Thus the scale of g^\sharp differs from that of g , by having all notes of the latter sharpened ; but as the F is already sharpened in the scale of f , it must be twice sharpened in the scale of g^\sharp . The mark for this is of this form \times , and is called a *double sharp*. The scale of g^\sharp will be represented thus—



So the scale of d^\sharp differs from that of d by having all notes of the latter sharpened. But f and c in the scale of d are already sharpened ; therefore, in the scale of d^\sharp they must be twice sharpened, thus—



and so on for the following scales.

2. Scales with Flats.

82. In § 72, the scale upon f , with one note flattened, was derived from the scale of c , by taking the lower part of the scale of c as its upper part, and completing the scale downwards. The lower part of scale of f is $f-a-b^\flat$; which notes will correctly

represent the upper part of a scale ending with $b\flat$, since the succession of intervals is 'tone, tone, semitone.' The four notes below the f , counting downwards, are $e-d-c-b\flat$. The e must be flattened, that the connecting interval of a tone, and the succession of intervals in the lower part of the scale, may be correctly represented; thus the notes in the scale of $b\flat$ major, as compared with those in f major, are—

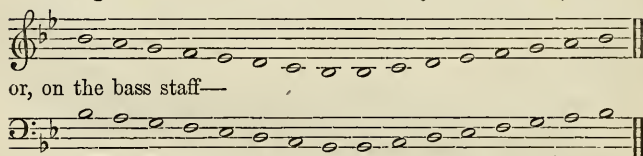
$f-e-d-c-b\flat-a-g-f$;
 $b\flat-a-g-f-e\flat-d-c-b\flat$.

Again, the upper part of the scale of f is $c-d-e-f$, which is the lower part of the scale of c . If we complete the series of eight notes upwards, we get the scale of c , which is not, in the circumstances, a new scale.

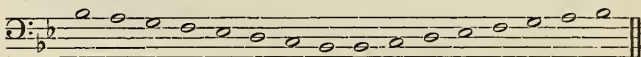
This figure represents the two scales of $b\flat$ and c , as derived from that of f upon the staff—



The signature of the new scale of $b\flat$ major is two flats, thus—



or, on the bass staff—



83. The lower part of the scale of $b\flat$ is $b\flat-c-d-e\flat$; which notes correctly represent the upper part of a new scale ending on $e\flat$, since the succession of its intervals is 'tone, tone, semitone.' The four notes below, counting downwards, are $a-g-f-e\flat$. The a must be flattened, so that the connecting interval of a tone, and the succession of intervals in the lower part of the scale, may be correctly represented. Thus the notes in the scale of $e\flat$ major compared with those in the scale of $b\flat$ major, are—

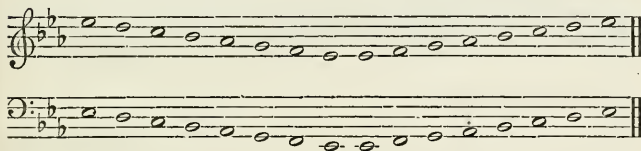
$b\flat-a-g-f-e\flat-d-c-b\flat$,
 $e\flat-d-c-b\flat-a\flat-g-f-e\flat$.

Again, the upper part of the scale of $b\flat$ is $f-g-a-b\flat$, which is the lower part of the scale of f . If we complete the series of eight notes from f upwards we get the scale of f , which is not, in the circumstances, a new scale.

This figure represents on the staff the two scales of $e\flat$ and f , as derived from that of $b\flat$,—



The signature of the new scale of $e\flat$ major is three flats—



84. From the examples now given it appears that the derivation of the scale-representations which require flats proceeds by certain laws, which may be expressed as follows :—

(1.) A series of scale-representations may be derived one from another by the change (*i.e.*, flattening) of a single note in each new scale.

(2.) Each new scale-representation thus formed commences on the fourth of that from which it is derived.

(3.) The note that requires to be changed (flattened) in each new scale is always the fourth note.

(4.) From each scale a scale may also be derived by beginning on its fifth note, and going upwards ; each derivation implying also the change of one note (removing the flat). These are not new scales, however, but scales previously derived.

85. Proceeding with the derivation :—The lower part of the scale of $e\flat$ is $e\flat-f-g-a\flat$, which correctly represents the upper part of a new scale ending with $a\flat$. The connecting interval of a tone

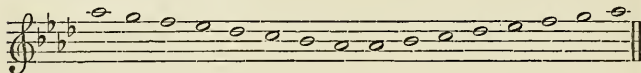
will be correctly represented by $e\flat-d\flat$, and the remainder of the scale will be $d\flat-c-b\flat-a\flat$. Thus the notes on the scale of $a\flat$ major, compared with those in $e\flat$ major, are—

$e\flat-d-c-b\flat-a\flat-g-f-e\flat,$
 $a\flat-g-f-e\flat-d\flat-c-b\flat-a\flat.$

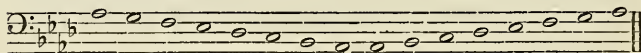
or as written on the staff—



The signature of the scale of $a\flat$ major is four flats, on b, e, a, and d respectively, thus—



or on the bass staff—



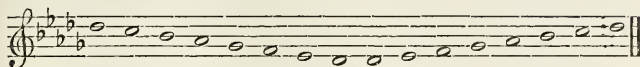
86. The lower part of the scale of $a\flat$ is $a\flat-b\flat-c-d\flat$, which will correctly represent the upper part of a scale ending with $d\flat$. The connecting interval of a tone will be correctly represented by $a\flat-g\flat$; and the lower part of the scale will be $g\flat-f-e\flat-d\flat$. Thus the notes in the scale of $d\flat$ major, compared with those in $a\flat$ major, will be—

$a\flat-g\flat-f-e\flat-d\flat-c-b\flat-a\flat,$
 $d\flat-c-b\flat-a\flat-g\flat-f-e\flat-d\flat.$

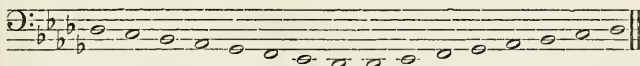
or as written on the staff—



The signature of the scale of $d\flat$ major is five flats, on b, e, a, d, and g respectively, thus—



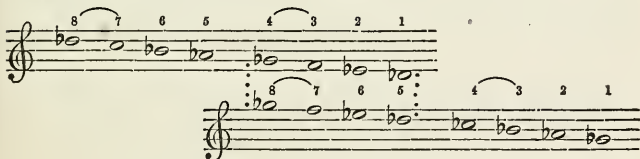
or on the bass staff—



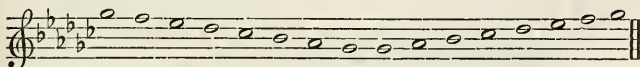
87. The lower part of the scale on $d\flat$ is $d\flat$ - $e\flat$ - f - $g\flat$, which will correctly represent the upper part of a new scale ending with $g\flat$. The connecting interval of a tone will be correctly represented by $d\flat$ - $c\flat$; and the lower part of the scale will be $c\flat$ - $b\flat$ - $a\flat$ - $g\flat$. Thus the notes in the scale of $g\flat$ major, compared with those in the scale of $d\flat$ major, will be—

$d\flat$ - $c\flat$ - $b\flat$ - $a\flat$ - $g\flat$ - f - $e\flat$ - $d\flat$,
 $g\flat$ - f - $e\flat$ - $d\flat$ - $c\flat$ - $b\flat$ - $a\flat$ - $g\flat$,

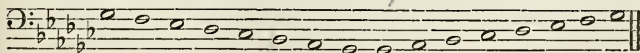
or as written on the staff—



The signature of the scale of $g\flat$ major is six flats, on b, e, a, d, g, c, respectively, thus—



or on the bass staff—

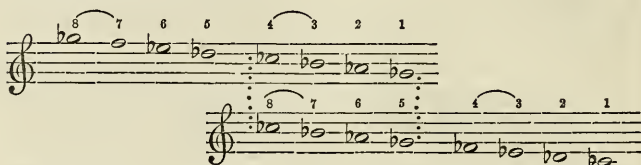


88. The lower part of the scale of $g\flat$ is $g\flat$ - $a\flat$ - $b\flat$ - $c\flat$, which will correctly represent the upper part of a new scale ending with $c\flat$. The connecting interval of a tone will be correctly represented

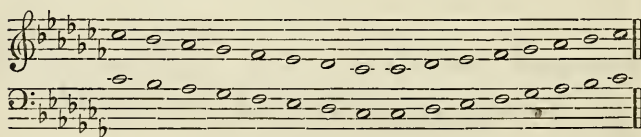
by $g\flat-f\flat$; and the lower part of the scale will be $f\flat-e\flat-d\flat-c\flat$. Thus the notes in the scale of $c\flat$ major, compared with those of $g\flat$ major, are—

$g\flat-f\flat-e\flat-d\flat-c\flat-b\flat-a\flat-g\flat,$
 $c\flat-b\flat-a\flat-g\flat-f\flat-e\flat-d\flat-c\flat.$

or as written on the staff—

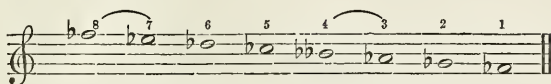


The signature of the scale of $c\flat$ major is seven flats, on b, e, a, d, g, c, and f respectively, thus—

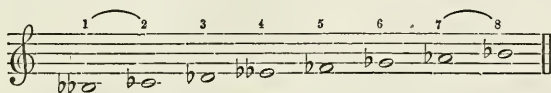


89. Just as the scale of $c\sharp$ has all the notes in it sharpened, the scale of $c\flat$ has all the notes in it flattened ; being, in fact, the scale of c depressed in all its degrees one semitone. We have again come back to a scale in which the name of the first note is the name of the first note in the original scale, though its degree of sound is a semitone higher in pitch. If we continue the derivation we shall get a set of scales having the same letters for the names of their first notes as the set already got, *only flattened* ; we shall get scales formed on $f\flat$, $b\flat b$, $e\flat b$, $a\flat b$, $d\flat b$. And just as the scale of $c\flat$ has seven flats, *i.e.*, seven flats more than the scale of c, so the scale of $f\flat$ shall have eight flats, *i.e.*, seven flats more than the scale of f ; and the scale of $b\flat b$ shall have nine flats, *i.e.*, seven flats more than the scale of $b\flat$; and the scale of $e\flat b$ shall have ten flats, *i.e.*, seven flats more than the scale of $e\flat$; and so on. In these scales some of the notes must be twice flattened. Thus, if the scale of $f\flat$ differs from that of f in having all the notes of the latter flattened, then, since the b in the latter is

already flat, it must, in the scale of $f\flat$, be twice flattened. For this purpose the double flat is used ; for which purpose the flat is just written twice, thus, $\flat\flat$; *e.g.*—



So, if the scale of $\flat\flat\flat$ differ from the scale of $\flat\flat$ in having all the notes of the latter flattened, then, since in the latter b and e are already flattened, these notes in the former must have double flats, thus—



and so on for the following scales.

90. Of all the scale-notations it is sufficient to notice those with sharps up to $c\sharp$, and those with flats down to $c\flat$; no more are in actual use. They may be arranged in this order :—

FLATS.								SHARPS.							
7	6	5	4	3	2	1		1	2	3	4	5	6	7	
$c\flat$	$g\flat$	$d\flat$	$a\flat$	$e\flat$	$b\flat$	f	— c —	g	d	a	e	b	$f\sharp$	$c\sharp$	

On which list the following remarks may be made :—

(1.) Reckoned from the scale of c as the original scale, and the central one in this list,¹ the scales with sharps *ascend above* each other by intervals of fifths, whilst the scales with flats *descend below* each other by intervals of fifths.

(2.) Reckoned from $c\flat$, all the scales ascend above each other by fifths ; but reckoning from $c\sharp$, all the scales descend by fifths. Reckoned from any intermediate scale, however, *e.g.*, from e , the scales up to $c\sharp$ ascend by fifths, whilst the scales down to $c\flat$ descend by fifths ; again, *e.g.*, from $e\flat$, all the scales up to $c\sharp$ ascend by fifths, whilst those down to $c\flat$ descend by fifths. There is thus a regular progression in the derivation of *all* the scale-notations from each other.

(3.) The signature of each scale, whether sharps or flats, includes that of the scale from which it is derived, and *one more* sharp or flat ; the sharps or flats being introduced into the scale-

¹ It will not be forgotten that the scale of c has this character only by assumption.

representations in one invariable order, viz., f, c, g, d, a, e, b, for the sharps, and b, e, a, d, g, c, f, for the flats.

(4.) Of these fifteen scales, the four extreme ones are seldom used.

3. Use of the Natural.

91. The scales with sharps have been formed successively out of each other, proceeding from those which have few sharps to those which have more. But suppose we take the scale of a, and derive from it the two adjacent scales of e and d, as if they were both new scales, the scale of e will be derived precisely in the manner indicated in § 77. To derive the scale of d, we take the lower part of the scale of a, viz., a-b-c \sharp -d (as if we were deriving a new scale with flats), which will correctly represent the upper part on the scale of d. Completing the series of eight notes downwards from d, the remainder will be g \sharp -f \sharp -e-d. But in order to represent correctly the lower part of the scale of d, and the connecting interval of a tone between the two parts, the sharp must be removed from the g; which is shown to be done by substituting for it a mark of this form, \natural , called a *natural*, because it restores the note which had been sharpened to its previous state, which is viewed as its natural one. The two scales derived from that of a may be contrasted with it thus—

$$\begin{array}{l} \text{a-b-c}\sharp\text{-d} \quad - \quad \text{e-f}\sharp\text{-g}\sharp\text{-a,} \\ \text{d-e-f}\sharp\text{-g}\natural\text{-a-b-c}\sharp\text{-d} \quad \text{e-f}\sharp\text{-g}\sharp\text{-a-b-c}\sharp\text{-d}\sharp\text{-e.} \end{array}$$

or, on the staff, thus—



It is the seventh note of the scale of a that is thus depressed, when the related scale with one sharp fewer is formed from it; as might be expected, since the latest sharp that is introduced into a scale is that on the seventh of that scale. And the note that is thus depressed is the fourth note in the scale which requires it to be depressed. Thus, if from the scale of b with five sharps we were

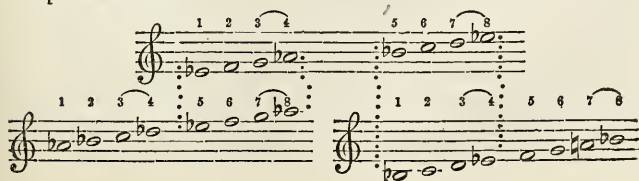
deriving that of *e* with four, the note of the former that would be depressed would be its seventh, *a*♯; and the depressed note, *a*♭, would occupy the fourth place in the derived scale of *e*. So that when we derive scales with sharps from each other in the reverse order, the process is entirely similar to the process of deriving the scales with flats from each other. In the scale of *d* above, the *g* is virtually flattened, but because a sharp was there before, the *b* is not written, but the *b*♭. It may be observed, then, that the natural does not indicate that the sound of the *g* is altered in any way; as far as sound is concerned, the sign might be away; the meaning of it is only this, that a sharp was previously before the *g*, which is now removed. Consequently, when we write the scale of *d* by itself, the natural does not appear, because it is not supposed that there was any sharp previously before the *g*; it is only when the scale of *d* is contrasted with that of *a*, on which the *g* is sharp, that the natural requires to be used.

92. The scales with flats have been formed successively out of each other, proceeding from those which have few to those which have more. But suppose we take the scale of *e*♭, and derive from it the two adjacent scales of *a*♭ and *b*♭, the scale of *a*♭ will be derived precisely in the manner indicated in § 85. To derive the scale of *b*♭, we take the upper part of the scale of *e*♭, (just as if we were deriving new scales with sharps), which will represent correctly the lower part of the scale of *b*♭, viz., *b*♭-*c*-*d*-*e*♭. Completing the series of notes upwards, the remainder will be *f*-*g*-*a*♭-*b*♭. The connecting interval of a tone will be correctly represented by *e*♭-*f*; but to represent correctly the upper part of the scale of *b*♭, the flat must be removed from the *a*♭, which is shown to be done by substituting for it the *natural*. The two scales derived from that of *e*♭ may be contrasted with it thus—

e♭-*f*-*g*-*a*♭ — *b*♭-*c*-*d*-*e*♭,

a♭-*b*♭-*c*-*d*♭-*e*♭-*f*-*g*-*a*♭ *b*♭-*c*-*d*-*e*♭-*f*-*g*-*a*♮-*b*♭.

or upon the staff—



It is the fourth note of the scale of $e\flat$ that is thus raised when the scale with one flat fewer is derived from it ; as might be expected, since the latest flat that was introduced into the scale of $e\flat$, was that on its fourth note. And the note that is thus raised is the seventh note in the scale that requires it to be raised. Thus, if from the scale of $d\flat$ with five flats we were deriving the scale of $a\flat$ with four flats, the note in the former that would require to be raised would be its fourth, $g\flat$; and the raised note $g\sharp$ would occupy the seventh place in the scale of $a\flat$. Thus, when we derive scales with flats from each other in the reverse order, the process is entirely similar to the process of deriving new scales with sharps from each other. In the scale of $b\flat$ above, the a is naturally sharpened ; but because a flat was there before, a \sharp is not written, but a \natural . It may be observed, then, that the natural does not indicate that the sound of the note a is altered in any way ; as far as sound is concerned, the sign might be away ; the meaning of it is only this, that a flat was there before, which is now removed. Consequently, when we write the scale of $b\flat$ by itself, the natural does not appear, because it is not supposed that there was any flat there before ; it is only when the scale of $b\flat$ is contrasted with that of $a\flat$, in which the a is flat, that the natural requires to be used.

93. Thus the natural is used to indicate either the depression of a note which has previously been sharpened, or the elevation of a note which has previously been flattened ; it does the former in the scales with sharps, the latter in the scales with flats.

4. Relations of Scales.

94. Scales are said to be *related* to each other more or less nearly according to the greater or less number of notes they have in common. Scales that differ from each other only in one note, *i.e.*, those immediately derived from each other, are the most nearly related. If any three adjacent scales in the list § 90 be selected, it will be seen that they are most nearly related. Let the three be f , c , g ; the scales of f and g are derived from that of c , with but one note changed : let the three be a , e , b ; the scales of a and b are derived from that of e , with the change of but one note : let the three be $d\flat$, $a\flat$, $e\flat$; the scales of $d\flat$ and $e\flat$ are derived

from that of $a\flat$, with the change of but one note. If a group of five adjacent be selected, they are related amongst themselves in the first and the second degrees of relation ; thus, let the five be $b\flat$, f , c , g , d , the two scales of f and g are related to that of c immediately, the two scales of $b\flat$ and d are related to that of c less nearly, as they have each two notes different from the notes in scale of c . So, if the five be c , g , d , a , e , the scales of g and a are related immediately to d , differing in only one note, but the scales of c and e are related less nearly to that of d , as they differ from it in two notes.

95. In the matter of scale-derivation and scale-relation, it is seen that the most important notes of the scale are the first, the fifth, and the fourth. These notes are therefore distinguished by particular names : the *first* is called the *tonic* of the scale, as it is from it that all the intervals of 'tone' and 'semitone' are reckoned ; the *fifth* is called the *dominant* (*lit.* ruling note) of the scale, and the *fourth* the *subdominant*, (*lit.* lower ruling note), as these notes appear to rule the derivation and the mutual relation of the scales.¹

5. Transposition of Scales.

96. In all the fifteen forms of scale-notation, the scale of *sounds* is one and the same. The succession of intervals is the same in all ; the difference is only in the pitch of the sound from which that succession is formed. The succession of intervals common to all the diatonic major scales is called the *major mode*. Thus we may say that there are in use fifteen scales in the major mode ; or that the major mode is exemplified in fifteen scales. It would be incorrect, however, to speak of the major mode of c or e , or $a\flat$; for the *mode* is independent of any particular pitch. We say, 'the scale of c major,' or 'the scale of c in the major mode.'

¹ The other notes of the scale have also received names from their relative position in it ; thus, the *second*, or note above the tonic, has been called the *supertonic* ; the *third*, or middle note between the tonic and the dominant ascending, has been called the *mediant* ; the *sixth*, or middle note between the tonic and the subdominant descending, has been called the *submediant*, but sometimes the *superdominant* from its place just above the dominant ; the *seventh*, or leading note, from its position just below the tonic, has been called the *subtonic*. These names, however, are of little importance.

97. Another term has here to be explained. When the scale is viewed, not simply as a succession of eight notes, but as the basis on which a melody has been constructed, it is termed the *key* of that melody. Thus there are as many keys, as there are scales in use. A melody drawn from the major scale of *c* is said to be 'in the key of *c* major;' one drawn from the major scale of *a*, or of *a*♭, is said to be 'in the key of *a* major,' or 'in the key of *a*♭ major.'¹

98. When we hear two scales played in succession, we recognise them as the same relative succession of sounds, and as producing to the ear the same musical effect; the one is only in a different position from the other; or, as it is said, the one is a *transposition* of the other. Thus the scale of *d* is the scale of *c* transposed one tone higher. The signatures of the scales, which tell us what notes the scales commence upon, are signs of transposition. As with the scales themselves, so with melodies formed from the scales: we may write the same melody in any key. It is often expedient or necessary to transpose a melody from one key into another higher or lower. Thus a voice of a certain range may wish to sing a melody written in the key of *e*♭, but finds that some of the notes are beyond its range; it may find the whole melody brought quite within range, if it be transposed from the key of *e*♭ to *c*.

99. The effects of the same melody in two different keys, though very similar, are yet not identical. If they were so, it would be a matter of indifference what key is selected for a melody, which it is far from being. The cultivated ear recognises difference of character in the different keys. From the sameness of relative pitch amongst the notes, the mere musical effect is the same; but the emotional effect is different. Thus the keys with sharps have a generic character of decision and boldness about them; by which they are distinguished from those with flats, which have a generic character of mellow beauty. Again, there are individual differences amongst the keys with sharps, and amongst the keys with flats. Reckoning from the key of *c*, which is without either sharps or flats, and which is bold and massive in

¹ The term 'key' must not be used to signify the first note of a scale. The term 'key-note' is sometimes used for this purpose; it is a popular term, however, rather than a musical one. There is no occasion for it at all, as the first note of the scale of a melody is much better designated by the term 'tonic,' already explained.

effect, occupying in this respect a middle place between the keys with sharps and those with flats, we may recognise the key of *g* as animated, sprightly, and flexible ; that of *d* as the strongest and boldest of all keys ; that of *a* as bold, and with more admixture of beauty in it than the two preceding ; that of *e* as bold, yet rich and clear. Amongst the flat keys, again, we may recognise that of *f* as rich and massive ; *b♭* as a key of less decided character than the others, from the balance between strength and richness which marks it ; *e♭* warm and beautiful ; and *a♭* as connecting tenderness with beauty. Whilst, therefore, short melodies, in which there is no room or intention to work out a particular effect, may be transposed for convenience, it should be borne in mind that in artistic compositions, where different keys are employed, it may be presumed that there is a decided adaptation between the several keys and the effect to be produced, and consequently that we are not at liberty to alter them.

100. The transposition of a melody is an easy matter, if we are familiar with the notations of the different scales. In making the transposition, we judge of the new positions of the notes by carrying in the mind the positions of the tonic, and the intervals of the notes from it. Thus let the passage to be transposed be the following :—

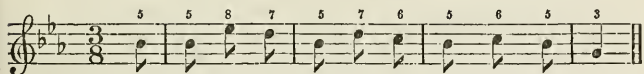
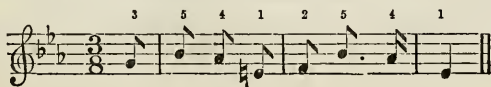


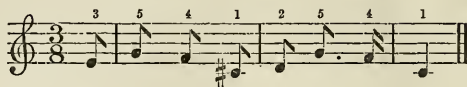
figure the notes as above, from the tonic. In transposing it to the key of *c*, figure the notes before placing them on the staff, thus—



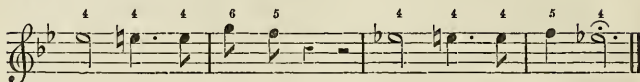
From the description of the twofold effect of the natural given in §§ 93, 94, it will be understood that in transposition sharps and naturals are sometimes interchanged, and sometimes flats and naturals ; but not flats and sharps. Thus, in the following passage, which is a continuation of the one just given—



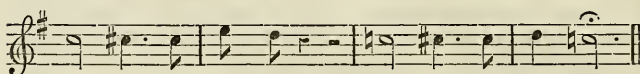
the natural, after transposition, becomes a sharp, thus—



Again, this passage in the key of two flats—



becomes—



in the first measure of which a natural and a sharp are interchanged, and in the third and fourth of which a flat becomes a natural.

Exercises.

1. Write down the signatures of the fifteen major scales on the treble staff.
2. Write down these signatures on the bass staff.
3. Write down the names of the notes as they are successively sharpened in the scales with sharps, and flattened in the scales with flats.
4. Write down upon the treble staff in $\frac{2}{4}$ rhythm, and in three measures of that rhythm, the scales upon g and e, both ascending and descending; inserting the sharps as they occur.
5. Write down on the treble staff in $\frac{3}{4}$ rhythm, and in three measures of that rhythm, the scales of b b and a b; otherwise, as in last exercise.
6. Write down on the bass staff in $\frac{4}{4}$ rhythm, and in four measures of that rhythm, the scales on c # and d b; otherwise, as in last exercise.
7. Write down on the bass staff in $\frac{6}{8}$ rhythm, and in two measures of that rhythm, the scales of f and f #; otherwise, as in last exercise.
8. Write down on the treble staff the second, fifth, and seventh notes in the scales of d, b, e b and g b.
9. Write down on the bass staff the first, fourth, and sixth notes in the scales of b b, a b, and e.
10. From the scale of f show how that of c may be derived, explaining the signature, and in what circumstances a natural would be used.
11. From the scale of g derive that of d, proceeding as in last exercise.
12. Write the names of the scales by groups of threes, in tabular form, as they are most nearly related to each other.

13. Write the signatures of the scales by groups of three as they are most nearly related to each other.

14. Write the names of the scales by groups of five as they are related to each other.

15. Write down the signatures of the scales with sharps on the alto staff.

16. Write down the signatures of the scales with flats on the tenor staff.

17. Represent on the alto staff how from the scale of *e* its two related scales are derived.

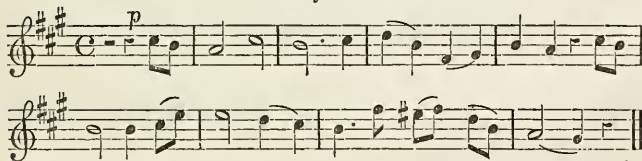
18. Represent on the tenor staff how from the scale of *a* \flat its two related scales are derived.

19. Transpose the following passages from the scales on which they are written to the scale or scales indicated for each respectively.

1. To the Keys of *B* \flat and *B*.



2. To the Keys of *G* and *B* \flat .

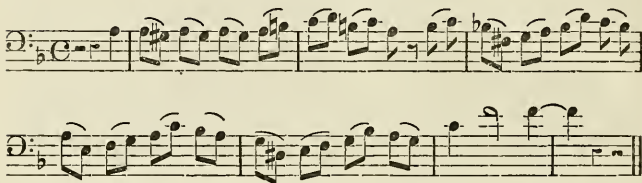


3. To the Keys of *F* and *D*.





4. To the Keys of D and E♭.



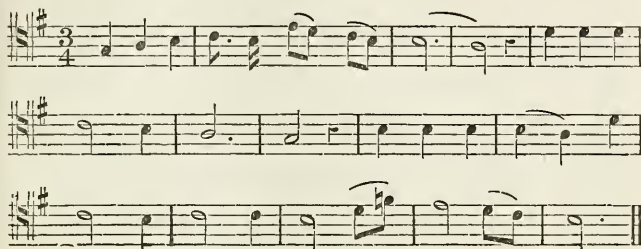
5. To the Keys of C and B♭.



6. To the Keys of A♭ and B.



7. To the Keys of E and C.

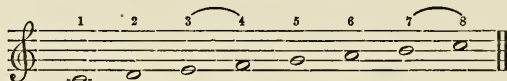


CHAPTER IV.

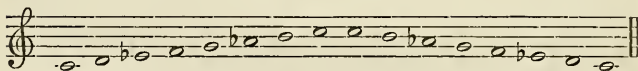
THE DIATONIC MINOR SCALE.

1. Construction of Minor Scale.

101. THE mode we have hitherto been considering is designated the *major* mode, from the fact of the third note being at the distance of two whole tones from the tonic, an interval which forms a greater or major third. There is another mode in use, however, derived from the major, and differing from it by having its third and sixth sounds lower by one semitone. If the major scale be represented thus—



the other mode will be represented thus—



This mode is called the *minor* mode, because the interval between the first and third notes is a tone and a half, *i.e.*, a lesser or *minor* third. With reference to the two modes as vehicles for the expression of feeling, melodies in the major mode express the lighter and more cheerful feelings ; melodies in the minor, the more tender and plaintive.¹

102. The succession of the intervals in this mode is very different from that in the major mode. The interval between the first and the second sounds is a tone ; between the second and the third,

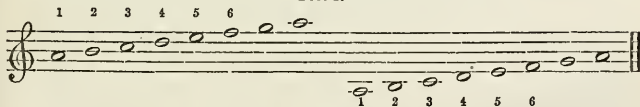
¹ Again it is assumed that the student has a musical conception of the minor scale, that he can sing it and recognise it.

a semitone ; between the third and the fourth, a tone ; between the fourth and the fifth, a tone ; between the fifth and the sixth, a semitone ; between the sixth and the seventh, a tone and a half ; between the seventh and the eighth, a semitone. Thus there is one interval, that from the sixth to the seventh, larger than any in the major mode ; and there are three semitones, which remain fixed between the second and the third, the fifth and the sixth, and the seventh and the eighth. This distribution holds good in the descending scale. If we measure from the tonic (as in § 10), the intervals are the same as in the major mode, except those of the third and the sixth, which are minor.¹

103. The minor mode, like the major, may be exemplified in various scales, differing in the pitch of their tonics, and denoted by as many different scale-notations : which have a less or a greater number of sharps or flats. There is this peculiarity in the representation of the minor mode, that it is impossible to represent it on the staff by notes, without using at least one sharp or flat ; this arises from the extreme interval of a tone and half occurring in it, whilst it is assumed that the degrees of sound represented on the staff are all diatonic, *i.e.*, proceed by tones or semitones. Thus the note representing the seventh sound must be sharpened, or the note representing the sixth sound must be flattened.

104. If we write a series of eight notes upon a, which is a major sixth above c, or a minor third below it, thus—

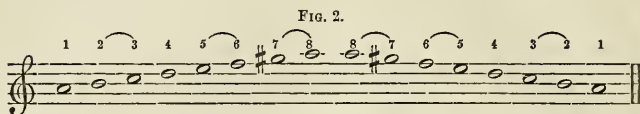
FIG. 1.



we shall have very nearly a representation of the minor mode. The intervals between the sounds represented by these notes correspond to the intervals of the minor mode, except the two last, or rather, we may say, except that from the sixth to the seventh, and, by consequence, that from the seventh to the eighth. Since the interval between the fifth and sixth notes is correct, *viz.*, a half tone, the seventh note must be sharpened to give a tone and a half between the sixth and the seventh ; and this will also give

¹ Although the minor scale, in this form of it, exhibits an interval larger than a tone, it is still called *diatonic*, to distinguish it from the other kinds of scale to be afterwards mentioned.

a semitone between the seventh and the eighth. So that the minor scale on a, or the scale of a minor, as it is termed, will be thus denoted—



105. Since the two characteristic intervals of the minor mode (measured from the tonic), viz., the minor third and the minor sixth, occur in fig. 1, § 104, it may be asked, Will that series of notes not sufficiently represent the minor scale of a? Certainly that series of notes gives the impression of the minor mode to the ear, but not a complete and definite impression. And for this reason: all its notes are notes that occur in the scale of c major; so much so, that from the third note c to the end the notes are the first six of that scale, which are therefore so strongly suggestive of the major mode as greatly to obliterate the impression of the minor mode made by the first three notes. Further, from the fact of the notes between c and a being the first six notes of the major scale, and the sixth note of a scale not giving any impression of ending or rest to a series; the ear has no sense of completeness or finality in this whole series; but, on the contrary, expects continuance. A modification is needed, therefore, which shall prevent the impression of the major mode from being created by these upper notes, and also give to the ear a sense of ending. Both of these objects are attained by writing the scale of fig. 1 as is done in fig. 2; *i.e.*, by sharpening the seventh, so as to make the last interval a semitone. The intervals thus introduced make the series of intervals between c and a quite different from the intervals between the first six notes of the major scale, and consequently remove all impression of the major mode; further, the semitone for the last interval gives a sense of ending, which explains how each of the two parts of the major scale have a comparative completeness of effect to the ear.¹

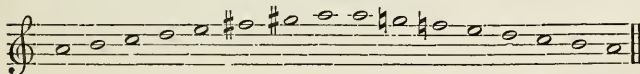
¹ It may be remarked here, once for all, that this form of the minor scale is the one assumed as the type of the mode throughout this treatise. It is not the one commonly assumed.—To pass over the rarer forms of the minor scale, the form with which the one given in the text must be compared is the one which is commonly taken for the standard: the form, namely, in which semitones occur between the second and the third, and between

106. Although the scale-notation of a minor has one sharp, it has not the signature of one sharp. The sharp is placed before the seventh whenever this note occurs in course; it is hence called an *accidental* sharp, which is the term applied to any sharp or flat occurring in a melody which is not in the signature. Thus, the scale-notation of a minor has no signature, the design being that it shall correspond in this respect to that of c major, from which it is derived. Between the notes in the scale of a minor and those in the scale of c major, there is but one instance of difference; these two scales are therefore most intimately related. If the former had one sharp in signature, it would correspond with the scale of g major, from which it differs in two notes, and with which it is therefore less nearly related. As it is, the major scale and the minor scale which are related to each other most closely have the same signature.

2. Scales with Sharps.

107. If we take the scale of g major, and write in like manner a series of notes from it in succession upon e (a major sixth

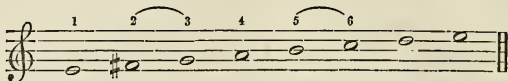
the seventh and the eighth, in the ascending scale; and between the sixth and the fifth, and between the third and the second, in the descending scale, thus—



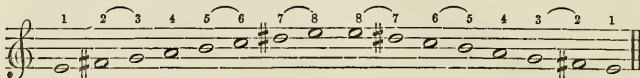
Here, in ascending, the seventh is sharpened for the reason assigned for the sharpening of the seventh in the text, and the sixth is sharpened to give a smoother interval to sing between the sixth and the seventh. Admitting, for the sake of argument, that it does give this, the objection remains against this scale, that the impression given by the last half of it is that of the major mode; indeed the last half of it is exactly the last half of the scale of a major. It is no doubt to obviate this impression that the descending scale is altered, so as to give more an impression of the minor mode. But then how are these two forms of the same scale compatible with the idea of *one mode*? The truth is, that the smoothness or the contrary is quite an irrelevant consideration in constructing a scale. A scale is not to be judged of as itself a mere melody, but with reference to this point, as will be seen more clearly afterwards, whether sounds drawn from it, when it is used as a basis for melody, admit of being accompanied by a smooth progression of harmony. It will be seen that the scale, as we have given it, is preferable in this respect both to the form exhibited in this note, and to that in fig. 1, § 104; and consequently that it is more frequently used.

At the same time, both of these forms are used, so that the student should be acquainted with them. But these are only two out of several exceptional forms of minor scale in occasional use.

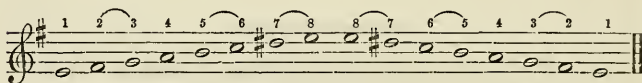
above or a minor third below), we shall have a series of notes very nearly representing another minor scale ;—



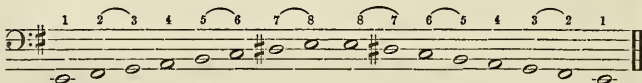
All that is wanted is that the seventh note d shall be sharpened, to give a tone and a half between the sixth and the seventh, and a semitone between the seventh and the eighth ; so that the scale of e minor will be—



or, putting in signature the sharp before the f (a note already sharpened in the major scale from which the minor is being derived), thus—



on the bass staff thus—



108. To obtain other positions of the minor scales with sharps, we have to observe these laws :—

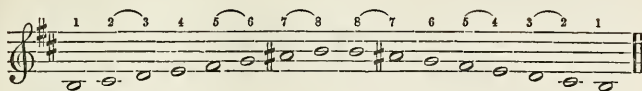
(1.) Each major scale with sharps has a minor scale related to it, and having the same number of sharps in its signature ; which minor scale commences on the major sixth above, or the minor third below the major tonic.

(2.) The minor scale thus derived has in reality one sharp more than its signature indicates ; which occurs before the seventh note, and is placed before that note wherever it occurs.

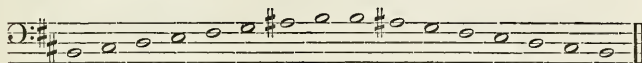
109. Thus the notes in the scale of d major, and in the scale of b minor related to it, are—

d-e-f \sharp -g-a-b-c \sharp -d,
b-c \sharp -d-e-f \sharp -g-a \sharp -b ;

so that the scale of b minor is written—



or on the bass staff—



The notes in the scale of a major, and in the scale of f# minor related to it, are—

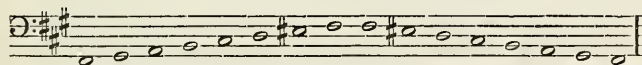
a-b-c-d-e-f#-g#a

f#-g#a-b-c-d-e-f#;

so that the scale of f# is written on the staff thus—



or on the bass staff—

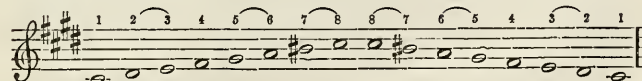


The notes in the scale of e major, and in the scale of c# minor related to it, are—

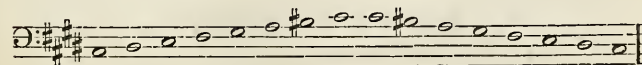
e-f#-g#a-b-c#-d#-e,

c#-d#-e-f#-g#a-b-c#;

so that the scale of c# minor is written on the staff thus :—



or on the bass staff—

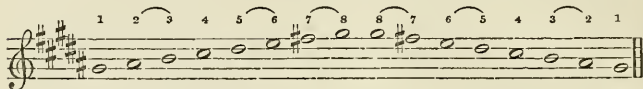


The notes in the scale of b major, and in the scale of $g\sharp$ minor related to it, are—

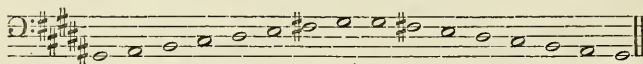
$$b-c\sharp-d\sharp-e-f\sharp-g\sharp-a\sharp-b,$$

$$g\sharp-a\sharp-b-c\sharp-d\sharp-e-f\times-g\sharp.$$

Here the f has a double sharp; of these, one is placed in signature, the other is the accidental sharp of the seventh note. So that the scale of $g\sharp$ minor written on the staff is as follows:—



or on the bass staff—

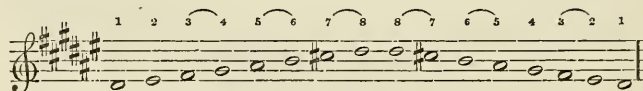


The notes in the scale of $f\sharp$ major, and in the scale of $d\sharp$ minor related to it are—

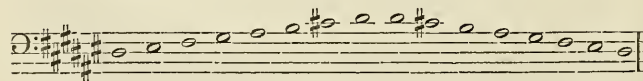
$$f\sharp-g\sharp-a\sharp-b-c\sharp-d\sharp-e\sharp-f\sharp,$$

$$d\sharp-e\sharp-f\sharp-g\sharp-a\sharp-b-c\times-d\sharp.$$

Of the two sharps attached to the c , one is written in signature, the other as an accidental. So that the scale of $d\sharp$ written on the staff is as follows:—



or on the bass staff—

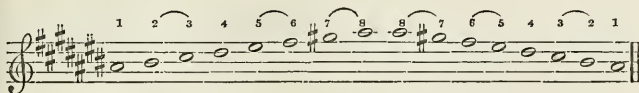


The notes in the scale of $c\sharp$, and in the scale of $a\sharp$ minor related to it, are—

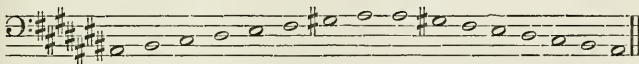
$$c\sharp-d\sharp-e\sharp-f\sharp-g\sharp-a\sharp-b\sharp-c\sharp,$$

$$a\sharp-b\sharp-c\sharp-d\sharp-e\sharp-f\sharp-g\times-a\sharp.$$

Of the two sharps attached to the g, one is written in signature, the other as an accidental ; so that the scale of a \sharp minor written on the staff is as follows :—



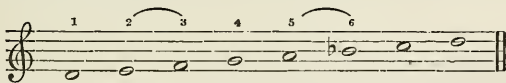
or on the bass staff—



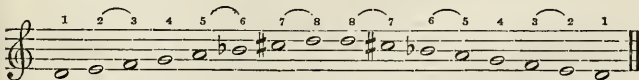
If the series of minor scales with sharps be continued, they will appear in an order similar to that in which they have already been obtained ; a \sharp , e \sharp , b \sharp , f \times , &c. ; each scale in this series differing from the corresponding one in the series already got, by having all its sounds one semitone higher, and by consequently having seven sharps more in signature.

3. Scales with Flats.

110. The minor scales with flats are derived from the major ones in the same way as those with sharps. If we take the scale of f major with one flat, and write a series of eight notes of that scale on its sixth, we have—

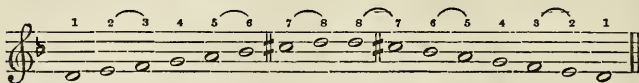


The intervals between the sounds of the minor mode are here correctly represented up to the sixth note. But the seventh note must be sharpened for the tone and a half between the sixth and the seventh, and for the semitone between the seventh and the eighth. So that the scale of d minor will be—

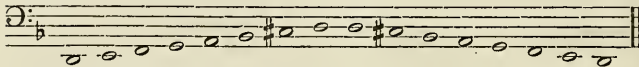


The sharp before the seventh remains as an accidental sharp according to the general rule ; the flat before the b, which is com-

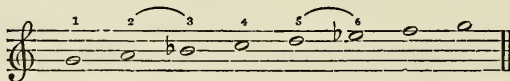
mon to this minor scale and the major one to which it is related, is put in signature, thus—



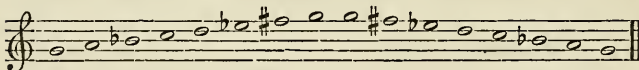
or on the bass staff—



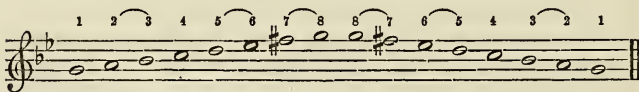
If we take the scale of $b\flat$ major, and write eight notes of it commencing on its sixth, we have—



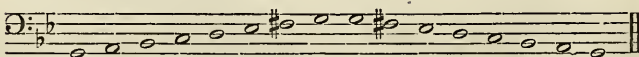
The intervals between the sounds of the minor mode are here correctly represented up to the sixth note. But the seventh note must be sharpened for the tone and a half between the sixth and the seventh, and for the semitone between the seventh and the eighth. So that the scale of g minor will be—



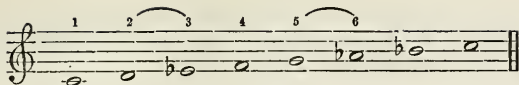
The sharp remains as an accidental, the two flats are put in signature, thus—



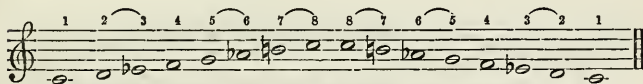
or on the bass staff—



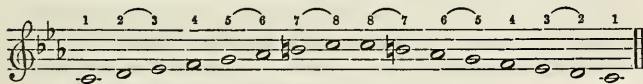
111. If we take the scale of $e\flat$ major, and write its notes commencing on its sixth, we have—



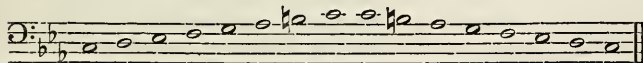
The intervals between the sounds of the minor mode are here correctly represented up to the sixth note. But the seventh note must be raised a half tone for the interval of a tone and a half between the sixth and the seventh, and for the semitone between the seventh and the eighth. As the seventh note is here flattened, however, the raising is performed by substituting the natural for the flat, so that the sharp mark used in the two previous minor scales does not appear *in form*, though the thing indicated by such a mark is really done. The scale of c minor will therefore be—



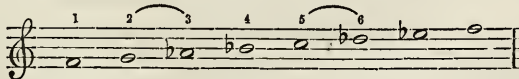
which corresponds with the representation of the scale in § 101. The three flats of the related major scale are put in signature, but the natural is written as an accidental, and counterbalances one of them, thus—



or on the bass staff—

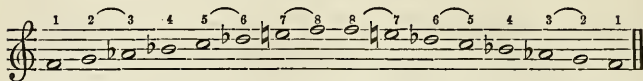


If we take the scale of a \flat , and write its notes commencing on its sixth, we have—

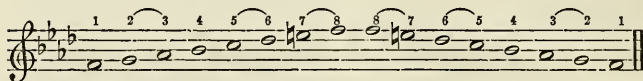


The intervals between the sounds of the minor mode are here correctly represented up to the sixth note. But the seventh note must be raised half a tone for the interval of a tone and a half between the sixth and the seventh, and for the semitone between

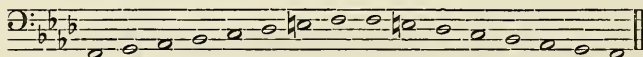
the seventh and the eighth. The raising is in this case, as in the last, indicated by the substitution of the natural for the flat, so that the scale of *f* minor will be—



The four flats are written in signature, but the natural, as accidental, counterbalances one of them :—



or on the bass staff—

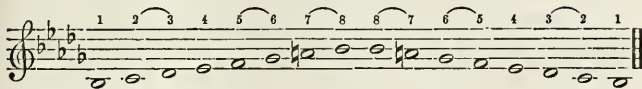


112. Comparing the minor scales with flats already derived, it appears that they, equally with the minor scales having sharps, have one of their notes raised beyond what is indicated by the signature. In the two first minor scales with flats, those of *d* and *g*, this is shown by writing an accidental sharp before the seventh note whenever it occurs ; in the two last, those of *c* and *f*, by writing an accidental natural before the seventh, in place of the flat which that note has in the relative major scale. In strictness, a signature of two flats will perfectly represent the minor scale of *c*, (§ 101) ; but since, according to the notation assumed, the scale of *g* minor has two flats in its signature (not the same two, indeed), that of *c* minor receives three in its signature, one of which is counterbalanced by the accidental natural, whereas neither of those in signature of *g* minor is thus counterbalanced. Again, whilst three flats would suffice for the signature of scale of *f* minor, it receives four in signature, of which one is counterbalanced by an accidental natural, for the same reason that *c* minor has three.

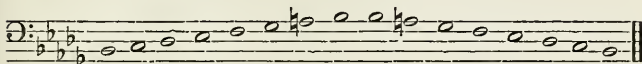
113. The remaining minor scales with flats are formed after the analogy of *c* and *f* minor. Thus the notes in the scale of *d* major, and in that of *bb* minor related to it, are—

d♭-*e*♭-*f*-*g*♭-*a*♭-*b*♭-*c*-*d*♭,
b♭-*c*-*d*♭-*e*♭-*f*-*g*♭-*a*♭-*b*♭ ;

so that the scale of $b\flat$ minor written on the staff is—



or on the bass staff—

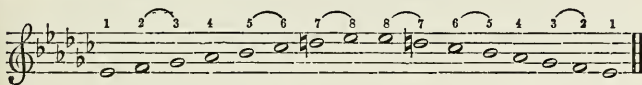


The notes in the scale of $g\flat$ major, and in that of $e\flat$ minor related to it, are—

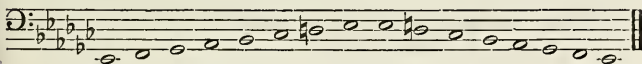
$g\flat - a\flat - b\flat - c\flat - d\flat - f - g\flat,$

$e\flat - f - g\flat - a\flat - b\flat - c\flat - d\flat - e\flat;$

so that the scale of $e\flat$ minor on the staff is—



or on the bass staff—

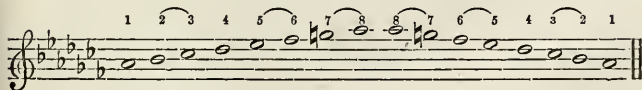


The notes in the scale of $c\flat$ major, and in that of $e\flat$ minor related to it, are—

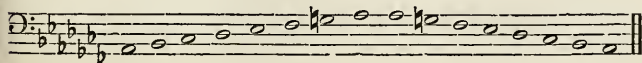
$c\flat - d\flat - e\flat - f\flat - g\flat - a\flat - b\flat - c\flat,$

$a\flat - b\flat - c\flat - d\flat - e\flat - f\flat - g\flat - a\flat;$

so that the scale of $a\flat$ minor written on the staff is—



or on the bass staff—



If the series of minor scales with flats be continued, they will appear in an order similar to that in which they have already been obtained, $a\flat$, $d\flat$, $g\flat$, $c\flat$, $f\flat$, $b\flat\flat$, &c., each scale in this series differing from the corresponding one in that already got by having all its sounds one semitone lower, and by consequently having seven flats more in signature.

114. There are thus in all fifteen positions of the minor scale in use, which may be arranged thus :—

FLATS.							SHARPS.							
7	6	5	4	3	2	1	1	2	3	4	5	6	7	
a \flat	e \flat	b \flat	f	c	g	d	— a —	e	b	f \sharp	c \sharp	g \sharp	d \sharp	a \sharp

on which list the following remarks may be made :—

(1.) Reckoned from the scale of a as the original one, the scales with sharps ascend above each other at intervals of fifths (five degrees) ; whilst the scales with flats descend below each other at intervals of fifths.

(2.) Reckoned from the lower extreme, $a\flat$, the whole series ascends by fifths ; but reckoned from the higher extreme, $a\sharp$, descends by fifths. We may reckon from any intermediate point, however ; thus, if we reckon from $c\sharp$, the scales up to $a\sharp$ ascend by fifths, but down to $a\flat$ descend by fifths.

(3.) Whatever be the number of sharps or flats in the signature of any one, these always come in one invariable order, which is the same as in the major scales.¹

(4.) The four extreme scales in the above list are very seldom used.

115. If we compare any two adjacent minor scales, as of a and e , we shall find that they differ in respect of three notes. Hence the adjacent minor scales are not so closely related to each other as each minor scale is to the major scale from which it is derived. Still, if we select any three adjacent minor scales, the two extremes are more nearly related to the one between them than any more remote minor scales are. Hence, as in the case of the major scales, the scales most nearly related to that on any assumed tonic are the scales commencing on the fifth above, *i.e.*, the dominant, and on the fourth above (or fifth below), *i.e.*, the subdominant.

¹ This order which is observed in both major and minor scales would be disturbed in the case of the minor scales, were the signatures of these arranged on any other principle than that which has been explained in the text.

4. Relation of Minor to Major Scales.

116. Since it has appeared that any one major scale is related closely to those on its dominant and subdominant, that the same major is related with equal closeness to the minor scale formed on its own sixth note, and that this minor scale again is related, though with less closeness, to the minor scales on its dominant and subdominant, it follows that a group of six scales may be formed which are *relatives* to each other. This list exhibits the names of major scales, with those of their relative minors below them :—

FLATS.							SHARPS.						
7	6	5	4	3	2	1	1	2	3	4	5	6	7
c	b	g	b	d	b	a	b	e	b	b	f	c	g
a	b	e	b	b	f	c	e	d	a	e	b	f	c
a	b	e	b	b	f	c	e	d	a	e	b	f	c

Any adjoining six form a group related to each other. Thus, if we select **c** as the tonic of a major scale, then the group of six is— **f**, **c**, **g**; in which the scales on **g** and **f** are those on its dominant and subdominant respectively, the scale of **a** is the relative minor scale, and the scales on **e** and **d** are the scales on the dominant and subdominant of the relative minor. If we select the major scale of which **a** is the tonic, then the group of related scales is— **d**, **a**, **e**; in which the scales on **e** and **d** are those on its dominant and subdominant respectively, the scale on **f** is its relative minor scale, and the scales on **c** and **b** those on the dominant and subdominant respectively of the relative minor. A similar kind and extent of relation holds amongst the scales when we estimate them from a minor scale on any assumed tonic. Thus, if we select the minor scale of which **b** is the tonic, the group is— **g**, **d**, **a**; in which the scales on **f** and **e** are those on its dominant and subdominant respectively, that on **d** is the relative major scale, and the scales on **a** and **g** are those on the dominant and subdominant respectively of the relative major. The importance of the tonic, dominant, and subdominant notes in the matter of scale-relation is confirmed by these considerations; see § 92.

117. Referring to the list of minor scales in § 114, we have seen that any two adjacent minor scales differ from each other in three notes. Thus that of *a* differs from that of *d* or of *e* in three notes. Examining this relation amongst the minor scales further, we find that the scale of *a* differs from those of *g* and *b* in four notes, but that from the scales of *c* and *f* \sharp , which seem further remote, it differs only in three. Going beyond these scales, however, the difference gradually increases. Again, comparing the major scales with the minor ones in the list, see § 116, the major scale of *c*, *e.g.*, differs from the minor of *a* in one note, from that of *d* in two, from that of *g* in three, but from that of *c* only in two again, see § 101. Thus the major scale of *c* is related to the minor of *c* more closely at least than to the minor of *g*, and as closely at least as to that of *d*. There is thus a relation between the major and minor scales over and above what is expressed in that list, but which is exhibited when we write them in the following order. A minor scale is formed from a major scale on same note by depressing its third and sixth; we may form minor scales on the tonics of all the majors by this process, just as in § 101. The minor of *c* was formed from the major of *c*, and an examination of the lists (see § 116) shows that the tonics of the minor scales are the same as those of the major, though the scales on the same tonic are not those which are viewed as the relatives of each other. If we set down the major and minor tonics in order, keeping the same major and minor tonics together, we have—

c \flat -*g* \flat -*d* \flat -*a* \flat -*e* \flat -*b* \flat -*f*-*c*-*g*-*d*-*a*-*e*-*b*-*f* \sharp -*c* \sharp ,

a \flat -*e* \flat -*b* \flat -*f*-*c*-*g*-*d*-*a*-*e*-*b*-*f* \sharp -*c* \sharp -*g* \sharp -*d* \sharp -*a* \sharp .

In which list, if we take any group of six, we find but three different first notes; for the two tonics are the same, as are the two dominants and the two subdominants. In this arrangement the scale on the major tonic differs from those of its dominant and subdominant by one note in each; from the minor scale on the same tonic by two notes; and from the minor scales on its dominant and subdominant by three notes. These are relations amongst the scales which it is important to remember. Although the relation between the assumed tonic and the other five members of the group is not in each case so close as in the grouping shown in § 116, still, from the fact of the tonics, dominants, and subdominants being here the same in each mode, the relation exhibited in

this and other similar groups is much used practically, and is only second in importance to that formerly exhibited (§ 116).

118. It only remains to be stated regarding the list of scales in the previous section—(1.) That major and minor scales on same tonic differ from each in but two sounds, the third and the sixth; and (2.) That the signatures of a major and a minor scale on the same note differ by three sharps or flats, the major having three sharps more than the minor, or the minor three flats more than the major, as the following examples show :—

Examples of major and minor scales on A, G, and Eb, showing the relationship between the two modes. Each scale is written on a single staff with notes numbered 1 through 8. The major scale is shown first, followed by the minor scale. The minor scale is constructed by lowering the third and sixth notes of the major scale by one semitone.

A

Major: A (1), B (2), C# (3), D (4), E (5), F# (6), G# (7), A (8).
 Minor: A (1), B (2), C (3), D (4), E (5), F (6), G (7), A (8).

G

Major: G (1), A (2), B (3), C (4), D (5), E (6), F# (7), G (8).
 Minor: G (1), A (2), Bb (3), C (4), D (5), Eb (6), F (7), G (8).

Eb

Major: Eb (1), F (2), G (3), Ab (4), Bb (5), C (6), Db (7), Eb (8).
 Minor: Eb (1), F (2), Gb (3), Ab (4), Bb (5), Cb (6), Db (7), Eb (8).

119. Transposition of scales in the minor mode is employed within the same limits, for the same reasons, and in the same way as it is in the major. The following passages—

Examples of transposition in the minor mode, showing the relationship between the two modes. Each scale is written on a single staff with notes numbered 1 through 8. The major scale is shown first, followed by the minor scale. The minor scale is constructed by lowering the third and sixth notes of the major scale by one semitone.

1

Major: C (1), D (2), E (3), F (4), G (5), A (6), B (7), C (8).
 Minor: C (1), D (2), Eb (3), F (4), G (5), Ab (6), Bb (7), C (8).

2

Major: D (1), E (2), F (3), G (4), A (5), B (6), C (7), D (8).
 Minor: D (1), E (2), Fb (3), G (4), Ab (5), Bb (6), Cb (7), D (8).

3

Major: E (1), F (2), G (3), A (4), B (5), C (6), D (7), E (8).
 Minor: E (1), F (2), Gb (3), A (4), Bb (5), Cb (6), Db (7), E (8).

4

Major: F (1), G (2), A (3), B (4), C (5), D (6), E (7), F (8).
 Minor: F (1), G (2), Ab (3), B (4), Cb (5), Db (6), Eb (7), F (8).

5

Major: G (1), A (2), B (3), C (4), D (5), E (6), F (7), G (8).
 Minor: G (1), A (2), Bb (3), C (4), Db (5), Eb (6), Fb (7), G (8).

6

Major: A (1), B (2), C (3), D (4), E (5), F (6), G (7), A (8).
 Minor: A (1), B (2), Cb (3), D (4), Eb (5), Fb (6), Gb (7), A (8).

7

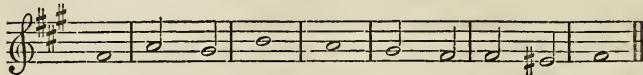
Major: B (1), C (2), D (3), E (4), F (5), G (6), A (7), B (8).
 Minor: B (1), C (2), Db (3), E (4), Fb (5), Gb (6), Ab (7), B (8).

8

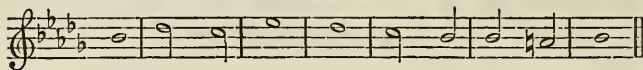
Major: C (1), D (2), E (3), F (4), G (5), A (6), B (7), C (8).
 Minor: C (1), D (2), Eb (3), F (4), G (5), Ab (6), Bb (7), C (8).

when transposed into the keys named, will be written as follows :—

(1)

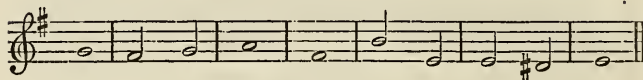
Into F \sharp .

(1)

Into B \flat .

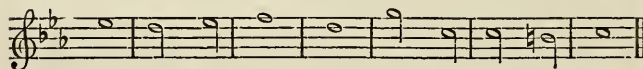
(2)

Into E.



(2)

Into C.



Exercises.

1. Write down on the treble staff the tonics of the fifteen minor scales in order with their signatures.
2. Write down the same on the bass staff.
3. Write down the order of accidental sharps in the minor scales with sharps, naming the scales in which these occur.
4. Write down the seventh and eighth notes of the minor scales with flats in their order.
5. Write down upon the treble staff, in $\frac{2}{4}$ rhythm, and in two measures of that rhythm, the minor scales upon e and c \sharp , both ascending and descending; inserting the sharps as they occur.
6. Write down on the treble staff, in $\frac{3}{4}$ rhythm, and in two measures of that rhythm, the minor scales of g and f; otherwise, as in last exercise.
7. Write down on the bass staff, in $\frac{4}{4}$ rhythm, and in two measures of that rhythm, the minor scales of a \sharp and b \flat ; putting the signatures before them.
8. Write down on the bass staff, in $\frac{6}{8}$ rhythm, and in three measures of that rhythm, the minor scales of d and d \sharp ; putting the signatures before them.
9. Write down on the treble staff, the second, fifth, and seventh notes in the minor scales of b, f \sharp , c, and e \flat .

10. Write down on the bass staff the first, fourth, and sixth notes in these scales.

11. Explain how a \sharp occurs in the scale of $b\flat$ in the seventh place.

12. Write down in tabular form the names of the minor scales in groups of three related to each other.

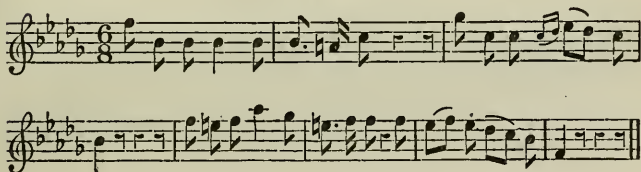
13. Write a table of relation between major and minor scales by groups of six.

14. Write down the minor scales with sharps on the alto staff, putting the sharps in signature.

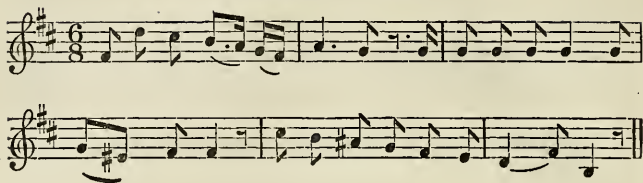
15. Write down the minor scales with flats on the tenor staff, putting the flats in signature.

16. Transpose the following passages from the keys in which they are written to the minor keys indicated for each respectively :—

To the Keys of C and A.



To the Keys of C and A.



CHAPTER V.

RHYTHMICAL STRUCTURE OF MELODY.

1. The Phrase.

120.

The musical score consists of six systems of musical notation, each with a treble clef. The first system is in G major (one sharp) and 6/8 time, marked *pp*. It contains two phrases: (1) and (2). The second system is also in G major and 6/8 time, containing two phrases: (3) and (4). The third system is in F major (one flat) and common time (C), containing two phrases: (1) and (2). The fourth system is also in F major and common time, containing two phrases: (3) and (4). The fifth system is in A major (three sharps) and 3/8 time, containing two phrases: (1) and (2). The sixth system is also in A major and 3/8 time, containing two phrases: (3) and (4). The notation includes various rhythmic values, accidentals, and phrasing slurs.

In listening to the first of these melodies, the ear is conscious of certain distinctly recognisable breaks ; the whole melody is evidently constituted by the putting together of a number of parts, each of which has a distinctive character of its own. There are four of these, as shown by the marks placed over their terminations. This division by no means arises from the rests that occur there ; the second melody shows an equally distinct division without having any rests ; whilst the third is an example in which rests occur in the course of such parts. Each of these parts is called a *phrase*.¹ Every melody exhibits, though in different forms, such a sequence of parts. Is this accidental or necessary ? And, if necessary, what are the laws that regulate the construction and succession of such parts ?

121. If we examine a passage of oral or written discourse, we find, whatever be its beauty or power, that it is a whole made up of a succession of parts which have in themselves a separable existence : and that the *passage* is constituted by its having a unity of thought which binds the several parts or sentences to each other, and a progression of thought which determines the particular order in which these shall follow each other. Again, each of these parts or sentences is a whole made up of parts which have in themselves a separable existence ; and the *sentence* is constituted by its having a unity of thought which binds the several parts or members to each other, and a progression of thought which determines the particular order in which these shall follow each other. Provided there be unity of thought in the paragraph, as its fundamental condition, the sentences of which it is composed may be more or less numerous, and they may exhibit an indefinite variety in form of expression. Provided there be unity of thought in the sentence as its fundamental condition, it may be longer or shorter, have many members or few, have several co-ordinate parts or so many subordinate, and exhibit an indefinite variety of forms in the expression of these. But what we are to observe both with regard to the paragraph and the sentence is this, that we cannot conceive of them otherwise than as wholes composed of, and resolvable into, certain parts ; it is only in virtue

¹ The terms *section*, *clause*, *member*, *strain* are also sometimes used to denote the same thing. That there should be some uncertainty in this part of musical terminology is perhaps not to be wondered at, when we consider that the same uncertainty marks the use of these terms in the analysis of language.

of this character that they are intelligible to us. This reference to the structure of discourse is here made not for the purpose of comparing language and music as means of expression, and still less of pushing into detail any analogy that may exist between them so as to make it seem as if every fact and law in the one had a corresponding fact and law in the other ; but only to show how a melody should be in theory, as the examples given show that it is in fact, a whole constituted of parts, each having a separable existence and distinctive character, but admitting of endless variety of expression both individually and in their sequence.

122. A musical phrase is a group of sounds expressing one musical idea. Not that this group of sounds is the exponent of a particular *thought in the mind*, as a phrase in language is (for music is not related to thought in the same way as language) ; but it is the smallest group which collectively has a definite musical character, which conveys a distinct impression to the mind, which is recognised as having a unity of its own, and which, when once heard, suggests itself again in its unity for repetition. A melody consists of phrases : we cannot recognise or reproduce it otherwise than through its phrases ; if we can give any one phrase, we suggest the melody ; and we sing a melody properly only when we regulate our singing of it by its phrases.

123. A phrase, though it is the least part of a melody that expresses one idea, is not the smallest rhythmic combination of sounds which is possible. Occasionally, as we shall see, these may coincide ; but they are quite distinct things. *E.g.*, the first phrase in each of the two first melodies, § 120, is divisible into two smaller parts or sections in which an ear perceives a rhythm, thus—



but these smaller parts have not by themselves a definite musical character. We are to distinguish the phrase, then, from the smaller rhythmic sections that enter into it.

124. Phrases differ in length. The shortest phrase cannot be

shorter than the length of one measure ; it is impossible that any succession of sounds can have a distinctive character in which there are not two relative degrees of accent, such as in the strong and the weak accents of the measure. When the phrase is coincident in length with a measure, it corresponds also to the smallest rhythmic section, spoken of above. More commonly phrases embrace two, three, or four measures, as in examples, § 120 ; seldom exceeding four in their essential structure, though they are sometimes protracted beyond four measures by accidental features imposed upon them. Besides differing in length, phrases differ in rhythmical structure. Not merely that phrases may be constructed in any of the rhythms, for that is a matter of course ; but, in any given rhythm, the phrases may commence either on the strong or the weak parts of the measure, and consequently end on either.

Thus, a phrase of two measures of $\frac{4}{4}$ rhythm may commence either on the strongest part of the measure, *i.e.*, the first note, or on the secondary accent, that is, the third crotchet, or on either of the weak parts, *i.e.*, the second or fourth crotchets ; having a different termination in each case, since it must consist of so many *measures complete*. And so with all other phrases in all other rhythms.

125. In the following melodies will be found examples of different kinds of phrases :—

(1.) Phrases of one measure, commencing either on the strong or on a weak part :—

The following musical notation examples illustrate phrases of one measure, commencing either on the strong or on a weak part. The notation is in treble clef with a key signature of one sharp (F#) and a common time signature (C). The lyrics are written below the notes.

(1) The mur - mur of the mer - ry brook, As gush - ing - ly 'and

(2) free, It wim - ples with its sun - bright look, Far down yon shel - ter'd lea.

(3) In yon gloom - y tow - er Stern death now is

(2) brood - ing, (3) On earth we shall meet no more.

(1) (2)

Gloom - y win - ter's now a - wa', Saft the west - lin' breez - es blow,

(3) (4)

'Mang the birks o' Stan - ley shaw, The ma - vis sings fu' cheer - ie, O.

(2.) Phrases of two measures, commencing either on the strong or on the weak part :—

(1)

Cher - ry ripe, cher - ry ripe, ripe, I cry; Full and fair ones,

(2)

come and buy; Cher - ry ripe, cher - ry ripe, ripe, I

(3) (4)

cry, Full and fair ones, come and buy.

(1)

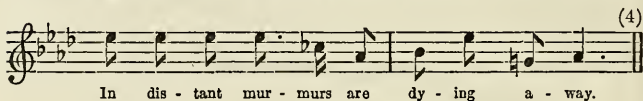
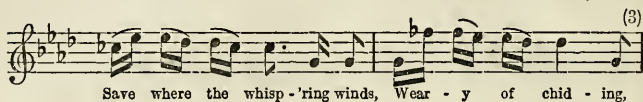
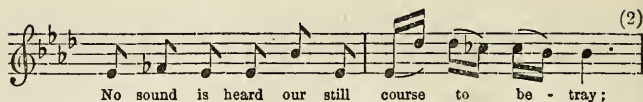
When the swallows homeward fly, When the ro - ses wi - ther'd

(2) (3) (4)

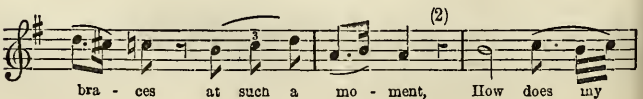
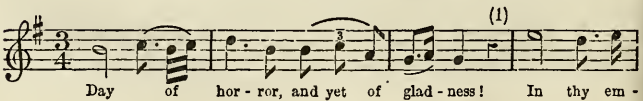
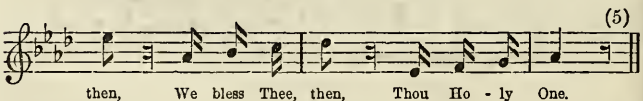
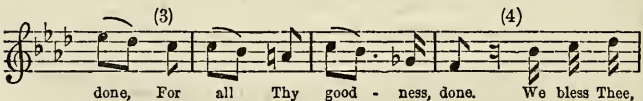
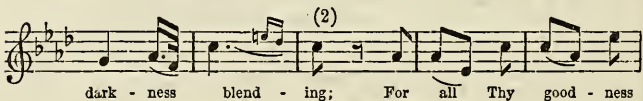
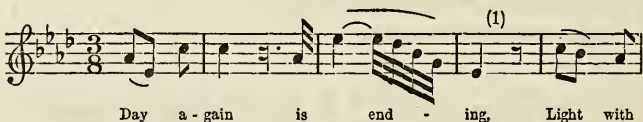
lie, When the list - 'ning hill and dale, Hear no more the night - in - gale.

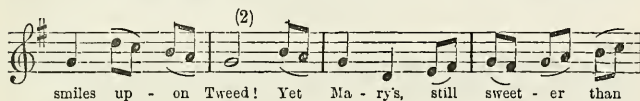
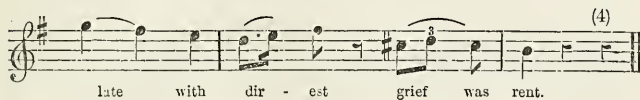
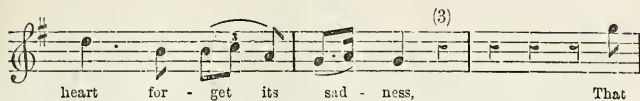
(1)

While o'er the wave, side by side we are glid - ing,

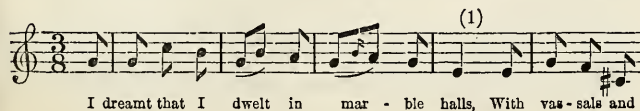
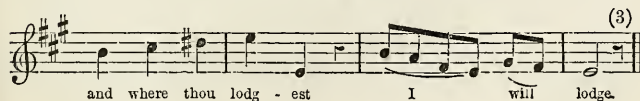
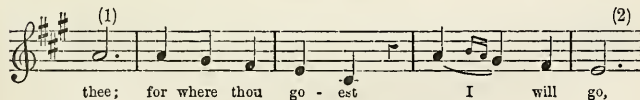
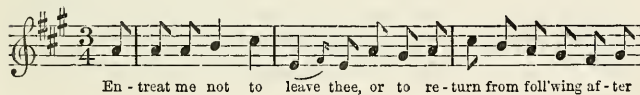


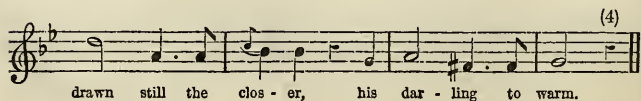
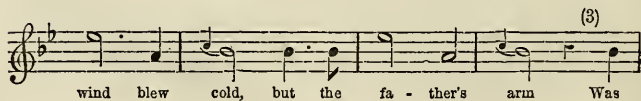
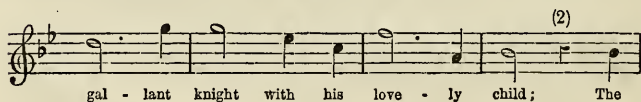
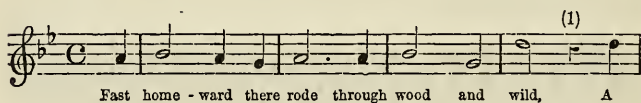
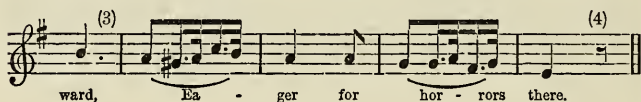
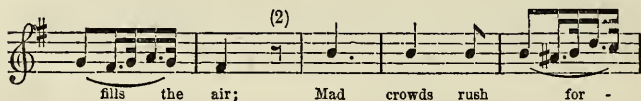
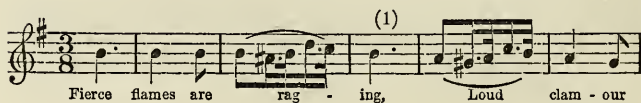
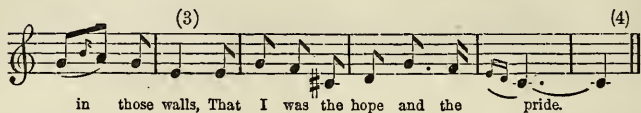
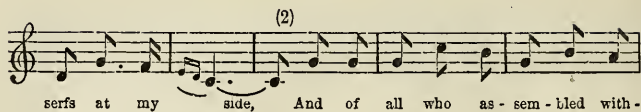
(3.) Phrases of three measures, commencing either on the strong or on the weak part :—





(4.) Phrases of four measures, commencing either on the strong or on the weak part :—





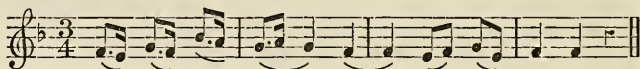
126. The division of a melody into phrases is determined by the construction of the passage to which it is attached ; as the examples now given show. Thus, if the passage is a verse of poetry, the phrase generally corresponds to the line, because the line generally indicates a distinct part of the sense of the passage ; but if the lines be short (as monometer or dimeter), two of them may be included in the phrase. On the other hand, in slow movement, there may be two phrases in the melody of one line. The rhythmical structure of the phrase is also determined by that of the passage. Words that are emphatic in the latter have emphatic sounds in the melody ; and words that are not emphatic have their sounds of the same character. If a line commences with an emphatic word, therefore, the phrase in which its sound occurs will commence on the strong part of a measure ; if it commences with a word that is not emphatic, the phrase in which its sound occurs will commence on the weak part of the measure. And as there may be more than two parts of a measure, the phrase will commence on that part which will make the first strong accent in the phrase correspond to the first emphatic word in the passage. The above examples may be examined for illustrations of this point.

127. Since every measure has an accented part, every phrase has as many accented parts as it has measures. Of these one is viewed as principal with reference to the phrase : the accent on the principal word, which generally corresponds with the accent of the first measure in the phrase. Besides the accentuation of the phrase, however, based on its rhythmical division into measures, it frequently exhibits accent of another sort and for another purpose. In a clause or member of a sentence, it often happens that a particular word or words are marked with emphasis ; and frequently it is not the words that are by themselves or in the grammatical structure of the sentence most important, but the smaller relational words which in ordinary circumstances are not accented at all. The words of the sentence are thus made to convey a meaning and effect beyond what the same words would convey without this emphasis. This is a rhetorical expedient, but a matter of necessity in the circumstances as regards the expression. A musical phrase employs this expedient equally with the phrase in language. Although the ordinary rhythmic accents are, for the most part, sufficient for its expression, we sometimes find the rhet-

rical accent introduced on a note which is by the rhythm unaccented. This does not supersede the rhythmical succession of accent—which, like the grammatical structure of a sentence, can never be superseded as the foundation of composition—but is *in addition* to it, for the sake of a peculiar musical effect. This kind of accent is commonly distinguished from the ordinary accent of the measures by the name of *emphasis*; and is indicated by a mark of this form > placed over the note whose sound is to be made emphatic. In the first melody, § 120, the emphasis occurs on the second part of the measure. The emphasis may occur anywhere throughout the phrase; on the strong part of a measure, on any weak part of it, on all its parts, just as effect requires, thus—



128. It sometimes happens that the stress which is proper to the strong or accented parts of a measure is anticipated, so as to fall on the previous weak part, whilst it continues through the strong part to which it naturally belongs. Thus, in the following passage—



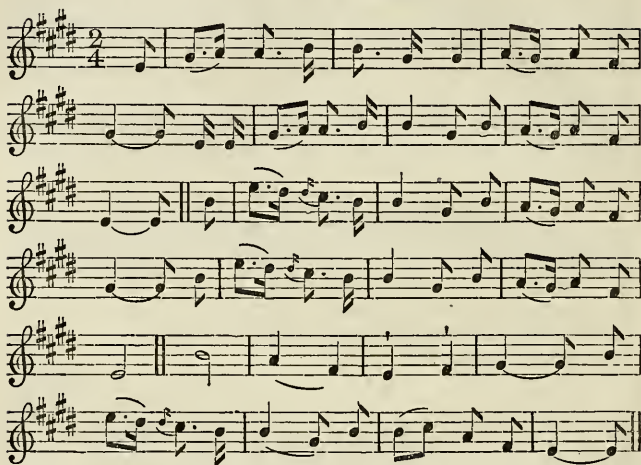
the stress which properly falls on the first note of the third measure is anticipated on the last note of the second; the two crotchets, as if they were one minim, being uttered on one syllable. So in this passage—



the stress proper to the third (or secondarily accented) part of

2. The Period.

129. If we examine the following melody—



besides the division into phrases we recognise a division of it into three greater parts, which have a definite musical character and separable existence in themselves, and which seem to the ear to have a greater degree of completeness than the phrase. Such a division is the next in order above the phrase, and is called a *strain* or *period*. Every regular melody exhibits this division. A very short one may contain but one period; but in general a melody contains two such periods at least. The melodies given in § 125 contain additional examples of the period. The termination, or, as it is called, the *cadence* of the period is more strongly marked than that of the phrase.

130. A period, then, is a combination of so many phrases. The phrases may be connected and introduced in different ways.

(1.) In the simplest and most regular structure of melody, they are set down close to each other of the same length, as in the example last given, in which each phrase has four measures. Compare also the examples in § 120. The popular national melodies of a country are generally of this simple structure. But

this regularity is far from being a universal characteristic of melody.

(2.) A phrase is often preceded by a short unemphatic passage, or even single note, which introduces it and connects it with the preceding one; this passage filling up a place which might otherwise be occupied by a rest, thus—

Scenes that are bright - est May charm a while;

Hearts which are light - est, And eyes that smile.

in which the short passages overlined are the conjunctions of phrases.

(3.) A phrase sometimes has one note of it prolonged, so that, whilst consisting of the same essential notes, it may gain a measure or two in duration; thus—

While mer - ri - ly once rid - ing, through

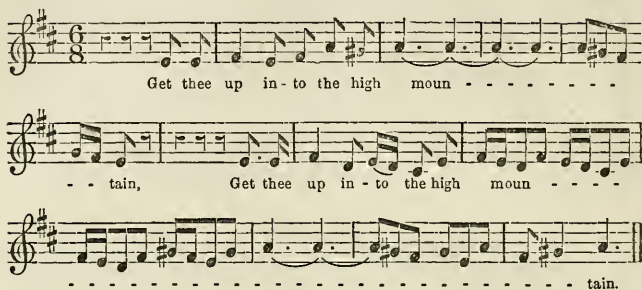
cool and sha - dy wood

The phrases of this melody consist essentially of two measures each, as if it were written thus—

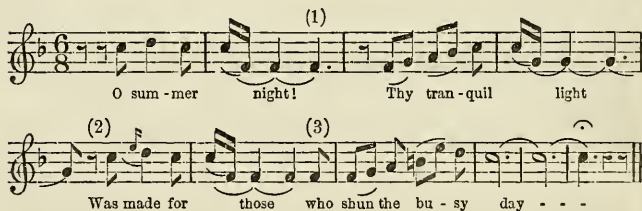
While mer - ri - ly once rid - ing, through cool and sha - dy wood.

The first appears, however, as having three measures by the prolongation of the emphatic note in it; and the second as having four from the same reason.

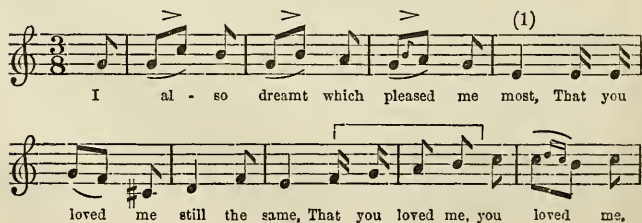
(4.) This prolongation of one note in a phrase may take the form of a running passage of short notes, thus—

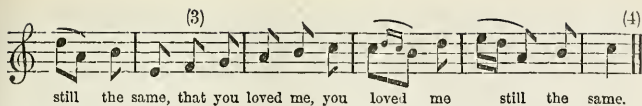


(5.) The phrases may not commence symmetrically upon the measures, as in the following piece ; which exhibits also prolongation of the last phrase :—



(6.) Sometimes one measure is at once the end of one phrase and the first of another, so that it is counted twice. Thus we may have two phrases of four measures each comprised in seven measures, as in the following example :—



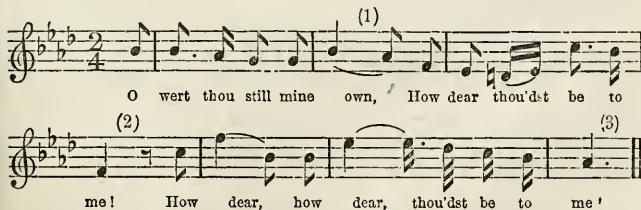


This is the last period of a melody, of which the first is given in § 120. It has four phrases, each having four measures, except one; so that in the whole period there are fifteen bars. The measure overlined has a double aspect; it is either the last of the second phrase or the first of the third; and so is allowed to count twice. Compare with this the manner in which the corresponding phrase in the first period (§ 120) is made up: compare, further, with each other the arrangement of the words in each of the last three phrases of this period.

(7.) Sometimes the proper commencement of a phrase is anticipated, so that it is carried backwards into a measure properly belonging to the previous phrase, as in the fourth of this period—




(8.) The phrases in a period most commonly contain the same number of measures, as seen in Ex. 1, § 130. Some exceptions have just been mentioned, in addition to which a phrase sometimes receives an additional measure from the repetition of some word or words in it; as in the following half-period, in which the first two phrases have two measures each, but the third has three:—

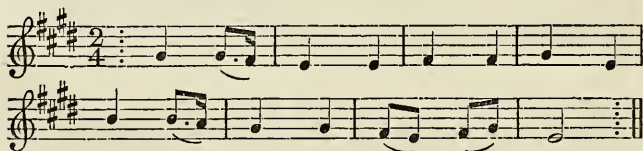


131. The number of phrases in a period varies with the struc-

ture of the passage (the words) to which the melody is attached. There may be two, four, six, eight, ten, twelve, or sixteen, but not more in vocal music. The number of phrases may be odd, resulting from the repetition of a clause, as in the example last given. But the number of measures in a period is only odd exceptionally; it is most usual, when a phrase is introduced having an odd number of measures, to add another such phrase, so as to make the number of measures even in the period.

132. The period is frequently indicated to the eye by a mark of this form  drawn across the staff, called a *double bar*. This must be carefully distinguished from the single bar which divides the measures. It may occur either at the end of a measure, in which case it is coincident with the single bar, or in the course of a measure, in which case it must be particularly observed that it does not interfere with the time or rhythm of the measure. But this mark is not always used to indicate the periods;¹ in which case there is no external mark at all.

133. The same period is often repeated in a melody. Instead of being re-written, a mark is employed to indicate the fact, of this form $\vdots \vdots$, and placed across the staff, thus—



Sometimes, in addition, the word 'bis' (twice) is written over the staff. If a part of the period alone is to be repeated, it is marked off by the dots and by the sign \S : at the beginning and the end of it, thus—



¹ It is often used, moreover, for other purposes; as when there is a change of rhythm to be introduced, or a change of key from a major to its relative minor, and *vice versâ*.

If the passage to be repeated is long, the words *Da Capo al Segno* (*It. from the beginning at the sign*), or *D. C. al Segno*, are sometimes substituted for the mark \S ; at the end.

The same period is often repeated in a melody, but with a variation of the concluding measure. To indicate this the dots are used as before, but the variation of the last measure is written just after the full period, with a line over the staff denoting that this is the measure to be substituted at the termination of the period on its second performance, thus—



It often happens that the first period in a melody is to be repeated after the second. To indicate this the words *Da Capo* (*It. from the beginning*), or the initial letters *D. C.*, are placed over the staff at the end of the second period, and the word *Fine* (*It. end*) placed over the last measure of the period which is to be repeated, meaning that this measure is the final termination of the melody, thus—



The pause \circ is sometimes attached to the term *Fine*.

3. Simpler Forms of the Complete Melody.

134. The complete melody is made up of a combination of periods, just as the period is made up of a combination of phrases.

The simplest kinds of melody are the psalm-tune or chorale, and the song.

The metrical psalm-tune appears in various forms. One difference arises from differences of metre in the verse. The most usual metres are the so-called *long metre*, in which the verse consists of four lines each, having four Iambic feet ; the so-called *common metre*, in which the verse has four lines, consisting of four Iambics and three alternately ; the so-called *short metre*, in which the verse has four lines, each line having three Iambic feet, except the third which has four ; and the trochaic tetrameter catalectic, in which the verse has four lines, each consisting of four trochaic feet wanting the short syllable in the last. Difference of metre leads to difference in the length of the periods, and in the distribution of accent.

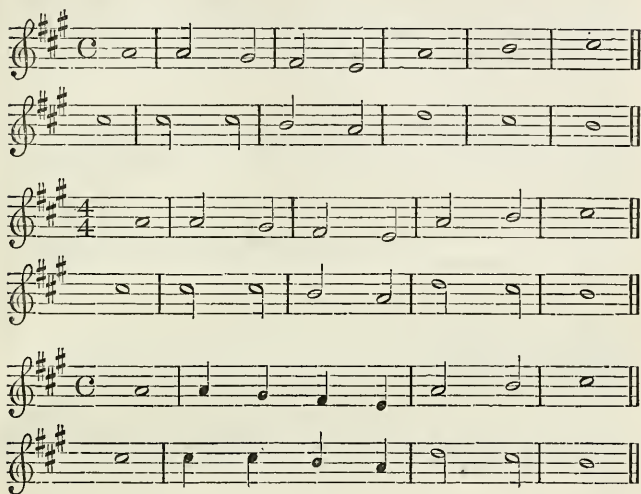
135. In the simplest structure of these psalm-tunes, there are four periods, a period corresponding to a line of the verse ; and there is no repetition of the lines. The period is thus very short. The same length of verse in a song would generally have but one period, seldom two. Such a period cannot have more than two phrases, therefore ; often it has but one. Sometimes, however, the whole tune is made to consist of two periods only, each corresponding to two lines of the verse ; in that case the period may have two phrases, or three of different lengths. This structure appears in tunes of quicker time than the average.

136. The period in the psalm-tune may be of very different lengths as regards the number of measures in it. The same phrase may be written variously as regards the number of measures it contains, by altering the length of the notes in it ; thus—



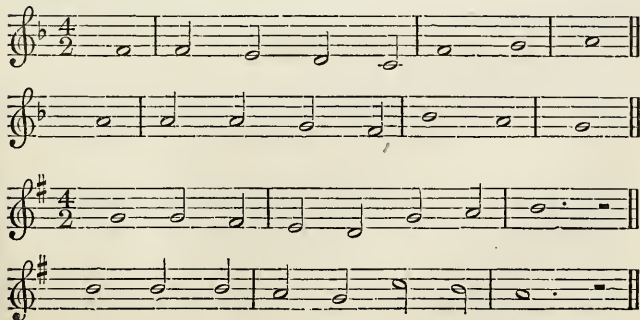
This consideration explains how the same psalm-tune may be formed with its phrases differing in the number of their measures. If the time be slow, that number will be greater than if it be

taken moderate or quick. Thus the tune 'Old Hundred' may be found in these three forms :¹—

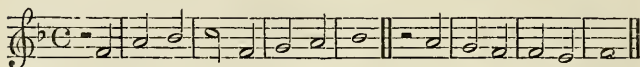


137. It may be observed that the period must consist of so many measures *complete*, on whatever part of a measure the tune may commence. In this reckoning, however, rests count equally

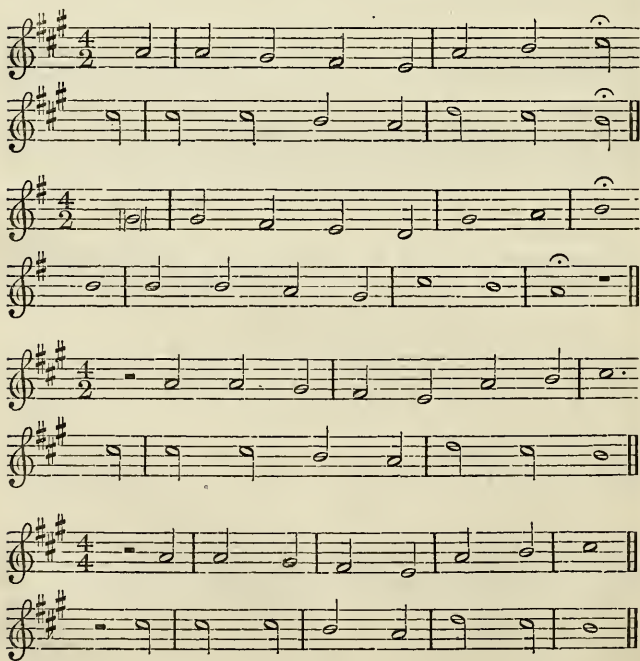
¹ Other forms are subjoined for the student to explain :—



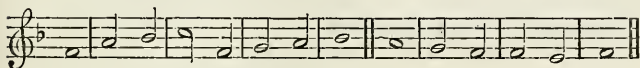
with notes. According to the importance of the words at the beginning and the end of the lines of the verse, so may the first and last measures be differently sung ; they may therefore be found differently written ; in each case, however, the number of measures must be complete. The tune 'French' is commonly, *e.g.*, written in this way :—



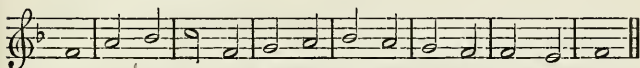
The two periods together consist of nine measures, of which eight are made up of notes and one of rest : in this form of the tune, the last word in each line is dwelt upon and made very emphatic.



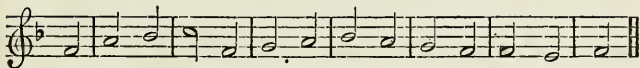
Were there not a half measure of rest at the beginning of each period, there would be an error in the notation of the tune corresponding to an error of spelling in language. At the beginning of the second period would occur a half measure between the whole measures, which would violate the rhythm. The tune may be written otherwise, however, according to the length of time we wish to dwell on the first or last notes, and according as we dwell on them equally or differently, thus—



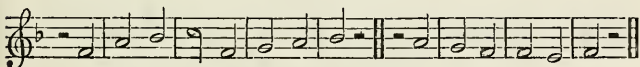
with nine measures sung, and no rest.



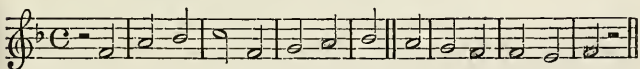
with eight measures sung, and no rest.



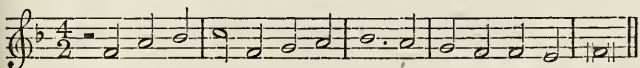
with seven measures sung, and no rest.



with nine measures, of which two are rest.



with eight measures of which one is rest.



with five (double) measures.

In some of these forms of the tune, the extent of melody set down is viewed as two periods, and in others as only one : compare also the forms of the 'Old Hundred,' § 136. In the above examples, the halving or the doubling of the *one* note which begins or ends a period without making a corresponding change on the note

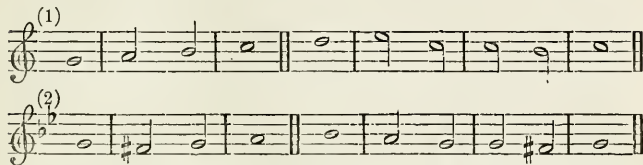
which ends or begins it, or the omission of any *one* of the rests without the omission of the corresponding one, or the insertion of any *one* rest without the insertion of the corresponding one, would constitute an error in the notation of the tune.

It may be added that when the same tune is repeated for successive stanzas, it is quite legitimate to sing different forms of it in succession. It generally happens that the words which commence or terminate the lines in the successive stanzas are of different relative degrees of importance ; and a good taste will adapt the sounds of the melody to these variations.

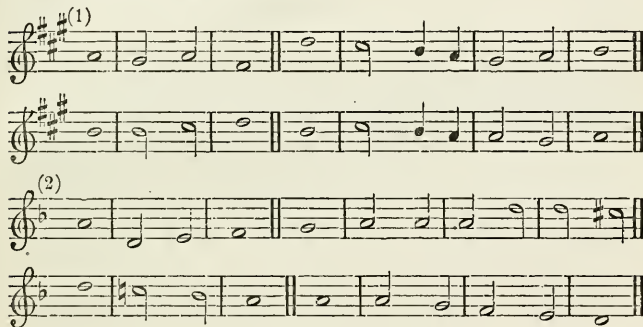
138. The purest form of the psalm-tune or chorale is that which has now been described. More elaborate forms are recognised, however ; of which only two need be mentioned. (1.) The one is that which is constructed for a double stanza. Whenever the versification is constructed so that the double stanza and not the single is the real unit of its measurement, then it is quite legitimate and necessary that the form of its melody should be enlarged so as to admit of proper expression of its sentiment. Of this form of time it needs only to be remarked, that it just embraces two of the single tune ; so that it shall include eight periods or four, according as the period is attached to the one line of verse or two. The tune 'St. Matthews' may be taken as an example of this kind of tune, both as to necessity and its form. (2.) The other form is that for the single stanza, which has the last line or two lines of the verse repeated, requiring the addition of a phrase or period to the melody : this form of the tune falls into two parts of unequal length. This second elaboration of the psalm-tune is the one most liable to abuse. We sometimes find introduced into it repetitions of words or phrases simply with the view of producing a more ambitious musical effect than is suitable to the nature of such compositions. In the general case, these contrivances are used to give some false attractiveness to a melody which is in itself destitute of character. All tunes of this nature should be avoided ; and, if the taste be cultivated, they will be avoided. The most dignified form of the chorale is free from all repetitions or additions whatsoever.

139. Another form of the psalm-tune is the chant, which, from the uniformity of its construction, needs only to be mentioned. It is not a metrical tune ; being adapted for the intonation of the prose Psalms. The single chant consists of two phrases, or periods,

as they may be termed, from their comparative completeness of effect ; of which this is the uniform model :—



The double chant contains twice the single one ; the melodies in all the four phrases being different. They do not admit of repetition. The model is this :—



140. The song or ballad is also divisible into periods and phrases ; but the periods are, for the most part, of longer duration than those in the psalm-tune. The song presents from two to four periods, the periods being longer or shorter according to the nature of the verse, or sense of the passage. A common form is that which has two equal periods. When two periods are employed, however, they are very often unequal ; the second being the longer, as it is at the end that any repetition of lines or phrases in the verse naturally takes place. Another common form is that of three equal periods. When three periods are employed, however, they are very often unequal ; most commonly the first half of the stanza goes to the first period, and the remaining half of the stanza is divided into two parts, which have each a period attached to them. The second and third periods may be unequal owing to the repetition of some words. Not unfrequently

the third period in these circumstances is almost an exact repetition of part of the first period. Four periods can seldom be counted in a song, in which one is not the repetition of a previous one.—These are the principal forms of the song. But the variety of arrangement possible in period and phrase is endless. It is greater than the variety of form possible in the metre of the language ; for, besides having to provide for all the various forms of metre, it has to provide for a repetition of single words and phrases beyond what the metre admits of.¹

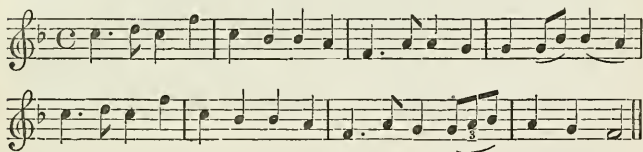
¹ No examples are given under this section, on account of the length to which they would extend.

CHAPTER VI.

TONAL STRUCTURE OF MELODY

1. Modulation.

141. It has been seen that all melody is drawn from the diatonic scales, either major or minor. If we examine the following melody :—

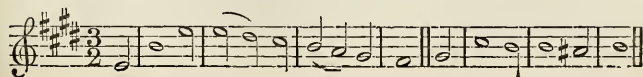


we find that all the notes are in one scale, that of f major. So in the following :—



all the notes are in one scale, that of c minor.

If we examine the following melody :—



we find that one note *at least* does not belong to the scale of *e* major, from which the melody as a whole is drawn. And in the following :—



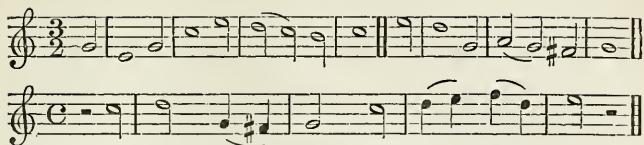
there is one note *at least* which does not belong to the scale from which the melody bears to be drawn. But the notes in the two last examples which do not belong to the scale of the melody, belong respectively to *some one other* scale ; so that there is not here any interference with the universal law that all melody consists of notes drawn *from scale*.

142. It appears, then, that the scale from which a melody is principally drawn may avail itself of the assistance of another scale. And, if the melody be long, it may avail itself of the assistance of more than one other scale. In this way, variety of effect is attainable in a very great degree ; the monotony of which the mind is conscious when it listens for some time to sounds in the same scale, even though these are musical sounds, is prevented. The passage of a melody from one scale into another is called *modulation*.

143. The extent to which modulation is used in one piece of music generally varies with the length of the piece. In short pieces, such as psalm-tunes and songs, there is sometimes no modulation at all ; the very shortness of the piece not allowing time for a sense of monotony to arise. It is very easy to tell when there is no modulation ; all the notes in the piece are referable to places in one scale. Probably, however, the majority even of such short pieces shows modulation. In longer pieces it always occurs.

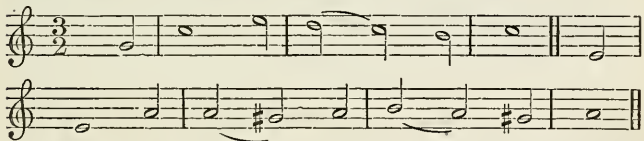
144. Modulation appears under different aspects in different pieces, of which the three following are the principal :—

(1.) A phrase or a rhythmic section only, very commonly the last in a period, may be in another key than the principal key of the piece. This is the smallest section that can exhibit modulation. There is no such thing as modulation to introduce a *single note* alone from another scale ; though it may be a single note which *indicates the fact* of modulation. Thus, in the following passages—

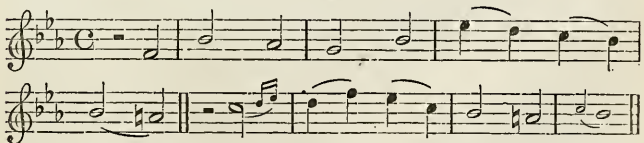


the $f\sharp$ is out of the key, c major, and indicates modulation ; it is the seventh or characteristic note in the key of g , leading in both examples into the tonic of that key. The note which follows the $f\sharp$ is not the fifth of key of c , but the tonic of that of g ; in both cases the phrase ends, therefore, in the key of g major. Whether the modulation be carried further or not depends on circumstances ; it may or it may not. In the former case, it so happens that the succeeding phrase commences in the key into which the modulation has taken place ; in the latter case, the modulation does not proceed further, the succeeding phrase being in the principal key of the piece, c major.

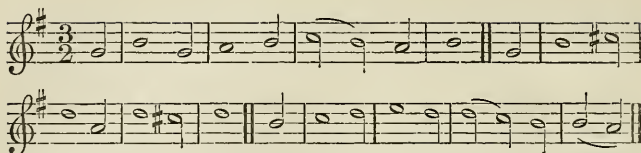
(2.) Modulation may be introduced abruptly instead of gradually. One of the periods of a melody may be in another key than the principal one without preparation of any sort. In the following example, the one period is in the key of c major, and the other commences without notice in its relative minor :—



(3.) Modulation which is gradually introduced towards the end of the period may continue throughout the whole of the period following, as in this example—



145. In every melody in which there is modulation, the original and main key of the piece must be restored before the termination, thus—



where the c^\sharp in the second period indicates modulation, and the c^\sharp at the beginning of the third the restoration of the original key. And however much or varied the modulation be, every melody must give to the ear a decided impression of its one predominant key : without this there would be no unity of musical effect.

146. Generally speaking, the keys into one or other of which the principal key of a piece modulates, are those which are immediately related to it. This is particularly the case in short or transient modulation, as in the above examples. And of the five keys related to any principal, the dominant and the relative minor, or the dominant and the relative major (if the key be minor), are those into which modulation most frequently takes place. In longer pieces, where the modulation happens generally in periods, it may take place into any key, though it very seldom does so into a key more than four degrees removed from the original one.—A very common modulation from a major or a minor key is to the minor or major key on the same note.

2. Determination of Keys.

147. To understand the structure of a melody, we must be able to determine the key in which it is ; or, if there is modulation in it, the principal key and the subordinate ones.

To determine the principal key of a piece, we look first at the signature of it. If we find a melody, *e.g.*, having no sharps or flats in signature, we know that it is in the key either of c major or of a minor ; if we find the signature with three sharps, we know that it is the key either of a major or f^\sharp minor ; if the signature has four flats, we know that the melody is either in the key of a^\flat major or in that of f minor. The signature, therefore, determines the key to be one or other of two ; it only remains to discover the *mode*. This may be done either by the ear or by the

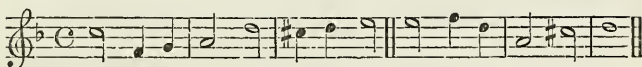
eye. The ear will have little difficulty in determining whether a phrase to which it has listened is in the major or the minor mode. But we must be able to determine this by the eye, before the ear has the opportunity of listening to the musical effect. For this purpose, we must examine the notation of the melody itself.

148. It is by inspection of the harmony of a piece that we can most safely and expeditiously determine the key of a piece ; and in practice it is almost always determined in this way. With reference to melody alone, the following directions are sufficient :—

(1.) The accidental raising, either by sharp or natural, of the seventh of the minor scale is a clear mark of the mode, thus—



and—

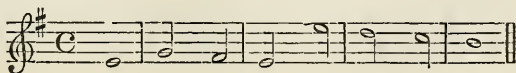


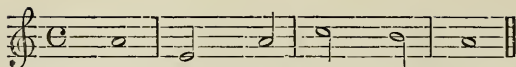
In the first example, the $g\sharp$ is not in the scale of c major, but is the raised seventh of the minor scale of a ; in the second the $c\sharp$ is the raised seventh of d minor, and does not occur in the scale of f major, the only other key admissible by the signature.

(2.) This sign of the mode may not always occur in the melody ; but, whether or not, there is another and unfailing means by which the mode may be determined. The tonic of the key, as the fundamental note of the whole melody, must occupy a prominent and emphatic position through the melody ; if the key is minor, the fact will at once appear by its tonic, which is the sixth note of the alternative major key, occurring with greater emphasis during the melody, than the sixth note would have were the key major. The parts of the melody that will best exhibit this are the opening and concluding phrases, as it is these parts which must give the strongest impression of the key of the piece.

149. This prominence shows itself in different ways, thus—

(1.) The supposed minor tonic may be the first note of all, and an accented one, as—





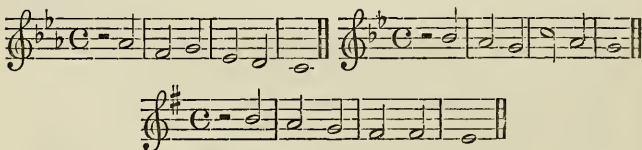
In the first example, the *e* is evidently by its position a ground note or tonic from which other intervals are to be reckoned, and the interval from *e* to *g* is the minor third or characteristic interval of the minor mode. The same remark applies to the interval between the first and fourth notes of the second example. The tonic is very strongly marked in both of these examples.

(2.) Where the tonic is not the first note, it may occur in an emphatic position in course of the period, as here—

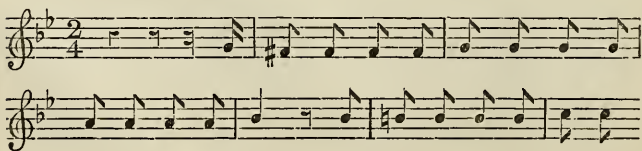


In the first of these, the tonic occurs twice in an accented position, and the characteristic third is apparent between the second and fourth notes of the period, though the interval *f-d* is a descending one.

(3.) The indications of mode afforded by the concluding phrase are generally clear. The final note is most commonly the tonic, thus—



150. Where there is modulation, the signature of the subordinate key is sometimes introduced as at the commencement of a piece, without any interruption of the time or rhythm, thus—





The mode of the subordinate key must be determined as before.¹

151. It is not common to introduce the signature in this way, however, unless the subordinate key is to prevail for a considerable time. In general, the sharps or flats belonging to the new key are introduced along with the notes to which they belong. These are the signs of modulation. The presence of a new scale is determined by its characteristic note; thus, the introduction of the key of *g* would be recognised by the occurrence of *f*♯; that of *d* by *c*♯, which carries the *f*♯ with it; that of *f* by the *b*♭; that of *b*♭ by the *e*♭, which carries *b*♭ along with it. Bearing in mind the order in which sharps and flats must occur, it is a matter of no difficulty to determine the key that has been introduced. Thus in the key of *c*, the melody may present the notes of *b*, *e*, *a*, and *d* flattened; by these the scale of *a*♭ is at once recognised. The mode must be determined by the same tests as before.

152. The important part which the seventh note of the scale plays in modulation must have been noticed. If we pass from the scale of *d* to that of *a*, or from any sharp scale to the sharp scale next above, the seventh note of the latter has to be sharpened to give the interval of semitone between the seventh and eighth, without which the scale is not formed. If we pass from the scale of *a* to that of *d*, or from any scale with flats to the flat scale next below it, we flatten the seventh of the former to remove the semitone which is characteristic of the scale. This operation with the seventh implies that the semitone between it and the eighth is strongly characteristic of the diatonic scale. And it is so; if the first seven notes be sounded, the seventh is felt to call strongly

¹ On the use of the double bar, see note, § 132.

for the eighth, or to lead immediately into it. For this reason it receives the name of the *leading note* of the scale.¹ From its character, it is necessary that it should appear in every piece of music ; either in the melody or in the harmony.²

153. A few examples of modulation are subjoined.

Ex. 1.



The first two phrases in this period are in the principal key of the melody, a major ; the third phrase introduces the note $d\sharp$ characteristic of the key of the dominant e major, in which the rest of the period is.

Ex. 2.

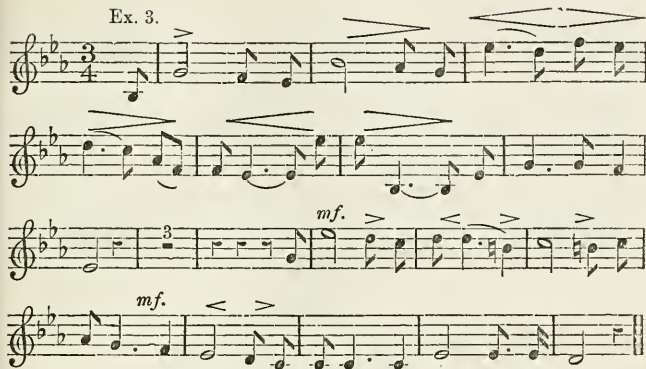


Of the four phrases in this period, the first three are in the principal key of the melody, c major ; the fourth, as appears from the characteristic note $d\sharp$, taken in conjunction with the g in the same bar and the final note e, is in the key of e minor ; in other words, the key of the relative minor of the dominant.

¹ The French name, 'ton sensible,' is perhaps still more suggestive of the peculiar character of this note.

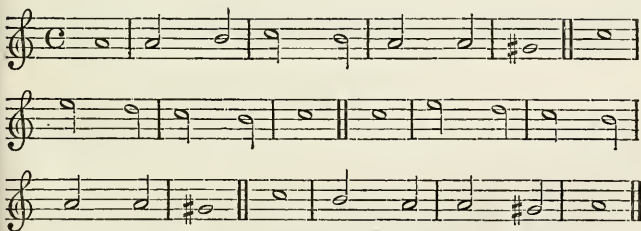
² That is, according to modern ideas of music. But the scale now accepted in modern art has not been universally employed. Thus the scale of the oldest Scottish and Irish national melodies has no semitones at all ; it is our diatonic scale, omitting the fourth and seventh. The succession of black notes on the pianoforte will exactly give it, played from the one above f to its octave.

Ex. 3.



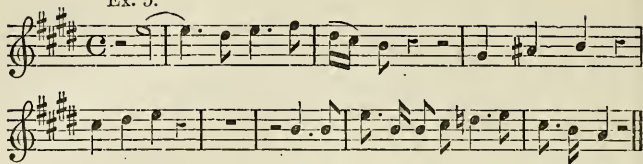
The two first phrases here are in the principal key of the melody, $e\flat$ major ; the third phrase is in the key of its relative minor c , as indicated by the characteristic note, $b\sharp$, and the following c ; the fourth phrase is in the original key, though, as often happens, the key cannot here be certainly determined from the melody alone.

Ex. 4.



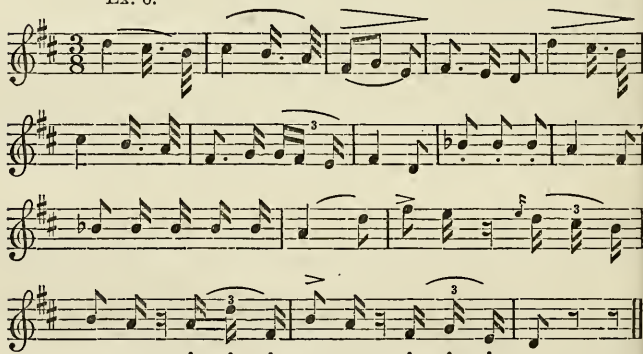
In this psalm-tune, the first period is in the key of a minor (the principal key), as shown by the first and last notes of it ; the second period is the key of its relative major c , as the observation of the first notes in each measure and the second last note of the period shows ; the third commences on the major key, and ends on the original minor key ; and the fourth period is entirely in the original key. See also Ex. 4, § 141, in which there is modulation from one minor key to the minor key of its dominant.

Ex. 5.



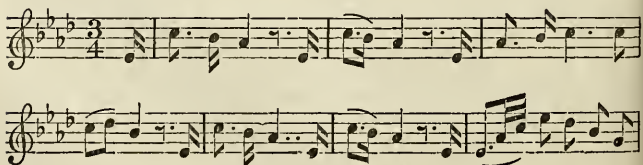
Here the first phrase is in the principal key, e major ; the second, commencing in that of its dominant, as shown by the characteristic note a \sharp , ends in same key ; the third goes into the key of a major, the subdominant of the principal, as shown by the depressing of the leading note, d \sharp , and the final note a. This modulation is an infrequent one.

Ex. 6.



The first two phrases are in the principal key d major ; the third is in the key of g minor, of which d is the dominant ; the fourth is in the principal key.

Ex. 7.

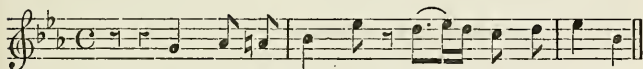




The first period has four phrases in $a\flat$ major ; two phrases of the second period are in $a\flat$ minor ; the remaining two are in the original key.


3. Passing Notes.

154. Two classes of notes have now been distinguished in the structure of melody ; those which are drawn from the principal scale of the piece, and those which are drawn from some scale or scales related to it, into which it modulates. There is another class of notes still to be distinguished from both of these ; notes which evidently do not belong to the principal scale, which seem to belong to a related scale, but which belong to neither. In the following phrase, *e.g.*,—



the third note, $a\sharp$, does not belong to the key of the melody, $e\flat$, and yet the whole phrase is in that key, there being no modulation. The phrase is substantially the same as if the two last notes of the first measure were the $a\flat$ of the key ; the $a\sharp$ is merely ornamental. Such notes are called *passing notes* ; from their being used merely in passing from one note in the key to another, and not being of the real structure of the melody. Regarding them it is to be remarked—(1.) That, from the nature of the case, they are introduced very sparingly, generally but one being used at a time : (2.) That, as their name denotes, they occur for the most part between two consecutive degrees of the scale of the melody : (3.) That they are determined to be passing notes by the absence of any modulation : and (4.) That, though a passing note is omitted, and the corresponding note in the scale be sounded in its place (as here, the $a\flat$ for the $a\sharp$), in the rendering of a melody,

(3)



(5)

Musical notation for exercise (5) in 2/4 time. The key signature has one flat (B-flat). The notation consists of two staves. The first staff contains the melody, and the second staff contains the bass line. The melody starts with a quarter note G4, followed by an eighth note A4, a quarter note Bb4, an eighth note A4, a quarter note G4, an eighth note F4, a quarter note E4, and an eighth note D4. The bass line starts with a quarter note D3, followed by an eighth note C3, a quarter note Bb2, an eighth note A2, a quarter note G2, an eighth note F2, a quarter note E2, and an eighth note D2. The exercise is marked with a '5' in a circle above the first staff.

The first staff of music is in 3/4 time, marked with a treble clef and a key signature of one flat (B-flat). The melody begins with a quarter note G4, followed by an eighth note A4, a quarter note B-flat4, and a quarter note A4. This is followed by a quarter rest, then a quarter note G4, a quarter note F4, and a quarter note E4. The next measure contains a quarter note D4, a quarter note C4, and a quarter note B-flat4. The final measure of the staff shows a quarter note A4, a quarter note G4, and a quarter note F4.

(6)


Musical notation for exercise (6) in G-flat major, 3/4 time. The melody consists of eighth and quarter notes, with some notes beamed together. The key signature has two flats (B-flat and E-flat). The exercise is marked with a circled number 6.

(7)

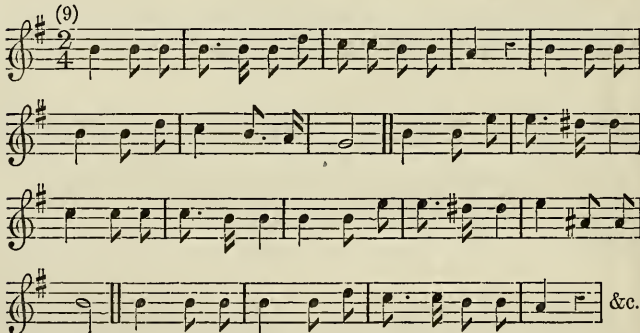


(8)

p




(9)



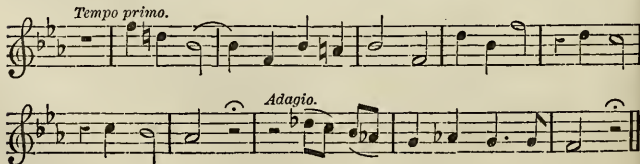
&c.

(10)

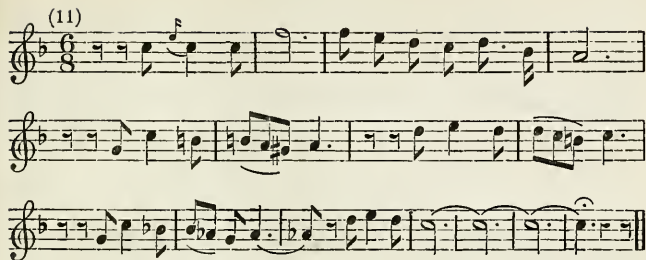


Adagio.

Tempo primo.



Adagio.

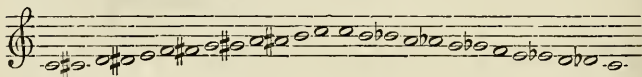


CHAPTER VII.

OTHER SCALES AND THEIR INTERVALS.

1. The Chromatic Scale.

155. IN the course of forming the different representations of the diatonic scale, all the notes of the original assumed scale-notation on *c* have appeared as modified either by sharps or flats : *d*, for example, has occurred as *d*[#] and *d*^b ; *g* as *g*[#] and as *g*^b, and so on. It is common, in representing these modifications at one view, to write the series thus—



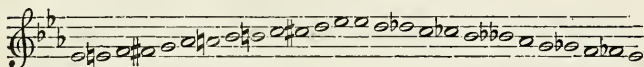
In the ascending series, the notes for the sounds intermediate to those of the diatonic scale are written with sharps ; in the descending series, with flats. Each series, containing thirteen degrees, and, therefore, twelve intervals, proceeds by semitones. Between the third and fourth, and between the seventh and eighth, of the diatonic scale, no intermediate note occurs, as semitones are already there. Such an arrangement of notes is called the *chromatic scale*.¹

In this scale there are two kinds of semitones ; the one is that between any note and the same note sharpened or flattened, as from *c* to *c*[#], or from *b* to *b*^b ; the other is that between two notes on different degrees of the staff, as from *c*[#] to *d*, *e* to *f*, *b*^b to *a*. The former is called the *chromatic semitone*, from being peculiar to the chromatic scale ; of it there are five instances in

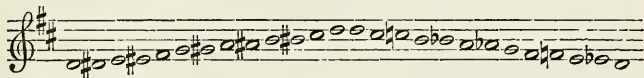
¹ Lit. *coloured*, from the Greek word for colour. This, like the term diatonic, was a term in Greek music, applied to the scale in which a majority of the intervals were semitones probably from the closer shades of tone which it exhibits.

both the ascending and the descending scales. The latter is called the diatonic semitone, from its occurring in the diatonic scale ; there are seven of these in each form of the chromatic scale. The diatonic semitone being somewhat greater than the chromatic, the terms major and minor are sometimes applied to them respectively.

156. The chromatic scale may be written from any note as tonic, just as the diatonic scale may ; thus on $e\flat$ —

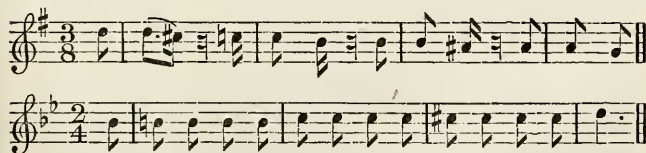


and on d —



To construct a chromatic scale on any tonic, write down first the diatonic scale on that tonic, and then insert the intermediate notes. In the ascending form of the scales with flat signatures, naturals will often occur in place of sharps ; and in descending scales with sharp signatures, they will often occur in place of flats. A similar scale may be written on any tonic in the minor mode.

157. Though this arrangement of notes is called a scale, it does not constitute a scale in the same sense as the diatonic scale. It is not used as a foundation for composition ; no melody is ever drawn from it alone. It is used only in conjunction with the diatonic, which is always the basis of the composition. In the following passages, where it seems to be used in the melody, the notes are in reality drawn from different diatonic scales, as for modulation :—

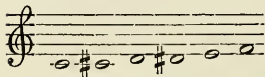


There are but two ways in which the chromatic scale is used in melody—(1.) Where one, two, or more passing notes are introduced in immediate succession or closely following each other : (2.) Where license is given to a performer to vary a particular

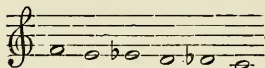
sound in the closing phrase of a melody ; which may be done by introducing the chromatic scale in whole or in part as a running passage. But in neither of these cases do the chromatic notes belong to the substantial structure of the melody.

2. The Enharmonic Scale.

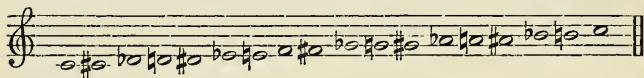
158. Why is the form of the chromatic scale ascending not the same as that on the descending scale ? Because the sounds themselves are not the same. The set of sounds indicated by—



is not the same as that indicated by—



The two intermediate notes in the one case are $c\sharp$ and $d\sharp$ in the other, $d\flat$ and $e\flat$, which are on different degrees of the staff. So that, in truth, the one mode which includes all the notes in the chromatic scale must be written thus—



and the same descending.

Here there are five instances of a new interval, greatly less than a semitone, of which $c\sharp-d\flat$ may be taken as the type. This subdivision of the diatonic semitone is called the *enharmonic* quarter tone, or *diesis*, as it is only in this scale, called the *enharmonic* scale,¹ that it occurs. This scale contains eighteen degrees, and consequently seventeen intervals (semitones and quarter tones); but the diatonic semitone is not entirely excluded. A similar scale may be formed in the minor mode.

¹ This is another term which has come down to us from ancient Greek music. It was applied to that scale which employed the diesis (division) or quarter-tone. The word itself consists of two parts, 'harmonic' and 'en,' the proposition 'in' taken in an intensive sense; so that *enharmonic* means highly musical. This would seem to show that it was the favourite scale amongst Greek writers; we know that they were in the habit of calling it simply 'harmonia.'

It may be observed that the scales to which we now apply the terms 'diatonic,' 'chromatic,' and 'enharmonic,' are very different from the scales which originally bore these names; though they have just sufficient resemblance to render our use of the terms intelligible.

159. This collection of notes is not a scale for the purposes of composition ; still less so than the chromatic series so called. No three of its intervals are to be found in succession in practical music. The quarter tone is never written in melody ; but it is sometimes performed in a certain species of modulation. Thus a piece might pass from the key of $g\flat$ with six flats to that of $f\sharp$ with six sharps, or from that of $c\sharp$ with seven sharps to that of $d\flat$ with five flats, by substituting the one of these two notes as tonic for the other. It is on account of this enharmonic relation that the scales with sharps are never carried beyond $c\sharp$: for $g\sharp$ with eight sharps, and $d\sharp$ with nine, can be more easily written as $a\flat$ with four flats, and $e\flat$ with three.

160. For ordinary purposes, sounds which differ only by the enharmonic quarter-tone are not distinguished from each other in pitch ; thus, on the piano finger-board $c\sharp$ and $d\flat$ are represented by the same black note. The names of these notes, however, must never be written for each other indifferently ; since, whatever expedient may be resorted to for convenience in practice, two such notes are theoretically quite distinct. To confound them would be much the same kind of error as if we were to write *you*, *yew*, *ewe*, indifferently for each other, because their sounds in spoken language are the same.

3. Intervals.

161. The intervals between the notes of the diatonic scale have already been given, § 10 ; but, as all the intervals represented on the chromatic series occur in music, we have to distinguish a much wider range of intervals.¹

To do this in the first instance from c as a tonic, we may ob-

¹ Here, and in § 10, the intervals have been distinguished according to the number of degrees between the notes representing their true sounds. An interval is also defined, however, by the fraction which expresses the relative number of the vibrations of its sounds in a given time. Thus the interval $c-c$, or the octave, is defined 2 or $\frac{2}{1}$, because the vibrations in the higher sound are two for every one of the lower ; the interval $c-g$, or major fifth, is defined $\frac{3}{2}$, because the vibrations in the higher sound are three for every two of the lower ; the interval $c-e$, or major third, is defined $\frac{4}{3}$, because the vibrations in the higher sound are four for every three of the lower ; and so on, as in the following series :—

c ,	d ,	e ,	f ,	g ,	a ,	b ,	c ,
1	$\frac{9}{8}$	$\frac{5}{4}$	$\frac{4}{3}$	$\frac{3}{2}$	$\frac{5}{3}$	$\frac{7}{4}$	2.

serve—(1.) That each *degree* of the diatonic scale appears under three modifications ; thus, the *c* is either *cb*, *c \flat* , or *c \sharp* ; the *g* is either *gb*, *g \flat* , or *g \sharp* , &c. ; and (2.) That it is from the *degrees* that the numerical designation of the intervals is reckoned. Thus *c-d* is a second, and from any of three *c*'s to any of the three *d*'s is also a second, though a modified one ; again, *c-a* is a sixth, so from any of the *c*'s to any of the *a*'s is also a sixth, though a modified one.

162. If we examine the different kinds of seconds, we shall find that they are four in number. Thus *c-d* is a tone ; *c-d \flat* , or *c \sharp -d*, is a semitone ; *c-d \sharp* , or *cb-d*, a tone and half ; *c \sharp -d \flat* , the enharmonic quarter tone. Again, *c-a* is a sixth of four tones and one semitone ; *c-ab*, or *c \sharp -a*, is a sixth of three tones and two semitones ; *c-a \sharp* , or *cb-a*, is a sixth of four tones and two semitones ; and *c \sharp -ab* is a sixth of two tones and three semitones. If both degrees are affected with the same accidental marks, no new interval arises ; thus *cb-ab*, or *c \sharp -a \sharp* , is the same as *c-a*. Every interval, equally with these two, may appear under four modifications, respectively termed *major*, *minor*, *augmented*, and *diminished*.

163. The intervals in the major diatonic scale are all major, thus—

<i>c - d</i> or <i>d - c</i> is a major second, containing two semitones.					
<i>c - e</i> or <i>e - c</i>	...	third,	...	four	...
<i>c - f</i> or <i>f - c</i>	...	fourth,	...	five	...
<i>c - g</i> or <i>g - c</i>	...	fifth,	...	seven	...
<i>c - a</i> or <i>a - c</i>	...	sixth,	...	nine	...
<i>c - b</i> or <i>b - c</i>	...	seventh,	...	eleven	...
<i>c - c</i> or <i>c - c</i>	...	octave,	...	twelve	...

If any of these intervals is diminished by a semitone, it becomes a minor interval, thus—

<i>c - d\flat</i> or <i>c\sharp - d</i> is a minor second, containing one semitone.					
<i>c - e\flat</i> or <i>c\sharp - e</i>	...	third,	...	three	...
<i>c - f\flat</i> or <i>c\sharp - f</i>	...	fourth,	...	four	...
<i>c - g\flat</i> or <i>c\sharp - g</i>	...	fifth,	...	six	...
<i>c - a\flat</i> or <i>c\sharp - a</i>	...	sixth,	...	eight	...
<i>c - b\flat</i> or <i>c\sharp - b</i>	...	seventh,	...	ten	...

Of the intervals in the minor scale, therefore, as reckoned from

the tonic, two are minor, the third and the sixth ; the others are major, as in the major scale.

If any of the major intervals is increased by a semitone, it becomes an augmented interval, thus—

c - d \sharp or c \flat - d,	is an augmented second, containing three semitones.
c - e \sharp or c \flat - e,	... third, ... five ...
c - f \sharp or c \flat - f,	... fourth, ... six ...
c - g \sharp or c \flat - g,	... fifth, ... eight ...
c - a \sharp or c \flat - a,	... sixth, ... ten ...
c - b \sharp or c \flat - b,	... seventh, ... twelve ...

None of these intervals occur in the major or minor scale.

If any of the minor intervals is diminished by a semitone, then it becomes a *diminished* interval, so called, thus—

c \sharp - d \flat or d \flat - c \sharp ,	is a diminished second,	not used.
c \sharp - e \flat or e \flat - c \sharp ,	... third, containing two semitones.	
c \sharp - f \flat or f \flat - c \sharp ,	... fourth, ... three ...	
c \sharp - g \flat or g \flat - c \sharp ,	... fifth, ... five ...	
c \sharp - a \flat or a \flat - c \sharp ,	... sixth, ... seven ...	
c \sharp - b \flat or b \flat - c \sharp ,	... seventh ... nine ...	

The unison and the octave do not change their character.¹

If we go beyond the octave, the ninths, tenths, &c., are reckoned precisely in the same way as the seconds, thirds, &c.

164. The intervals, as above given, must be carefully distinguished from others which seem to be equal to them, but which include a different number of degrees. Thus, c d \sharp is not to be considered as a minor third because it has a tone and half, which is the measurement of c to e \flat , the proper minor third. Nor is c-a \sharp to be considered a minor seventh, though it is enharmonically equal to c-b \flat , the real minor seventh. The numbers which designate the intervals are reckoned by the difference between the degrees occupied by the notes on the staff. Thus the most convenient way either to recognise or to construct any augmented or diminished interval is to do so through the major or minor interval of the same name.

¹ The term 'augmented' or 'extreme' unison is sometimes used to denote the interval c to c \sharp , and 'augmented' or 'extreme' octave to denote c to c \sharp . But these intervals, whilst they occur (especially the former) in melody, are not intervals of harmony; so that there is little occasion to use these awkward names.

165. The intervals, as above given, have been reckoned from *c* as a tonic ; but they may be reckoned—(1.) from any other tonic, as *g*, *e*, *b♭*, *a♭*, &c. ; (2.) from each other in succession, whatever note be assumed as tonic. Thus, reckoning from *a♭*, we should have—

<i>a♭</i> - <i>c</i>,	...	...	...	...	as major third.
<i>a♭</i> - <i>c♭</i>,	...	...	...	...	minor third.
<i>a♭</i> - <i>c♯</i>,	...	...	...	...	augmented third.
<i>a♭</i> - <i>c♭♭</i> , or <i>a♭</i> to <i>c♭</i>,	...	...	...	...	diminished third.

Again, reckoning the intervals within the major scale of *c*, but not from tonic, we have such as these—

<i>d</i> - <i>f</i>,	...	...	...	...	minor third,
<i>f</i> - <i>b</i>,	...	...	...	...	augmented fourth,
<i>b</i> - <i>f</i>,	...	...	...	...	minor fifth, and
<i>e</i> - <i>c</i>,	...	...	...	...	minor sixth.

166. What any interval wants of the octave is its complement, generally called its *inversion*. It will be observed that—

The inversion of the second is the seventh,

...	third	...	sixth,
...	fourth	...	fifth,
...	fifth	...	fourth,
...	sixth	...	third,
...	seventh	...	second.

And, further, that the character of the inverted interval is the opposite of the interval itself, except in the case of the fourth and fifth. Thus—

If the interval be major, the inversion is minor,

...	minor,	...	major,
...	augmented,	...	diminished,
...	diminished,	...	augmented. ¹

¹ It may be remarked here that different names are given to the intervals by different writers. Thus for major and minor, *sharp* and *flat* are sometimes used ; as when the major third and seventh are called the *sharp* third and seventh, and the minor third and seventh, the *flat* third and seventh. In the cases of the fourth and fifth, again, *perfect* and *imperfect* have been substituted for major and minor ; the major fourth and fifth being termed *perfect*, and the minor fourth and fifth being termed *imperfect*. For *augmented*, the phrase *extreme sharp* has been employed ; as when the augmented third, fifth, sixth, and octave have been termed *extreme sharp*, and the diminished third, fourth, fifth, seventh, and octave have been termed *extreme flat*. The octave is sometimes called the *perfect* octave, and the interval of the augmented fourth the *tritone*, from its containing three whole tones. The intervals above the octave have sometimes been spoken of as *compound* ; the ninth, for example, as the compound second, &c. The names of the intervals given in the text have the advantage of being systematic and intelligible ; and there is good authority for them. It is convenient to remark further here though it is anticipating, that the intervals were formerly

Exercises.

1. Write down on the staff the major intervals in succession, measured from the tonics, in the keys of *d*, *e*, *b b*, and *a b*, putting in the sharps and flats only as they are needed.

2. Write down on the staff, with their names, the intervals in the scale of *f* minor, *f#* minor, and *g#* minor, measured from the tonic, inserting sharps and flats as they are needed.

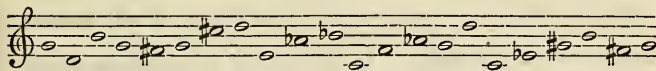
3. Write down on the staff six examples of each of the four kinds of intervals.

4. Commencing with *d*, and measuring in each case from that note, write down the following intervals :—a minor second, a major fourth, an augmented fifth, an augmented second, a major sixth, a minor third, a minor seventh, a diminished fifth, a major second, a unison.

5. Write down on the bass staff, commencing with *e b*, but reckoning from each new note successively, the following intervals :—a major third, a minor sixth, a minor second, a major fourth, an augmented second, a major seventh, a major fifth, a diminished second, a major third.

6. Write down on the staff all the different intervals exhibited in the major and minor scales, and add their names.

7. Write down the names of the intervals on this staff, reckoning—(1.) from the first note, and (2.) from each note in succession :—



8. Write down on the staff, and give the names of, the inversions of the intervals exhibited in the preceding exercise.

9. Write down the chromatic scale so called, ascending and descending, on *a*, *a b*, *b b*, and *b*.

10. Write minor and major thirds, major fifths, and leading notes, to *a*, *e*, *d#*, *b b*, *e b*, and *f b*.

spoken of as falling into two classes. The one was called *consonant*, from the agreeable nature of the effect when the sounds are given together, and included the octave, the major fifth, major fourth, the major and minor sixths, and the major and minor fourth; of these the first three were called *perfect consonances*, and the remaining four *imperfect*. The other intervals, from what was viewed as the less agreeable effect when their sounds were given together, were called *dissonant*, viz., the major and minor sevenths, the major and minor seconds, and still more the augmented and diminished intervals. But this distinction is of no importance.

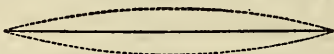
PART II.—HARMONY.

CHAPTER I.

NATURAL HARMONY OF THE DIATONIC MAJOR SCALE.

1. Chords in Fundamental Position.

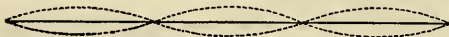
167. SUPPOSE we have a musical string of given length which produces a sound of definite pitch when vibrating along its whole length, thus—



; if we touch it at the middle point, and make it vibrate by halves, thus—



, it will produce a sound one octave higher. If we touch it at one of the points of trisection, so as to make it vibrate by thirds, thus—



, it will produce a sound a major fifth above the octave, that is, a twelfth above the sound of the string when vibrating as a whole. If we divide the string into four equal parts, so as to make it vibrate by fourths,

thus—



, it will give the double octave, just as the first bisection gave the single octave. If we divide it into five equal parts, so as to make it vibrate by fifths, it will give the major third above the double octave, or the seventeenth above the sound of the whole string. If we make it vibrate by sixths, it will produce a sound an octave above the sound which it gives when vibrating by thirds; that is, an octave above the twelfth, or a fifth above the double octave, which is the nineteenth above the sound of the whole string. If we make it vibrate by sevenths, it produces a sound at the distance of a minor seventh above the double octave; that is, the

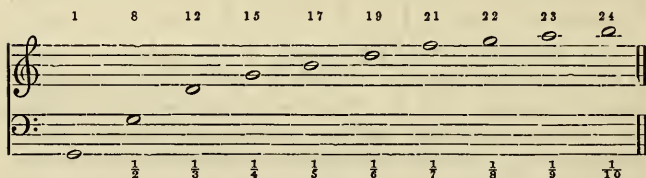
twenty-first above the sound of the whole string. If we make it vibrate by eighths, it will give the triple octave, or twenty-second. And if we make it vibrate by ninths (the trisection of thirds), it will give a sound as much above the sound produced by vibration in thirds, as that sound is above the sound produced by the vibration of the string in whole, viz., the twelfth above the twelfth; that is, the major second above the triple octave, or the twenty-third above the sound of the whole string. Suppose the sound of the string vibrating in whole is C, then the series of sounds resulting from the above process of subdivision is as follows:—



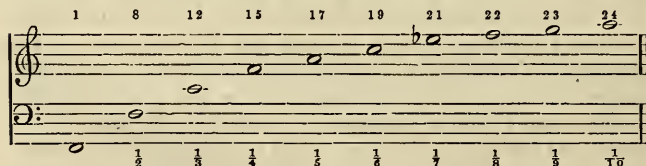
168. The sound of the whole string is the fundamental sound in the series; the others are its *natural harmonics*, so called from their harmonizing with it. The fundamental sound calls them into existence along with itself, as the ear may discern on listening attentively; for this reason the fundamental sound is spoken of as the *generating sound*. The sounds blend with the fundamental one more or less according to the order in which they arise from it. The first harmonic is the octave; which, as already seen, blends with it so completely as hardly to be distinguishable from it at first hearing. The next harmonic produced is the major fifth above that; the fifth is the sound which, next to the octave, blends most intimately with any bass, or contrasts the least with it. The next harmonic is the double octave; and it shows the closeness of relation between a sound and its octave that, of the three first subdivisions of the string, two give octaves to the fundamental sound. The next harmonic is the major third from the double octave; this is, therefore, the sound which, next to the octave and the major fifth, blends most completely with any bass; at the same time it is two removes further from the bass in natural derivation than the fifth is, so that it contrasts much more strongly with its bass than the fifth does. The next harmonic is the octave of the fifth; we should expect this sound to occur very soon in course of derivation, as the fifth is second in order of rela-

tion to the tonic. Regarding these harmonics we observe these two facts—(1.) That the degree in which each blends with the fundamental sound varies with the simplicity of the numerical ratio of its part of the string to the whole string; and (2.) That the first six divisions of the string, including the whole string itself, give only three different sounds, *c*, *e*, *g*; which do not arise consecutively from the fundamental one, but do so when reckoned from its double octave.

169. These results are obtained whatever the length of the string be. Take now a similar string, two-thirds the length of the former one, and divide it successively, so as to make it vibrate by halves, thirds, and so on, as before. The fundamental sound will be *G*, a major fifth¹ above the fundamental *C* of the former string, and the series of natural harmonics will be presented as follows :—



Its first six divisions give likewise but three different sounds, *g*, *b*, *d*, and these are got in the same order as before.—Again, take a similar string three-fourths the length of the first string, and make it vibrate by similar subdivisions in succession; the fundamental sound will be *F*, or major fourth from *C*, and its series of natural harmonics will be as follows :—



Its first six divisions give likewise but three sounds differently named, *f*, *a*, *c*, and these are got in the same order as before.

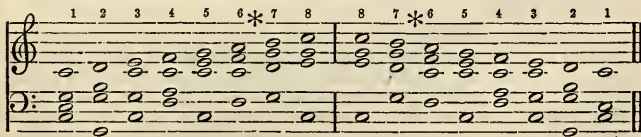
¹ One fifth only, not a twelfth, like the *g* which was got from the first string. The *g* in the former case was got from vibration in thirds; the string now supposed is two-thirds of the former, so that this *G* is an octave below the other.

170. We have now derived three groups of sounds ; each group containing three different sounds, a bass,¹ its major third, and its major fifth. The sounds in each group blend intimately with each other ; so that whenever one is heard it would be agreeable to hear the other two along with it. No other group of three can be found whose sounds blend so harmoniously into each other. The octave of the tonic may be added in each case, and there will be so many groups of four sounds in an intimately harmonious relation. Such a group of three is called the *major triad*, such a group of four the *major common chord* ; *major*, because the third is a major third, and *common*, because this combination of sounds occurs more frequently than any other.

171. The three major triads contain amongst them nine notes, or, excluding duplicates, seven ; which are the seven notes of the diatonic major scale. The annexed figure shows how this scale is drawn from the three triads :—



These three triads, then, give a harmonious accompaniment to the whole diatonic scale. The first, third, fifth, and eighth notes are drawn from the major triad of **c**, the tonic ; therefore that triad **will** harmonize with these four notes. The second and seventh notes are drawn from the major triad of **g**, the dominant ; therefore that triad harmonizes with these two notes. The fourth and sixth notes are drawn from the major triad of **f**, the subdominant ; therefore that triad harmonizes with these two notes. This figure represents the diatonic major scale with its natural harmonies :—



172. In the harmony of the scale now given, three other melodies are performed simultaneously with the scale-melody. It is this simultaneousness of different melodies related to each other

¹ The fundamental bass of a chord is sometimes called its *radix* or *root*.

that constitutes *harmony*¹ in the technical sense as distinct from *melody*. Each of the melodies is called a *part* of the harmony ; it is not indispensable that there should be four, it is enough that there be more than one. Where there are four parts, the highest and lowest are often called the extreme or *outer* parts ; the two others, the interior or *inner* parts.

173. The two duplicates out of the nine notes contained in the three major triads, are the black notes in the first figure of last section. The *g*, the fifth of the scale, is drawn from the chord of the tonic in preference to that of the dominant, and the octave *c* is drawn not from the fifth of the subdominant triad, but likewise from the triad of the tonic. In both cases the reason is one and the same : it is the scale of *c* that we are harmonizing, and to preserve the unity of that scale, wherever any of its notes are in the chord of the tonic, from that chord they should be drawn in order that they may be accompanied by that harmony. If, in this scale, the dominant triad were made to accompany the dominant note, it might be supposed that we were commencing a new scale on that note, the scale of *g* ; and if the subdominant triad were made to accompany the octave, or last note, the final harmony would not leave on the ear a definite impression of the scale of *c*.

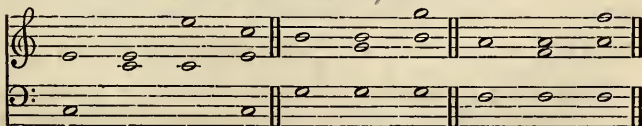
174. The notes forming the triad and the common chord may be differently combined. Thus the triad *c-e-g*, may occur as *c-g-e*, and the common chord may be similarly varied. The notes of the latter, too, may be doubled ; the duplication of any of the notes of the triad makes it cease to be a triad and become a common chord. The different forms of a chord *on the same bass* are called its different *positions*. The triad admits of two positions, and the common chord (without duplication) of three ; with duplication, the positions of the latter may be greatly varied, as in the following figure :—

¹ Or *counterpoint*. This term, meaning literally *point against point*, is explained by reference to the earliest way of writing music in parts, which was by points on the staves placed against each other. *Simple* or *plain* counterpoint consisted of two parts, in which but one note was set against another, the two being of equal value ; *florid* counterpoint admitted of two or more notes being set against one, to which they were collectively equivalent in value. When the parts might be inverted without affecting the correctness of the harmony, the composition is in *double counterpoint*. The term counterpoint is now used, however, as synonymous with harmony.—There is another term which is now used in the same way, viz., *thorough bass*. Strictly speaking, this denotes the art of playing chords from their representation by figures over their bass notes. This method of writing music has fallen into disuse ; so that the term, when used at all, is used loosely as equivalent to *harmony*.



In the natural harmony of the scale, fig., § 171, all the three positions of the common chord may be observed ; and also, by looking at the accompaniment alone, exclusive of the melody, the two positions of the triad.

175. The common chord may also be written with only two different notes, one being omitted. The octave is the note which blends most and contrasts least with the bass ; therefore $c-c$ is not sufficient as a form of the chord. The fifth, next to the octave, blends most and contrasts least with the bass, but it contrasts too little with it to give the chord its distinctive character ; therefore $c-g$ is not sufficient as a form of the chord. The third contrasts with the bass much more than the octave or the fifth ; it is therefore the note which gives its character to the chord. If it is present with the bass, the ear feels the impression of the whole chord ;¹ if it is omitted, the remaining notes do not convey the effect of the chord. Therefore $c-e$ is a sufficient form of the common chord, and it frequently occurs as such ; consequently, also, $c-e-c$. Thus the order of importance of the notes in the chord on any bass, is the reverse of that in which they are naturally derived from it. It appears, then, that a certain force of contrast is necessary to what we call harmony ; there may be too great a degree of similarity between sounds to constitute harmony. All the forms in this figure may be used :—



¹ Let it be again insisted on here that it is necessary for the student, not only to *understand* what is here described, but to have the full *musical conception* of it. His ear should

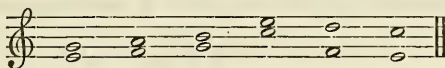
176. A succession of chords, as distinguished from a single chord, is called a *progression*; this may include two chords or more. It does not follow from the fact that a number of chords have each a good musical effect when performed separately, that their progression in series gives a good musical effect. There must be a certain relation between them; just as there must be a certain relation between single musical sounds in order to constitute a scale or melody. The whole progression of the harmony of the scale in fig., § 171, commends itself as satisfactory to the ear—which is the supreme judge in the matter—except that of the sixth to the seventh, marked with the asterisk. When the ear becomes accustomed to the effects of the different progressions, and can judge of them relatively, it is offended by this one, and by this one alone. Comparing it with the rest to see what is peculiar to it, we observe two things—(1.) That the interval of a major fifth between the two lowest parts of the sixth chord proceeds to a similar interval similarly placed in the following chord— $\frac{c}{f} - \frac{d}{g}$; and (2.) That the interval of an octave between the lowest and second highest parts of the one proceeds to a similar interval similarly placed in the other— $\frac{f}{f} - \frac{g}{g}$. The fault in the progression is connected with these two facts: the occurrence of *consecutive major fifths*, as it is called, and of *consecutive octaves*, between the same parts; but particularly with the former.

177. Consecutive major fifths are disagreeable, because they give in immediate succession impressions of two scales which have no close relation to each other. Thus, in scale-derivation, the scale of *c* stands between those of *f* and *g*; the scales of *f*, *c*, *g*, ascending above each other by major fifths. The scales of *f* and *g* are two degrees removed from each other; and the major chord on *f* as a tonic, which gives the impression of the scale of *f*, has no note in common with the major chord on *g* as a tonic, which gives the impression of the scale of *g*. When, therefore, as in fig., § 171, the intervals $\frac{c}{f}$ and $\frac{d}{g}$ are consecutive, they give a vague impression of a passage from one scale to another not in immediate connexion with it; which always carries with it the sense of

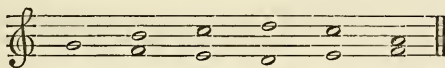
be able to recognise the various chords and harmonies that are described in their different positions; and he should be able to call up their effects when he sees their notes.

harshness.—Consecutive octaves are disallowed, not because their effect is unpleasant like that of consecutive fifths, but because they give the effect not so much of harmony as of melody. Their harmonic effect is meagre ; they fill up a place in the progression without adding to the fulness and richness of the music. They constitute poverty rather than error in harmony.—We have therefore to attend to this restriction in placing chords beside each other, that consecutive major fifths and consecutive octaves between the same parts are to be avoided.

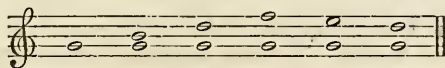
178. The consecutive intervals arise in this case (fig., § 171) from the bass ascending one degree, which causes the other parts of the chord to do the same. If any of the parts could be made to move in a different direction, the faults would be so far removed.—In the progression of parts in the harmony of the scale, three different kinds of motion occur. In the progression from the first chord to the second, the three upper parts ascend together : when any two parts move in the same direction, thus—



they are said to move in *parallel* or *similar motion*. In the same progression, the lowest part descends, and so moves in an opposite direction from the others : when two parts move in opposite directions, as thus—

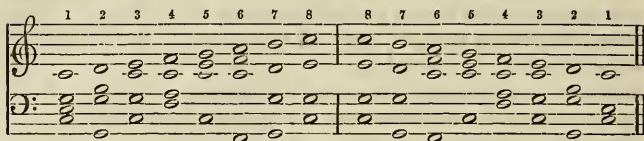


they are said to move in *contrary motion*. Again; in the progression from the third to the fourth chord, one of the parts remains on the same note, neither ascending nor descending, while the others either ascend or descend : when one of two parts remains at the same pitch, and the other either ascends or descends, as thus—

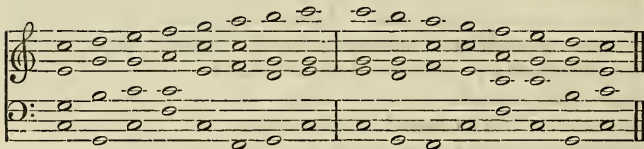


they are said to move in *oblique motion*.—The first remedy for the consecutive fifths and octaves in the progression from the sixth to the seventh chord in the natural harmony of the scale is by the introduction of contrary motion in that progression instead of similar ; for which room must be made by taking the bass notes

an octave lower. This figure exhibits the scale with its fundamental harmonies free from fault in any progression :¹—



If the scale in the melody be written an octave higher, the intermediate parts may be written at wider intervals from each other, thus—



The harmony here is said to be *open* ; in the former example, to be *close*.²

Exercises.

1. Write down major triads on the tonics of the thirteen major scales, using the treble staff alone, inserting flats or sharps as they are required, and writing each triad in two positions.
2. Write down major common chords on these tonics, using the treble and bass staves, inserting flats or sharps as they are required, and writing each chord in three positions.
3. Write down all the scales with sharps or flats accompanied by their fundamental harmonies, putting the sharps or flats in signature, alternately in close and open harmony.

2. Inversions of the Common Chord.

179. The three notes of the major triad harmonize in whatever order they are written. We have seen that it admits of two positions on the bass note ; but any of its three notes may occupy the

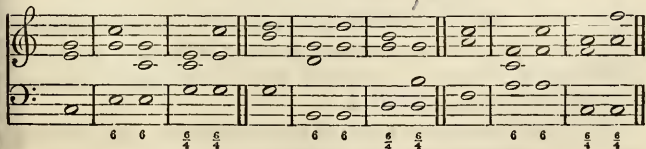
¹ The progression is not *perfectly* satisfactory in this form ; there is, however, a first approximation to correctness.

² When the several parts of a composition are written on separate staves above each other, measure for measure, so as to present to the eye the whole of the composition as actually to be performed, it is said to be written in *score*.

lowest place. Thus the triad, c-e-g, may occur in the form, e-g-c, or g-c-e; it is the same triad in all these forms. When any other note than the proper bass is the lowest, the triad is said to be *inverted*; and that peculiar order of it is called an *inversion*.

Thus, the *first inversion* of the triad, $\begin{smallmatrix} g\ 5, \\ e\ 3, \\ c\ 1, \end{smallmatrix}$ is e-g-c; in which the

bass note is raised so as to leave the third in the lowest place; this inversion has two positions, just as the triad itself has, viz., e-g-c, and e-c-g, in which one note is at the interval of a minor third, and the other at the interval of a major sixth.¹ The *second inversion* gives the forms, g-c-e, and g-e-c, in which one note is a major fourth, and the other a major sixth,¹ above the lowest. No other inversions are possible. These two inversions are sometimes indicated by figuring placed below the bass staff on which the lowest note is written. The first inversion, which, if fully figured, would be figured $\frac{6}{3}$, is indicated by the figure 6 alone; that being the only note in which the order of its notes differs from their order in the fundamental position of the triad; hence this inversion is called the chord of the sixth. The first inversion may be written in two parts alone, the bass and the sixth: the third (fifth in fundamental position of triad) may be omitted; the sixth can not, as it is the note from which the chord takes its name. The second inversion is figured $\frac{6}{4}$, and is called the chord of the sixth and fourth; this chord must have all the three notes written. The fundamental position of the triad is not commonly figured at all, except for some special reason, see fig. 2, § 180; when a note occurs in the bass without figuring, it is assumed to be the bass of the common chord.—Where the chords are written fully on the staves, the figuring is not used; this is used only when the bass part alone, or the bass and highest parts, are written for the whole chord. The following are the inversions of the triads of the tonic, dominant, and subdominant, in different positions:—



¹ Either simply, or with the interval of an octave added.

180. These inversions may be introduced in different ways into the scale-harmony. In the first instance, they are very serviceable in removing still more completely the effect of consecutive major fifths and consecutive octaves in the progression from the sixth to the seventh. Thus we may make the harmony of the seventh of the scale the second inversion of the chord of the dominant, which gives a contrary motion between the bass and the higher parts, and allows of the bass being kept an octave higher than in fig., § 171 ; or, retaining the fundamental position of the chord of the dominant attached to the seventh of the scale, we may use the first inversion of the chord of the subdominant to accompany the sixth of the scale, which gives a contrary motion between the bass and the higher parts in another way :—



Inversions may be still further used to give variety of effect to the harmony of the scale ; as in the two following examples :—



In the second last chord of each descending scale in these examples, the common chord on the dominant has its figuring $\frac{5}{3}$; on account of the second inversion of chord of tonic occurring on the same bass note immediately before it.

181. In arranging the parts of such a harmony, the following *rules of progression* must be regarded :—

(1.) Consecutive major fifths in similar motion are to be avoided. This rule does not prevent a major and a minor fifth from occurring consecutively, as— $\frac{g-f}{c-b}$.

(2.) Consecutive octaves are to be avoided. The only exception is when the same chord is struck twice in succession, or when in different chords the *same* octave is repeated, as in the progression from the third to the second in the first descending scale, fig., § 180. The octaves objected to must be between *different parts* in the harmony : there would be no objection, *e.g.*, to a double bass part in which one voice sung the same bass part as the other, only an octave lower ; this is merely a strengthening of that part in the harmony ; and, similarly, if an instrument accompanied the treble part in an octave higher, this would not be consecutive¹ octaves.

(3.) In progression from one chord to another, it always contributes to smoothness of progression to have one note common to both, where this is attainable.

(4.) Whatever be the interval between the lowest and the highest parts, the inner parts should be distributed equably over that interval ; crowding neither towards the lowest nor towards the highest. The effect of such crowding is indistinctness and a want of balance in the harmony.

(5.) The limitations under which the parts of a chord should be doubled or omitted (see § 175), must be strictly observed. The most characteristic note in the chord should never be omitted, and in the general case should not be doubled. If it be omitted, the character of the chord is destroyed ; and if doubled, the balance of parts in the chord is apt to be upset. The octave from the fundamental bass or root may be added or omitted at pleasure ; the fifth may be freely doubled or omitted ; but it is the third that is characteristic of the chord.

¹ The law with respect to consecutive fifths and octaves might be still further defined. Thus the effect of consecutive fifths is sometimes conveyed by a progression of a major sixth to a major fifth ; which really implies consecutive fifths, and should therefore be avoided. On the other hand, consecutive fifths may be sometimes found used on basses not fundamental, which are not liable to the objection urged in § 177, and which, as they do not give the effect complained of, are allowable. So with regard to octaves, the ear tells us that a progression from a seventh to an octave sometimes implies consecutive octaves, and should therefore be avoided. But though this, and indeed all other laws of progression, may be found violated in particular circumstances, the learner should meanwhile accept the laws as given in the text, and, when he comes upon any violation of them in a passage, seek for an explanation of the fact from the passage itself.

(6.) Each of the parts in the harmony should be made as melodious in its own sequence as possible. For which purpose the more difficult and irregular skips, which seldom occur in good melody, should be avoided ; and the notes in the scale which have a preference for a particular progression, should, in the general case, be allowed to have it ; *e.g.*, the leading note goes by decided preference into the tonic, and the fourth goes by preference to the third.

Exercises.

1. Write down first and second inversions of the major triad on the tonics of the thirteen major scales, using the treble staff alone, writing sharps or flats as they are required, and writing each inversion in two positions.

2. Write down the first and second inversions of the major common chord on these tonics ; using the treble and bass staves, inserting sharps or flats as required, and writing each inversion in three positions.

3. Transpose the first scale-harmony, *fig.*, § 180, into the keys of *g*, *a*, *b*, *f*, *e*♭, and *d*♭ major, putting the sharps or flats in signature, and writing the parts alternately in close and in open harmony.

4. Transpose the second scale-harmony, *fig.*, § 180, into the keys of *d*, *e*, *f*♯, *b*♭, *a*♭ major, putting the sharps or flats in signature, and writing the parts alternately in close and in open harmony.

3. The Scale as subject in the Bass and other parts.

182. The scale-harmony has hitherto been given as accompaniment to the scale in the highest or treble part. The scale may be written, however, as the melody in any of the four parts, and be accompanied by its harmony. To avoid confusion of terms, the principal melody, or part which is to be harmonized, is called the *subject*. Suppose that the scale is written in the bass part as the subject, and that we wish to accompany it with the three chords of its natural harmony ; it is harmonized according to the laws already explained.

The first chord of the tonic will stand on its fundamental bass ; the second chord, the dominant, must be used in second inversion, as its fifth is in the bass ; the third chord, the tonic, must be used in first inversion, as its third is in the bass ; the fourth, the subdominant, will stand on its fundamental bass ; the fifth, the tonic,

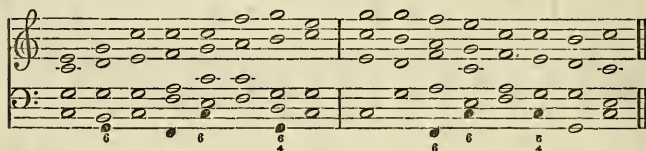
will be used in second inversion, as its fifth is in the bass ; the sixth, the subdominant, will be used in first inversion, as its third is in the bass ; the seventh, the dominant, will be used in first inversion, as its third is in the bass ; and the final chord, the tonic, will stand on its fundamental bass. The upper part, which was fixed before, is now indeterminate ; the inner parts are indeterminate within the same limits as before. Of the various forms in which the accompaniment may be written, the two following are given as examples. The black notes represent the understood fundamental basses ; so that it will be seen that in this exercise we are, in truth, only writing the three major chords upon their fundamental basses, *but in different positions* from those in which they were when the upper part was restricted to the order of the diatonic scale :—

183. Suppose the scale written in the second lowest, or tenor part, as subject. The first chord must always stand on its fundamental bass to give a full and firm impression of the key ; hence the bass and the tenor notes must, in this case, be the same. The second chord, the dominant, may be either in fundamental position or in first inversion, since either its root or its third may be written in the bass ; the third chord, the tonic, must be either in fundamental position or in second inversion (unless its bass be written very low), as its third is in the tenor ; the fourth chord, the subdominant, may be written either fundamentally, or in either of its inversions. The subsequent chords have the same choice, except the seventh, the dominant, which cannot be written in first inversion, as its third (the leading note) has a decided preference for progression to the tonic, and consecutive octaves would be in-

troduced in this way ; and except the final chord, which must always be written in fundamental position, for the reason assigned in the case of the first chord. Various accompaniments may be written to the scale as subject in this part, since the upper part is indeterminate ; only the general laws of progression (§ 181) must be followed. Here is one example, with the fundamental basses noted as before :—



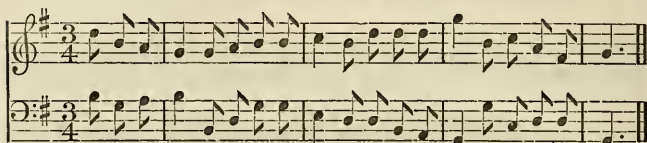
184. Here is an example of the scale, as subject in the second highest or alto part, accompanied with its natural harmonies ; it is sufficient to remark that these are constructed by a similar mode of calculation, as in the former case :—



Exercises.

1. Transpose the natural harmony of the scale as subject in the bass (as given in the first fig., § 182), into the keys of **d** and **e** major, writing it both in close and in open form.
2. Transpose the second harmony in the same figure into the keys of **b b** and **a b** major, in close and in open form.
3. Write the natural harmony of the scale as subject in bass, with a different melody or upper part from these in the preceding examples.
4. Transpose the natural harmony of the scale as subject in the tenor part, fig., § 183, into the keys of **g**, **d**, and **b** major.
5. Write the natural harmony of the scale, as subject in tenor, in a different form from that of last exercise.
6. Transpose the natural harmony of the scale as subject in alto, fig., § 184, into the keys of **f**, **b b**, and **a b** major.
7. Write the natural harmony of the scale, as subject in alto, in a different form from that of last exercise.

186. To fill up with the natural harmony the inner parts in a piece of which the outer parts are given, determine the root of each chord, observe what notes are wanting to complete the chord, and put these down in the order of their importance, subject to the rules of progression already given. Thus, to fill up the parts in this piece—

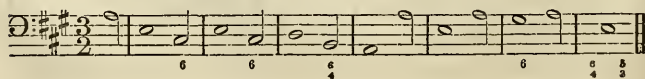


We observe that the tonic is *g*, the dominant *d*, and the subdominant *c*; that in the first chord the third and fifth are already present, and that, therefore, the octave of the root is inserted by preference, and for the other note, that which will suit best the following chord: the second chord is the tonic in fundamental position, and will be best filled by having the fifth and octave of root inserted; in the third chord, as the given parts are both the fifth from the root, the parts required are the octave of the root and the third; and so on, thus—



It is allowable to write an occasional chord in three parts; or two chords consecutively, when the second is the repetition of the first; and sometimes even two different chords consecutively.

187. To add the accompaniment to a figured bass, determine the root and the remaining notes of each chord as before, and observe the laws of progression. The melody is, in this case, indeterminate; so that more than one may be written to the figured bass. Thus, let the subject be as follows:—



and both of the accompaniments annexed answer to the figuring :—

(1)

(2)

188. In accompanying a melody with which no figuring is given, there is more room for the exercise of judgment and taste in the use of inversions. These have the effect of relieving the monotony of fundamental basses ; but too many of them should not be used. As a general rule, chords at the beginning or the end of a period should be written in fundamental position ; the chord at the beginning of the first period, and the chord at the end of the last, should always be so. As the effect of the chord, when it is in fundamental position, is more powerful than when it is in its first inversion, this position is generally preferred in the strong parts of the measures ; and the inversion is used to lead into these. The second inversion is still weaker than the first, and is oftenest found on the fifth of the tonic, immediately followed by the chord of the dominant on the same bass, as in last example ; sometimes on the fifth of the subdominant which immediately passes into chord of tonic in fundamental position ; very rarely otherwise. This form of the chord can neither begin nor end a period.—It is hardly necessary to add that, when the subject is given in the highest part, no part of the accompaniment should cross it ; which it does when any of its notes are higher than the corresponding notes of the subject : this is virtually to alter the subject. In whatever part the subject is given, it must be kept strictly to that part.—Here are two melodies to be accompanied with the natural harmony of the scale ; the notes of each are

numbered according to their scale-position ; the first is accompanied with chords all in fundamental position, the second has some inversions introduced :—

The musical score is written in D major (two sharps: F# and C#) and consists of three systems of staves. The first system shows the scale in 4/4 time, with the first staff in treble clef and the second in bass clef. The second system shows the scale in 3/2 time, with the first staff in treble clef and the second in bass clef. The third system shows the scale in 3/4 time, with the first staff in treble clef and the second in bass clef. Fingerings are indicated by numbers 1-5 above the notes. Chord positions and inversions are indicated by numbers 1-6 below the bass staff notes.

System 1 (4/4 time):

- Staff 1 (Treble): D4, E4, F#4, G4, A4, B4, C#5, D5.
- Staff 2 (Bass): D3, E3, F#3, G3, A3, B3, C#4, D4.

System 2 (3/2 time):

- Staff 1 (Treble): D4, E4, F#4, G4, A4, B4, C#5, D5.
- Staff 2 (Bass): D3, E3, F#3, G3, A3, B3, C#4, D4.

System 3 (3/4 time):

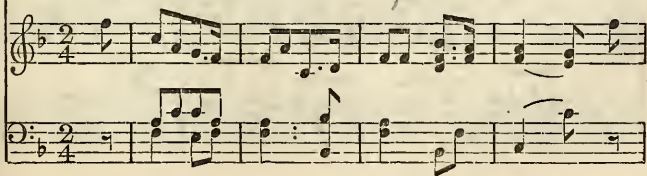
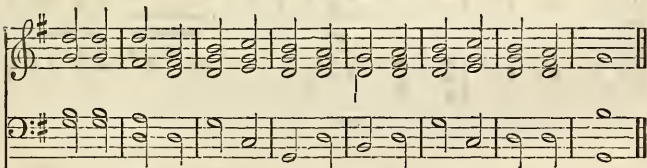
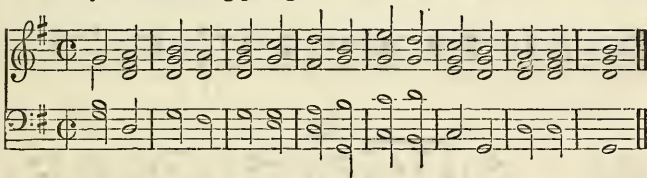
- Staff 1 (Treble): D4, E4, F#4, G4, A4, B4, C#5, D5.
- Staff 2 (Bass): D3, E3, F#3, G3, A3, B3, C#4, D4.

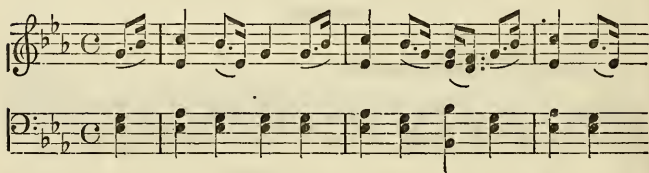


The following examples are very short, because, though there are pieces of music constructed with the natural harmonies alone, their melodies almost always introduce passing notes. In regular four-part harmony, the natural chords are almost never employed alone, but are mingled up with harmonies to be explained hereafter. In working them the laws of progression should be carefully observed.

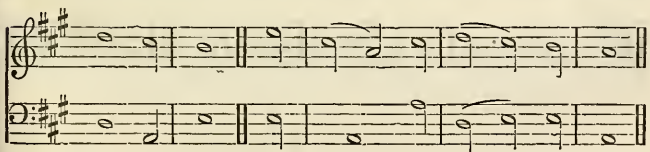
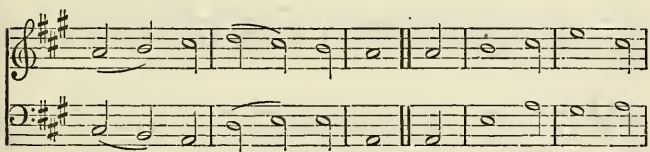
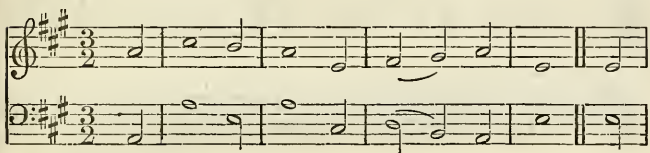
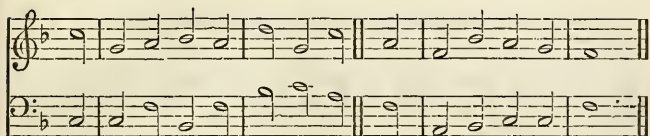
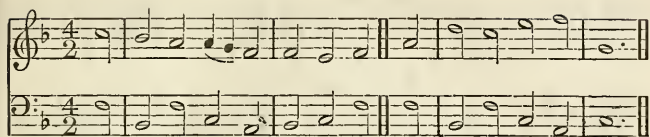
Exercises.

1. Analyse the following passage :—

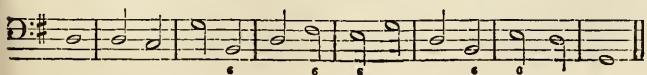
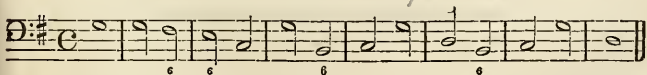




2. Fill up the inner parts in the following passages :—

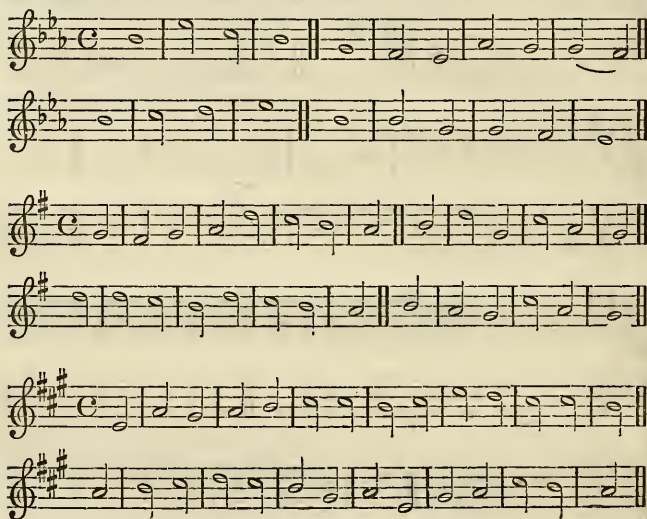


3. Add an accompaniment of three parts to the following figured bass :—





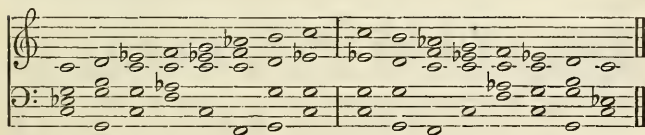
4. Add an accompaniment of three parts to the following subjects in the treble part :—



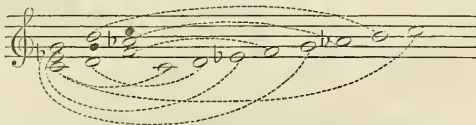
CHAPTER II.

HARMONY OF THE MINOR SCALE.

189. A REFERENCE to § 101 will show that the minor scale is formed from the major on the same tonic by flattening the third and the sixth notes. If, in the harmony of the major scale, we flatten the third and the sixth notes of the scale wherever they occur, we get the harmony of the minor scale on the same note. Thus, from the harmony of the scale of *c* major, § 178, we derive the harmony of the scale of *c* minor by flattening the *e* and the *a* in all the chords :—



190. The minor scale is thus, like the major, drawn from three chords, thus—



and is therefore harmonized by these three chords ; the first, third, fifth, and eighth by the chord of the tonic ; the second and seventh by that of the dominant ; and the fourth and sixth by that of the subdominant. The minor scale and its harmony are not obtained from the string like the major ; but are derived artificially from the major by a modification of its intervals. While, therefore, this harmony is the fundamental one to the minor scale, it is not a

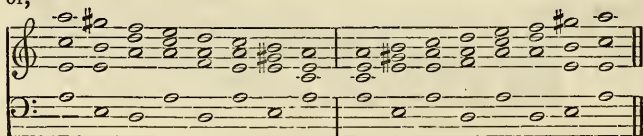
natural harmony, in the sense in which the term was applied to the harmony of the major scale.

191. Two of the three chords of this scale differ from the chords in the major scales as to their intervals. The triad on the tonic is constituted by a third and fifth on a bass note, and so is the triad on the subdominant ; but *the third is now minor*, thus, $c-e\flat-g$, and $f-a\flat-c$; they are therefore called *minor triads* or *minor common chords*. The dominant triad is major, as in the major scale, thus, $g-b-d$. This triad occurs twice in the ascending, and twice in the descending, scale. In the latter, when accompanying the seventh, the triad is frequently allowed to remain minor, the sharp being removed from the seventh, because the chord is then not used as a dominant chord leading to the tonic, and consequently the seventh is not a leading note, so that in this position the necessity for its being sharpened is for the time removed. But in the other three cases in which this triad occurs, it is major, because it is there strictly a dominant triad, and its third a leading note.

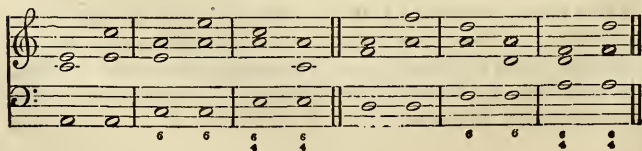
192. To take the relative minor scale of c major, which is a minor, its harmony is as follows, by transposition of that in the preceding figure :—



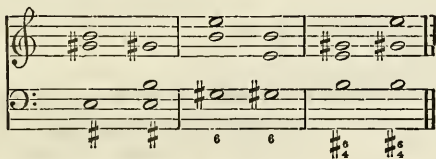
or,



193. The minor triads, like the major ones, are used in much variety of position on their basses. They are also used in inversion, thus—



194. The chord of the dominant is used like the corresponding chord in the major scale ; for it is itself a major chord.¹ But from the accidental sharp occurring with its third, its figuring requires particular notice. When the chord itself is used in fundamental position, and when this is to be indicated by figuring, the sharp of the third is written below the staff to prevent its being confounded with the minor chord on the same note ; and its first inversion (with the sharp note in the bass) is figured 6, like other first inversions. But its second inversion requires a special mark to denote the sharp before the sixth, and so to prevent its being confounded with the same inversion of the minor triad on the same note ; for this purpose it is figured either $\sharp 6_4$, or with a small stroke drawn through the upper figure, thus, $\frac{6}{4}$.



195. The inversions of the minor triad may be used to vary the accompaniment of the minor scale, subject to the laws of progression before described ; as in the annexed examples :—



1 The raising of the seventh note in the minor scale to give a satisfactory *leading note* has already been adverted to, § 105. This leading note is the third above the dominant; and it is because the dominant is the chord that naturally resolves itself into the tonic, that this major third is required as leading note. It is for a less satisfactory reason that the sixth in

196. The scale may be taken as subject in any of the other parts, and harmonized according to the same considerations as regulate the harmonizing of the major scale in similar position ; as in the annexed examples :—

Two systems of musical notation for Exercise 196. Each system consists of a treble and bass staff. The first system shows a treble staff with chords and a bass staff with single notes. The second system shows both treble and bass staves with chords. Fingering numbers (1-5) are written below the notes.

197. The harmony of the scale is to be applied to the analysis and construction of the harmonic accompaniments of melodies drawn from the scale, according to the same rules as in the case of the major mode. But the three primary chords of the minor scale are used alone in accompanying melody still less frequently than those of the major.

Exercises.

1. Write minor triads on **d**, **c**, **e**, and **f[#]**, on the treble staff, and inserting flats or sharps as required.
2. Write minor common chords on **g**, **f**, and **b**, using the bass and treble staves, and inserting flats or sharps as required.
3. Add the harmonic accompaniment to the minor scales of **d**, **e**, **f**, and **g**

the scale is sometimes sharpened ; but as the common form of the minor scale is often used in composition, its harmonic accompaniment is here given :—

Musical notation for the harmonic accompaniment of the minor scale, showing a treble and bass staff with chords and single notes.

Inversions may be used as in the other forms of scale.

as melody, writing the chords in fundamental position, and the signatures after the clef.

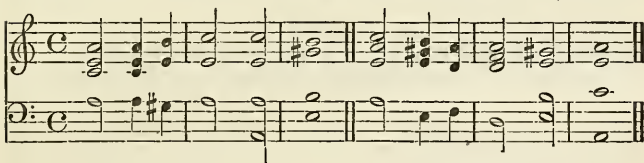
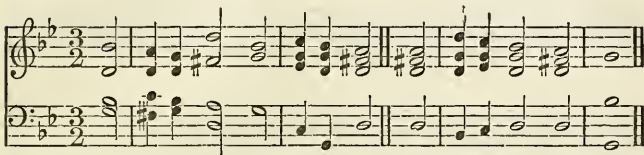
4. Write and figure the two inversions of the minor triads in Ex. 1, using the double staff, and inserting flats or sharps as required.

5. Add the harmonic accompaniment to the minor scales of *c*, *b*, and *f* \sharp , using inversions.

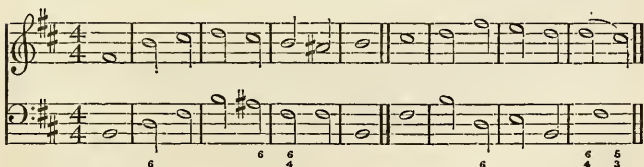
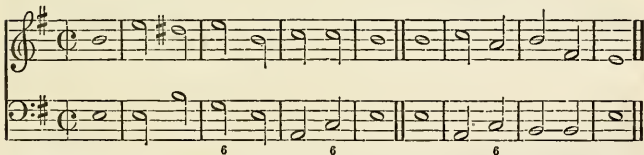
6. Add the harmonic accompaniment to the minor scales of *d* and *g*, as subject in the bass.

7. Add the harmonic accompaniment to the scales of *a* and *e*, taken as subject in the alto and tenor respectively,

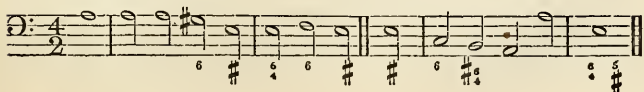
8. Analyse the following examples :—



9. Fill up the two inner parts in the following examples :—

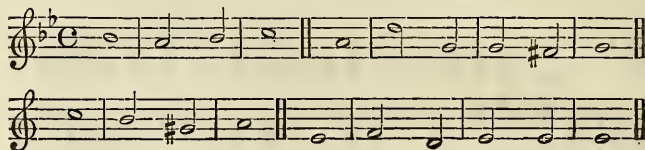


10. Add an accompaniment to the following figured basses :—





11. Add an accompaniment to the following melodies:—

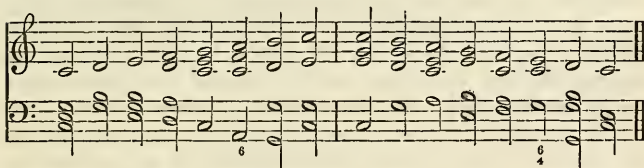


CHAPTER III.

MAJOR SCALES WITH MINOR CHORDS, AND MINOR SCALES
WITH MAJOR CHORDS.

198. THE harmony of the minor scale, as has been seen, contains two instances of a major chord. The presence of some chords of the opposite mode from that in which the scale is does not interfere with the mode of the scale.

199. The major scale may have amongst its accompanying chords some borrowed from the relative minor scale ; as thus—



in which the relative minor chord of the dominant, and the relative minor of the subdominant, occur in the ascending scale, and the relative minor chord of the tonic, and the relative minor chord of the dominant, occur in the descending scale ; or thus—



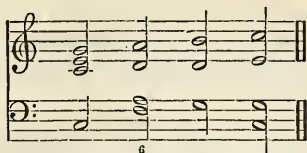
in which the relative minor chord of the tonic occurs twice in the ascending scale, and the relative minor chords of the dominant and the tonic occur in the descending.

200. On the use of these minor chords, four remarks may be made :—(1.) They are three in number for any one scale, the three relative minors of the natural major chords. These minor chords alone can be formed out of the notes in the scale to which they are attached ; any others would require notes not in that scale, and would therefore be out of the key. (2.) These minor chords may respectively occur in the places of the scale where their relative majors occur ; but they are not restricted to these places. Thus, in the first scale above, the fourth note ascending, whose natural harmony is the chord of the subdominant, is accompanied by the relative minor of that chord ; but the third note ascending, whose natural accompaniment is the chord of the tonic, is accompanied by the relative minor chord of the dominant. (3.) In accompanying the major scale with some of these chords, care must be taken to preserve its character and unity as a major scale. Every note cannot have a minor chord accompanying ; this would be to make the scale minor. There are three chords which must always be kept major : the first, which is the chord that gives the opening impression of the mode ; and the two last, the tonic with its preceding dominant, which are the chords that leave upon the ear the impression of the mode after the scale has been heard. But, these three excepted, there is no other chord accompanying the scale which may not be exchanged for a minor, either singly or altogether. (4.) As to which of these relative minor chords should be employed in particular places, taste must decide. The eye may judge so far, in the first instance, as to whether a succession of chords be smooth, by observing whether the laws of progression are strictly followed ; then from the eye there is an appeal to the ear, which is the final judge. What it disapproves should be modified.¹

201. When these relative minor chords are introduced into the accompaniment of the major scale, they are generally used in fundamental position. There is one exception in the case of the relative minor of the subdominant ; which is as frequently used in first inversion as in fundamental position. It occurs very frequently ; and for the most part resolving into the chord of the dominant, or the second inversion of the chord of the tonic,² thus,

¹ Of course it is taken for granted that the ear is being educated throughout the entire course of instruction : this has been already insisted on.

² See note to § 218.



202. The change afforded by the introduction of the minor chords is so grateful that they are used in almost every piece of regular harmony, however short. The following period is accompanied first with major chords exclusively, and then with major and minor ones ; it exhibits palpably the difference in effect, and the circumstances in which minor chords are commonly introduced :—



The analysis of the second period is as follows :—

Number.	Chord.	Inversion.
1.	Chord of tonic.	... ..
2.	Chord of tonic.	... ..
3.	Chord of tonic relative minor.	... ..
4.	Chord of subdominant.	... ..
5.	Chord of relative minor of subdominant.	... ..
6.	Chord of tonic.	2d-fig. $\frac{3}{4}$.
7.	Chord of dominant.	... ..
8.	Chord of tonic.	... ..

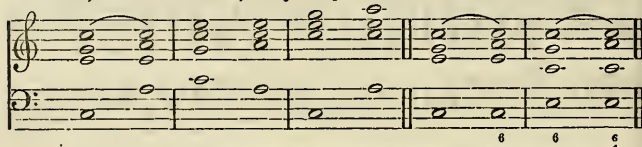
In this example the minor chords occur in the weak parts of the measure ; they may occur, however, in the strong parts.

In the following period, which is similar in structure to the former one, a minor chord is introduced only in one of the two corresponding places. And the period is shown for the purpose of remarking that it is not introduced into the other, because it

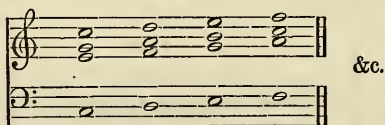
would require the note in the melody to be changed, as it is not in the minor chord that would be introduced. We are not at liberty to change the melody or subject, for the sake of introducing a minor chord.



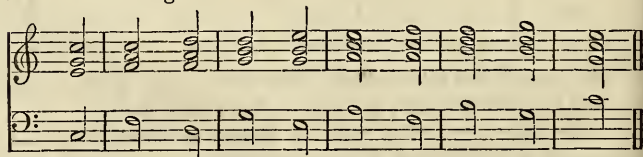
203. The progression from any major chord to its relative minor is exceedingly smooth : it will be observed that when both are written in fundamental position, they have two notes in common ; and that, with inversion, they may have but one note different.



204. The scale, taken as subject, either in the highest or in the lowest part, cannot be accompanied with the chords of which its eight notes are the basses in succession, thus—



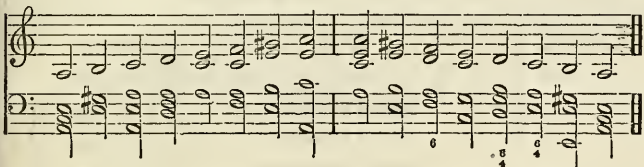
This would introduce consecutive intervals at every step. If these chords are to be used, it can only be in a *sequence*, or series of symmetrical progression, which introduces them at alternate steps, like the following :—



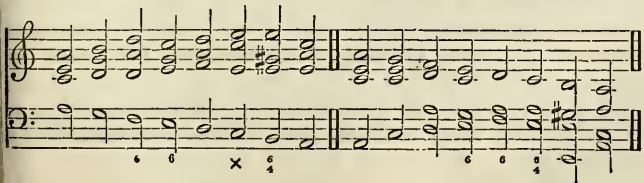
Or, using the inversions of these chords, we get a sequence of chords of the sixth :



205. Just as the harmony of the major scale is relieved by the introduction of the relative minors of its natural chords, so the harmony of the minor scale may be relieved by the occasional introduction of the relative majors of the two minor chords (tonic and subdominant) with which it is accompanied. Regarding these it is enough to say that they are introduced according to the same rules as have just been given for introducing minor chords into the major scale :—



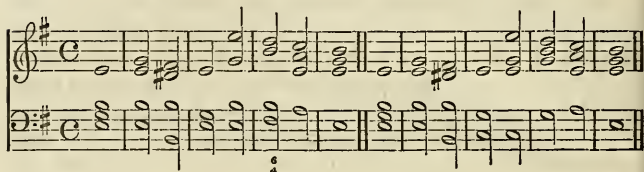
In the first of the two following harmonies of the descending scale, the chord of the dominant from the relative major scale is used to accompany the seventh note,¹ as being the relative major



¹ In the descending scale, the chord accompanying the seventh is not used as a dominant chord (since it is not followed by that of the tonic), and hence admits of this licence.

of the minor triad (non-dominant) on e exhibited in the harmony of the descending scale, fig., note, § 194. In the second, the relative major chord of the tonic is introduced, with the same note of the scale in melody.

206. The following period, harmonized in two ways, illustrates the manner of introducing these major chords into a melody drawn from a minor scale, and the effect of their introduction :—



The analysis of the second period is as follows :—

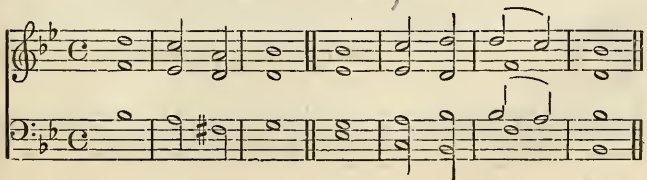
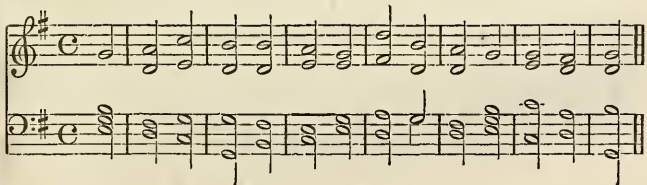
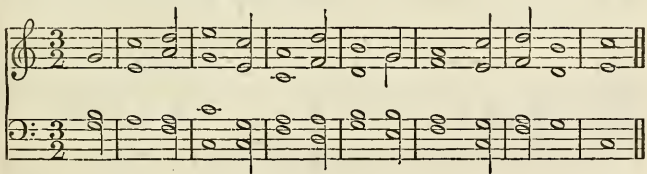
Number.	Chord.	Inversion.
1.	Chord of tonic.	... ..
2.	Chord of tonic.	... ..
3.	Chord of dominant.	... ..
4.	Chord of subdominant relative major.	... ..
5.	Chord of subdominant relative major.	... ..
6.	Chord of tonic relative major.	... ..
7.	Chord of subdominant.	... ..
8.	Chord of tonic.	... ..

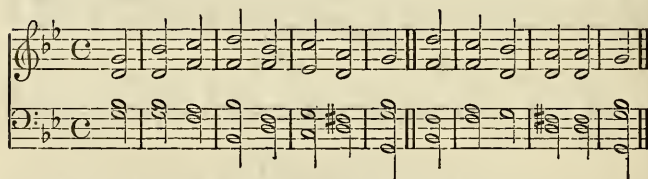
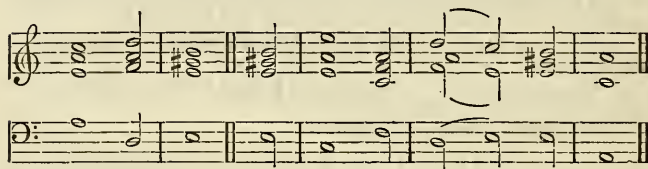
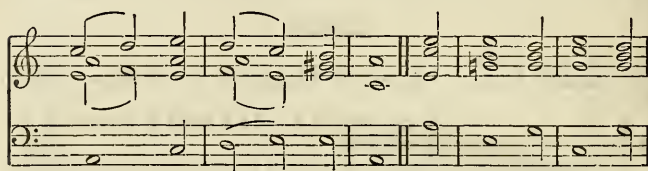
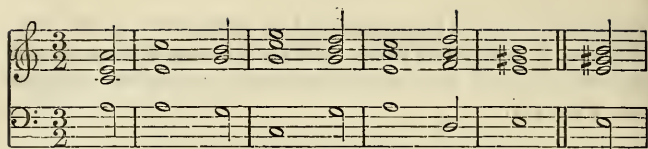
207. It thus appears that there are six related triads with which a melody drawn from any one scale, major or minor, may be accompanied ; the chord of its own tonic, dominant, and subdominant, with their relatives. And if we reckon the alternative major or minor chord attached to the seventh of the descending minor scale, there are seven. Considering that all these chords may be used in different positions, and in different inversions, it is evident that there is already much choice in accompanying a simple melody. It must be observed that, as the notes in all these related chords are in the scale of the tonic, so the chords themselves are all in one key ; and a melody which uses only

these chords for its accompaniment is harmonized in one key. Whereas if chords with other notes are introduced, they are not relatives to that of the tonic of the melody, and the harmony goes out of the key.

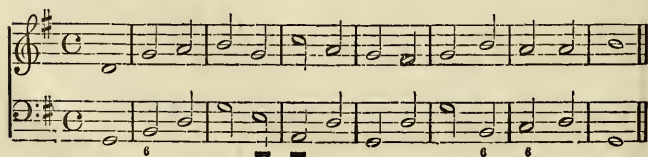
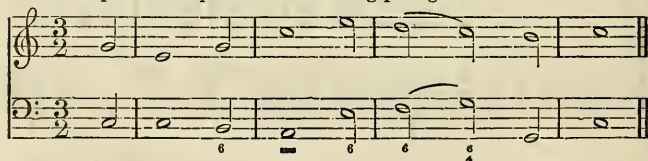
Exercises.

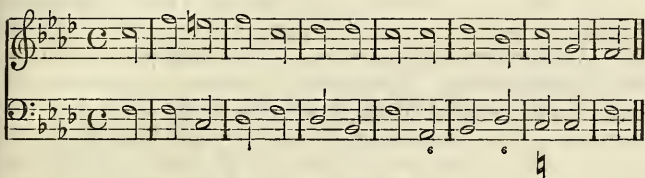
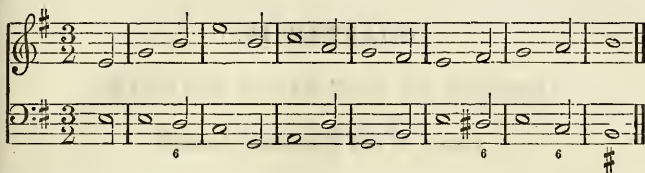
1. Give the harmony of the scales of **f** and **g** major, introducing some minor chords.
2. Give the harmony of the scales of **d** and **b \flat** major as subjects in the bass, introducing some minor chords.
3. Write down the progression of a major to its relative minor chord, in various positions, both fundamental and inverted, and inserting flats or sharps as required ; taking as tonics for major chords, **d**, **e \flat** , **a**, and **b**.
4. Write the harmony of the scales of **e** and **d** minor, introducing some major chords.
5. Write the harmony of the scales of **f \sharp** and **g** minor as subjects in the bass, introducing some major chords.
6. Analyse the following passages :—



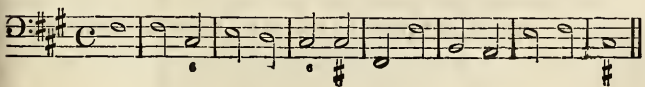
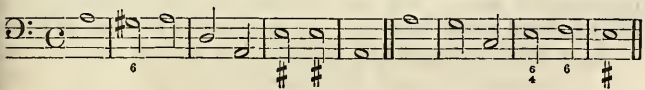
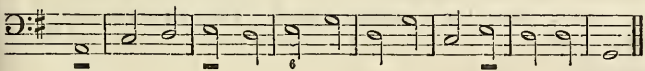
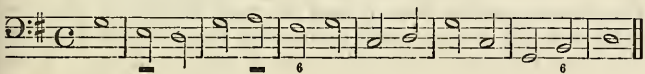


7. Fill up the inner parts in the following passages:—





8. Add the accompaniment to the following figured basses :—

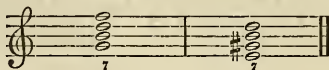


CHAPTER IV.

CHORDS OF THE MINOR SEVENTH.

1. Chord of the Dominant Seventh.

208. THE major common chord is the chord which first results from the division of the string into parts, as in fig., § 167. A division of it into two, three, four, five, and six equal parts gives only three different notes. If we divide it into seven equal parts, and make the whole string vibrate in sevenths, we get a new note, the twenty-first from the root, or a minor seventh from its double octave. This is the note, therefore, which, next to the fifth and third, harmonizes most with the tonic; at the same time, being two removes further from it than the third, it contrasts with the tonic in a still more powerful degree than that note, and is a very characteristic note of the combination in which it occurs. When derived from the *c* string, it is *b*♭; when from the *f* string, it is *e*♭; when from the *g* string, it is *f*. Thus in only one case is the seventh in the scale of *c* the tonic; and in only one chord, viz., that of the dominant, can it be used in the harmonic accompaniment of a scale. It is therefore called the dominant seventh; and the chord which consists of the dominant of the scale as bass, its major third, its major fifth, and its minor seventh, is called, by way of eminence, the *chord of the dominant seventh*.¹ It consists of the dominant major triad, with the addition of a minor third; and, when figured, is figured by a 7 or ♭7 below the staff, thus—

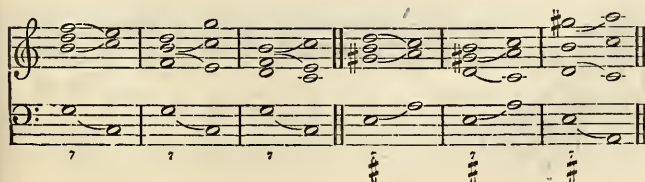


¹ This chord, and the chords to be afterwards described, are often distinguished from the preceding chords or natural harmonies of the scale by being called 'discords.' The distinction, however, between *concord* and *discord* is arbitrary and unnecessary.

209. This chord, being a dominant chord, can occur as accompaniment only to the second and seventh notes of the scale. In the latter place it is particularly serviceable, as it affords a progression from the sixth to the seventh which does away with consecutive octaves; and not only does away with them to the eye, but, from the powerfully dissonant character of the chord, very much obliterates the effect of both of the consecutive intervals from the ear. It is therefore constantly used in this progression, as thus—



210. The rules for the progression of parts, or, as it is called, the *resolution*, of this chord may be inferred from the general rules already given, § 181. Premising that, as a dominant chord, it is most naturally followed by the tonic, its bass will rise a fourth or descend a fifth to be the bass of the tonic chord. Its third and seventh, which are its two characteristic notes, are most naturally and generally resolved into the notes which are nearest them in the tonic chord; the third, which is the leading note of the scale, ascending a semitone into the octave of the tonic, and the seventh being strongly appropriative of the third of the tonic, which is the note a semitone below it in the major mode and a tone in the minor. The fifth, not being a characteristic note, is indifferent as to its progression, and may either ascend or descend. The resolution of the chord, both in the major and the minor modes, is shown in this figure :—



211. As this chord has four different notes, exclusive of the octave of its bass, it has three inversions, thus—

Exercise 211 shows three inversions of the dominant seventh chord. The first system is in G major (G-B-D-F#) and the second system is in A major (A-C-E-G#). The chords are shown in root position and first, second, and third inversions. Fingerings are indicated by numbers 1-5 below the notes.

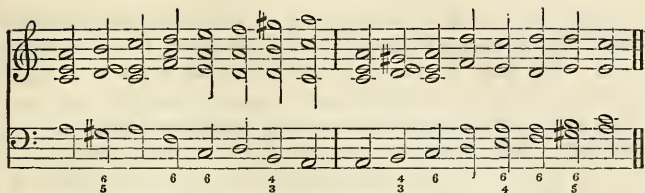
The chords which result from inversion are distinguished either as first, second, or third inversions of the chord of the dominant seventh ; or by their figuring as chord of the sixth and fifth, chord of the fourth and third, and chord of the second, respectively.

212. These inversions are resolved into the chord of the tonic according to the same rules of progression as the chord in its fundamental position ; the chord of the second will thus resolve into the first inversion of the tonic, thus—

Exercise 212 shows the resolution of the second inversion of the dominant seventh chord (D-F#-A-C) into the first inversion of the tonic chord (F#-A-C-E) in G major. The exercise is written in two systems, each with a treble and bass staff. Fingerings are indicated by numbers 1-5 below the notes.

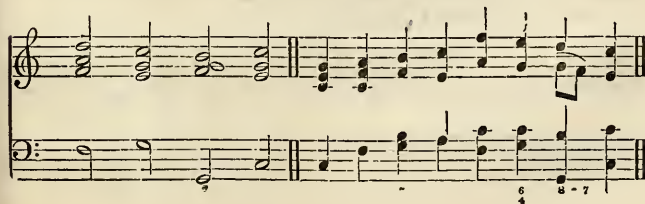
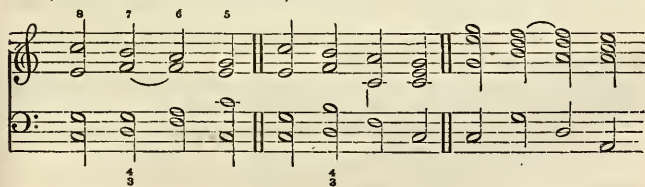
213. A very grateful variety of effect is given to the harmony of the scales, when inversions of this chord of the seventh are introduced, thus—

Exercise 213 shows the introduction of inversions of the dominant seventh chord into a scale. The exercise is written in two systems, each with a treble and bass staff. The scale is in G major. The dominant seventh chord and its inversions are introduced at various points in the scale. Fingerings are indicated by numbers 1-5 below the notes.

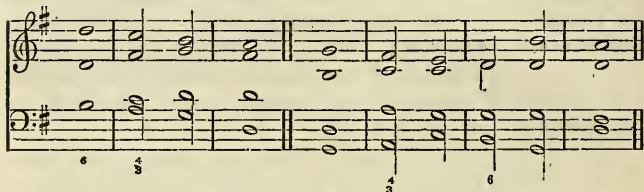


In these examples it will be observed that, in some cases where the chord of the dominant seventh is used, the seventh occurs in the previous chord—in which case it is said to be *prepared*, and that in others it does not. Whilst its effect is very pleasing in either way, the progression is the smoother in the former case, the seventh being a connecting note between its own chord and the one preceding; see rule 3, § 181.

214. The natural and most common progression of the chord of the dominant seventh is as has been described; but other progressions are also found. Not to speak at present of those which introduce notes out of the key, the following deviations from the general rule, or *licenses*, as they are sometimes technically termed, take place within the key:—(1.) The seventh and third being resolved as before, the chord as a whole may resolve not into the tonic, but into the relative minor of the tonic, so that the bass shall ascend a tone to the next bass. (2.) The seventh may be sustained into the next chord, as when the chord of the subdominant, or of its relative minor, follows.



215. The rules as to the omission and doubling of notes in this chord may be inferred from the description which has been given of it. The fifth may be most freely omitted or doubled; then the bass; the third and the seventh cannot be omitted, and, from their decided preference for a special resolution, should not be doubled. But the seventh may sometimes be found doubled by way of license; in which case one of them has its resolution in the regular way, the other most commonly, though not always, ascends a tone.



The chord in its fullest form has five notes, one being the octave to the bass; but it is rarely used without the omission of one of these notes.

Exercises.

1. Write down in different positions on the treble staff, and on the treble and bass staves together, using flats and sharps as required, the chords of the dominant seventh in the keys of **d**, **a**, **b**, **f**, and **e** major; and in the keys of **e**, **b**, **c**#, **d**, **g**, and **c** minor.

2. Write down, in a similar manner, the inversions of these, with the resolution of each into the tonic.

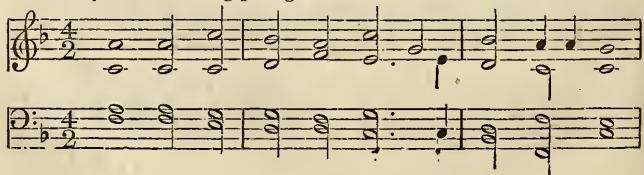
3. Write down an accompaniment to the ascending scales of **g** and **f** major, introducing inversions of this chord.

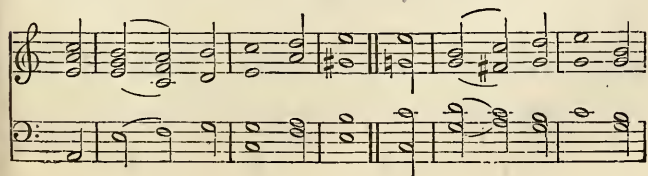
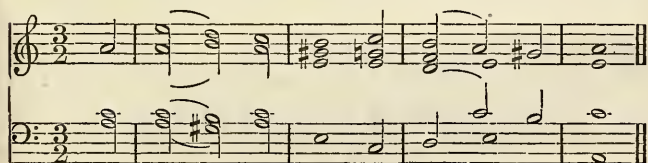
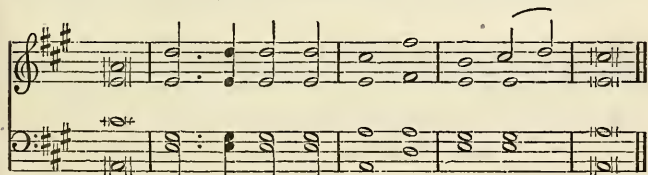
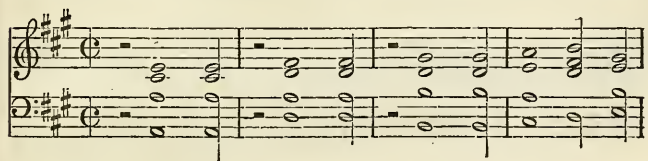
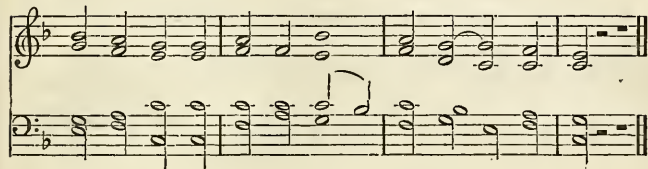
4. Write down an accompaniment to the ascending scales of **d** and **b** major as subjects in the bass, introducing such inversions.

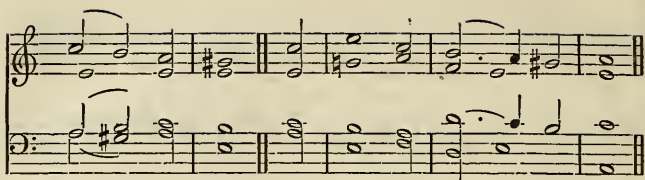
5. Write an accompaniment to the ascending scales of **e** and **d** minor, introducing inversions of this chord.

6. Write an accompaniment to the ascending scales of **b** and **g** minor as subjects in the bass, introducing such inversions.

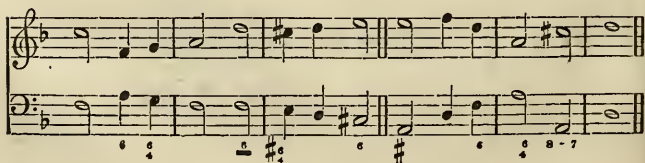
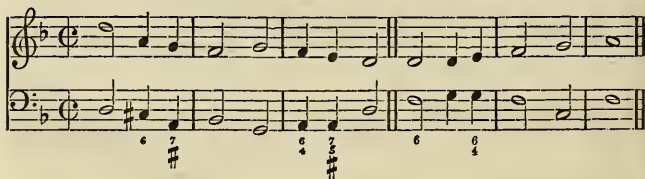
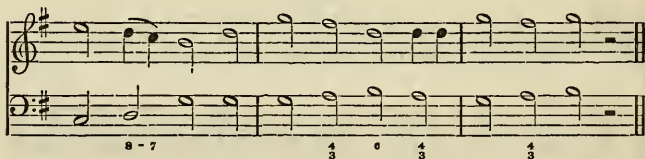
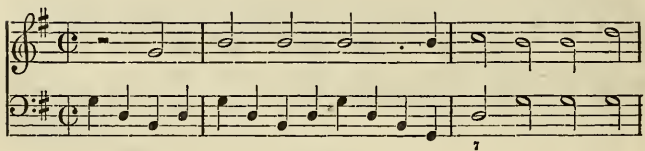
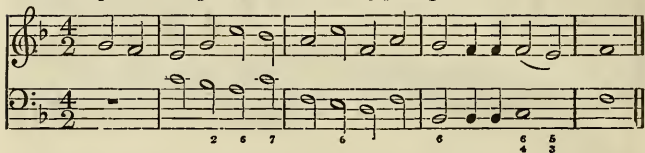
7. Analyse the following passages:—



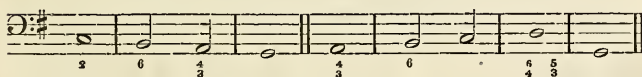
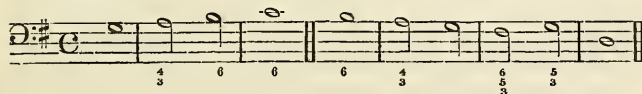
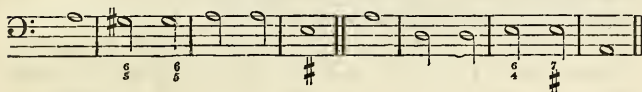
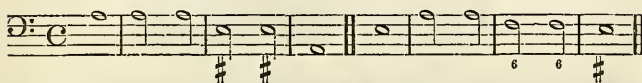
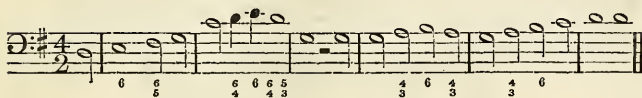
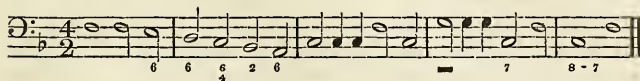
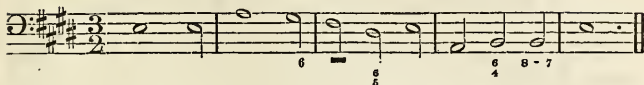




8. Fill up the inner parts in the following passages:—



9. Write an accompaniment to the following figured basses:—



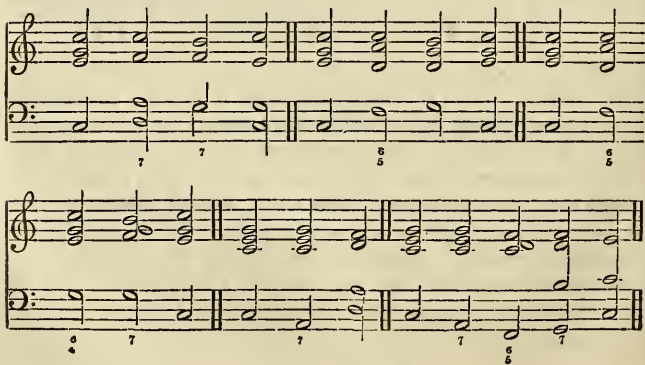
216. If we leave out the bass note in the chord of the dominant seventh, we get a triad of the notes, b, d, and f; consisting of two minor thirds, and called the diminished triad. In the major mode, it is formed on the seventh of the scale, the only note which has not yet been used as the bass of a triad; and, in the minor mode, on the second. This chord is very often used, but it is for the most part as the first inversion of the chord of the dominant seventh. When the three notes occur without the determinate resolution into the chord of the dominant, they are to be viewed as a simple triad; but this triad is not of frequent occurrence.

2. Chord of the Seventh on the Minor Triad.

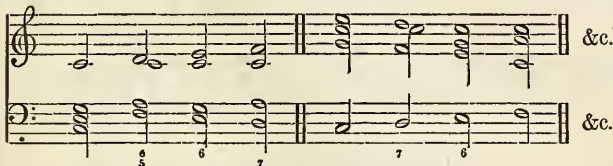
217. There are several chords of the seventh in use, formed artificially from that of the dominant seventh by a modification of one of its three intervals. Amongst these may be noticed here the chord of the minor seventh on the minor triad, formed by depressing the third of the original chord of the seventh a semitone just as the minor common chord is formed from the major. This new chord of seventh may be completely in the key of *c*, thus—



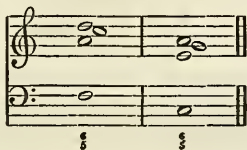
It is formed on the second or supertonic of the major scale, *i.e.*, on the relative minor of the subdominant (*d-f-a-c*) ; on the third or relative minor of the dominant (*e-g-b-d*) ; and on the sixth or relative minor of the tonic (*a-c-e-g*). In the first case it is most commonly followed by the dominant chord, with or without *its* seventh ; less frequently by the second inversion of the tonic. In the latter cases, it is commonly followed by the relative minor chord of the subdominant, in fundamental position or in first inversion ; which may also present the seventh, so as to give two such chords in succession, thus :—



This chord may be introduced in the accompaniment of the scale, thus :—

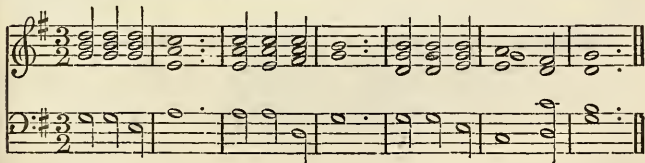


218. The chord has inversions like the chord of the dominant seventh, and figured in the same way ; but it is generally employed either in its fundamental position, or in its first inversion.¹

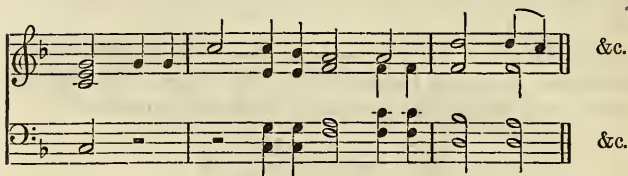
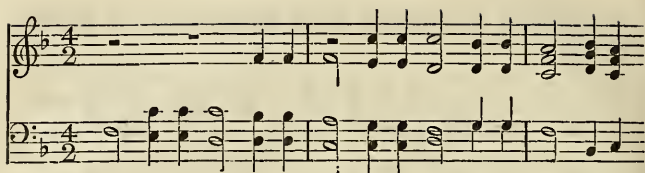


Exercises.

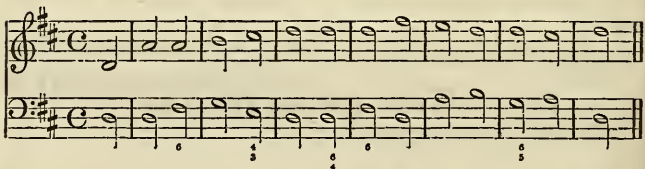
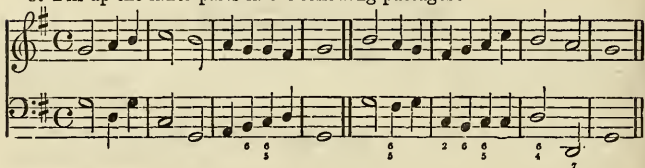
1. Write this chord of the seventh in the major scales of *g*, *a*, *a*, *f*, *b*♭, and *e*♭.
2. Write the chord and its first inversion in the scales of *g*, *a*, and *e*♭, resolving into the chord of the dominant of these scales.
3. Write the chord and its first inversion in the scales of *f*, *b*♭, and *d*, resolving into the second inversion of the tonic of these scales.
4. Analyse the following passages :—



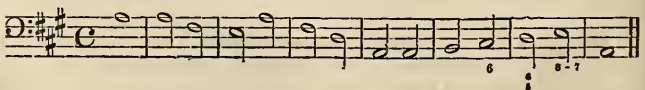
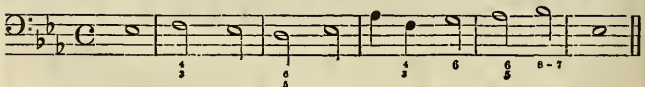
¹ This chord of the sixth and fifth is by many considered as a fundamental chord, and termed the chord of the *added sixth* or *subdominant sixth*. And the chord of the sixth described in § 201, is viewed by them as the same chord with this, the fifth being omitted. There are several strong considerations which may be urged in behalf of this view ; but as the proof of its being a fundamental chord cannot yet be considered as complete, it has been thought expedient here to represent both forms of the chord as derivatives by inversion.



5. Fill up the inner parts in the following passages:—



6. Add an accompaniment to the following figured basses:—



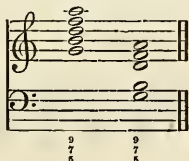
CHAPTER V.

CHORD OF THE NINTH AND ITS DERIVATIVES.

1. Chord of the Major Ninth.

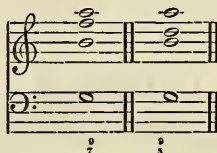
219. THE next fundamental chord arising from the division of the string after that of the dominant seventh is the chord of the ninth. The vibration of the string by sevenths gives the twenty-first or minor seventh from the double octave ; its vibration by eighths gives the twenty-second or triple octave ; and its vibration by *ninths* gives the twenty-third or major second above the triple octave, see fig., § 167. Reckoned from the double octave, however, the notes of this, as of former chords, appear in order, thus—first, third, fifth, seventh, and ninth ; whence this chord is called the chord of the major ninth.

This chord may be derived from any one of the three strings, but only in the case of the string which gives the dominant as fundamental note are all its notes within the key of the tonic ; so that, like the chord of the minor seventh, this chord is, with reference to a particular key, essentially a dominant chord ; thus—



220. As this chord consists of five different notes, one is generally omitted, and indeed must be in four-part harmony. The least essential note, and the one most frequently omitted, is the fifth ; giving the chord of the ninth and seventh. Next to it is the seventh, which, though the characteristic note of the chord of

the seventh, loses its character very much in this chord from the presence of the ninth, which is a note still more strongly dissonant with the bass: this omission gives the chord of the ninth and fifth. The third is not omitted. The notes of this chord do not require to be doubled.

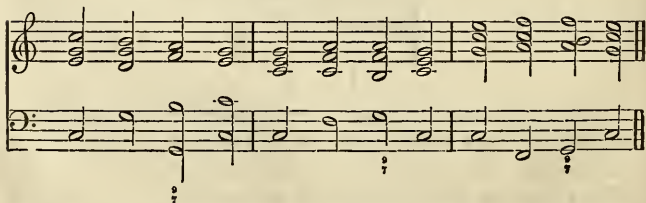


221. The inversions of this chord are written and figured as follows:—



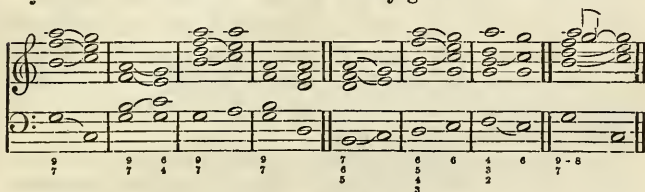
The fourth inversion is not used; and of these three the first alone is used with any frequency. The reason of this will appear, after an examination of the chord to be described in § 227.

222. With regard to the relation between the chord of the ninth and the chord preceding it, it is to be observed that, like the chord of the dominant seventh, its notes may be introduced either free, *i.e.*, without preparation, or, which is the better way, with it. The ninth is most commonly taken in the upper part, where its effect is best, the distance diminishing its dissonance with the bass; where it is taken as an inner part, it should be at least a real ninth above the bass.



223. The resolution of the chord may be inferred from the fact

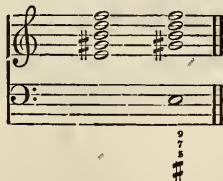
that it is essentially a dominant chord. The third and the seventh resolve as before, the one ascending a semitone, and the other descending a semitone; the ninth descends a whole tone. So that it resolves itself into the chord of the tonic, either in fundamental position, or in one of its inversions. This is its most frequent resolution; but it has its licenses like the chord of the dominant seventh, § 214. Thus it may go into the chord of the relative minor of the tonic, or of the relative minor of the subdominant; it may also resolve, by the descent of the ninth one tone, into the chord of the dominant seventh, and through that into any of the chords which that chord may go into.



This chord of the ninth in fundamental position is not much used in regular four-part harmony. Its sounds are so dissonant that it is used chiefly in the lighter kind of music, where there is not the same stress on the several parts of the harmonies.

2. Chord of the Minor Ninth.

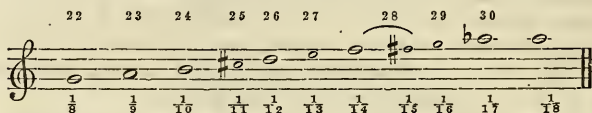
224. If we form a chord of the dominant ninth in the minor mode, we obtain one which differs from the chord of the ninth in the major mode by having the ninth minor instead of major, *i.e.*, a semitone above the octave instead of a tone. It is written and figured thus:—



Each mode has a chord of the dominant ninth corresponding to its own character; at the same time the two chords are not

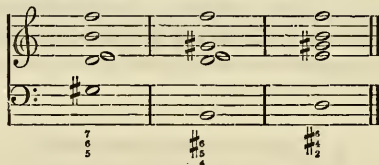
always confined to their respective modes, but are sometimes interchanged, just as major and minor triads are.

225. This chord of the minor ninth is, in a certain sense, a natural chord; it is got from the string, but the division of the string requires to be carried considerably further. Thus, if we commence at the third octave of the g string, we get the following series, writing the notes an octave lower for convenience—

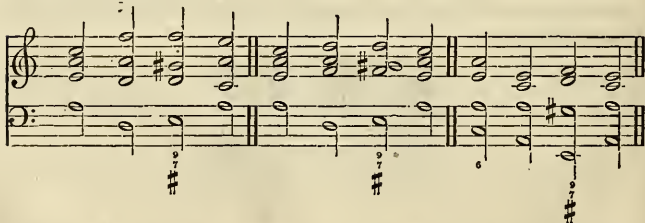


So that we get the chord of the major ninth, g-b-d-f-a, in succession when we reckon from the double octave, and the chord of the minor ninth by selection when we reckon from the third octave, its first three notes being the octaves of notes already got, and the ninth the only new note.¹

226. This chord, being similar in structure to that of the major ninth, is subject to the same laws. Thus it has three inversions, though these are seldom used, and for the same reason as before.



It may be used either free or prepared; and its effect is best when the ninth is in the uppermost part, though this position of it is not indispensable.

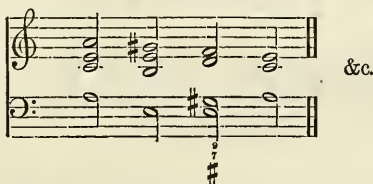


¹ Though the notes in this chord are each got by division of the string, the chord can hardly be called a natural chord in the sense in which that term applies to the chord of the major

It resolves most naturally into the minor chord of the tonic, and has fewer exceptions in this respect than the chord of the major ninth.



It may occur in the accompaniment of the scale, thus—



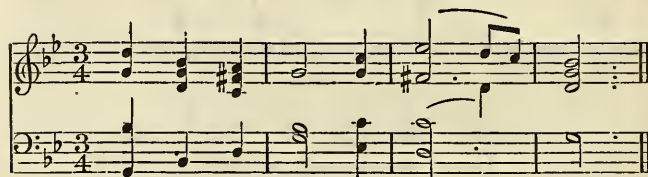
In the accompaniment of melody, it can only occur on the dominant as root. It is little used in regular four-part harmony; being found for the most part only in pieces of lighter harmonic structure.

Exercises.

1. Write the chord of the major ninth, with its resolution into the tonic, in the keys of **f**, **a**, and **e♭** major.
2. Write the chord of the minor ninth, with its resolution into the tonic, in the keys of **d**, **e**, **g**, and **b** minor.
3. Write the descending major scales of **d** and **b♭**, using the chord of the major ninth in the accompaniment.
4. Write the descending minor scales of **f** and **g**, using the chord of the minor ninth in the accompaniment.

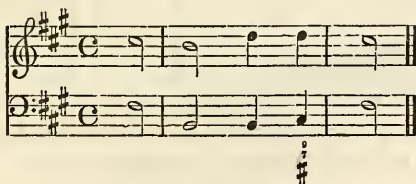
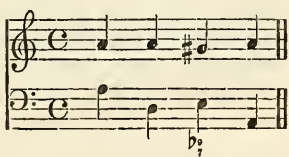
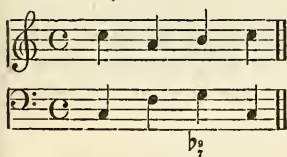
ninth. For even when we begin to reckon from the third octave, the chord is not formed by a series of notes arising in order by consecutive divisions of the string; certain harmonics of the generator, which arise before it, have to be passed over; and the chord is formed by selection. This suggests as a probable account of the chord, that it is formed artificially from the chord of the major ninth by flattening the ninth, after the manner in which minor triads are formed from major triads.

5. Analyse the following passages :—

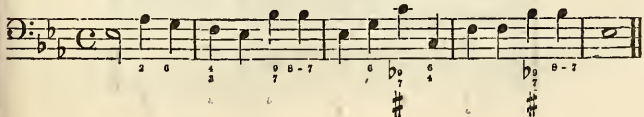




6. Fill up the inner parts in the following:—



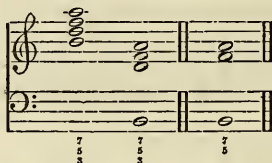
7. Add the accompaniment to this figured bass:—



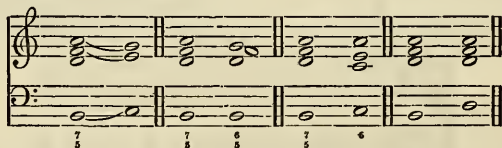
3. Chord of the Minor Seventh on the Diminished Triad.

227. There are certain chords derived from the dominant chord of the ninth, which are more frequently used than that chord itself ; in particular, two chords of the seventh now to be described.

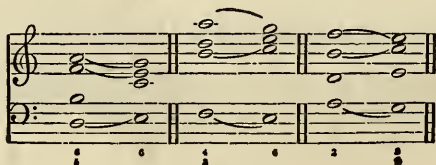
If the bass be omitted in the chord of the major ninth, there remains a chord of four notes, forming a chord of the minor seventh upon the diminished triad. When the chord has to be written in three parts, the third (fifth above root) is omitted, very seldom the fifth (seventh from root). Thus—



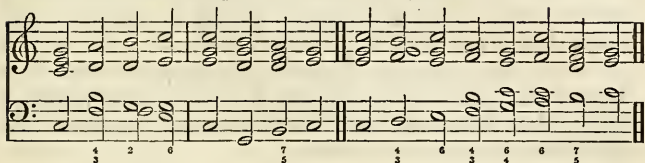
228. This chord, being essentially the same as that of the major ninth, resolves as that chord does, viz., as a dominant. Thus it generally goes into the tonic, the bass ascending a semitone, the fifth and seventh descending a semitone and a tone respectively. Frequently, also, it resolves into the chord of the dominant seventh, first inversion ; more seldom into the chord of the relative minor of the tonic, or into the chord of the relative minor of the subdominant, thus—



The chord is used in all its three inversions, which are resolved similarly to the chord itself, and are figured thus—

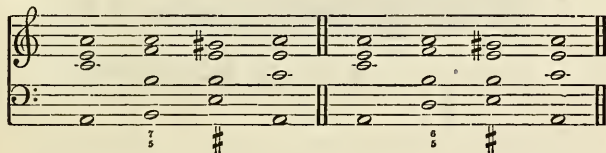


The chord may be used in the accompaniment of the scale, either in fundamental position or inverted, thus—



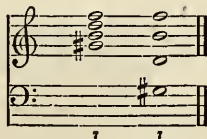
It is the existence of this chord that causes the inversions of the chord of the ninth to be so little used. They would be substantially the same, but this one is more agreeable in effect.

229. It may be added, that this chord is formed also in the minor mode, on the second as its bass : it stands related to the minor mode as the chord of the minor seventh on the minor triad, **d-f-a-c**, does to the major.¹ Like that chord, it has inversions ; and it resolves, for the most part, into the chord of the dominant ; thus—



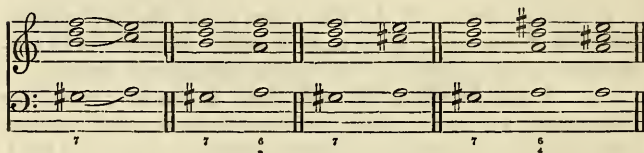
4. Chord of the Diminished Seventh.

230. Another chord of the seventh is derived in like manner from the chord of the minor ninth. Omitting its root, we obtain a chord of four notes in frequent use, known as the chord of the diminished seventh. It consists of three minor thirds over each other on the leading note of the minor mode, and is written and figured thus—

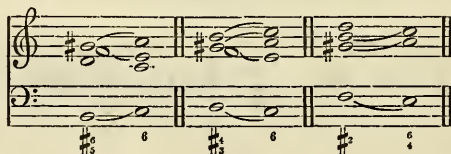


¹ This chord is sometimes used in the minor mode, however, giving the appearance of a minor seventh on its subdominant.

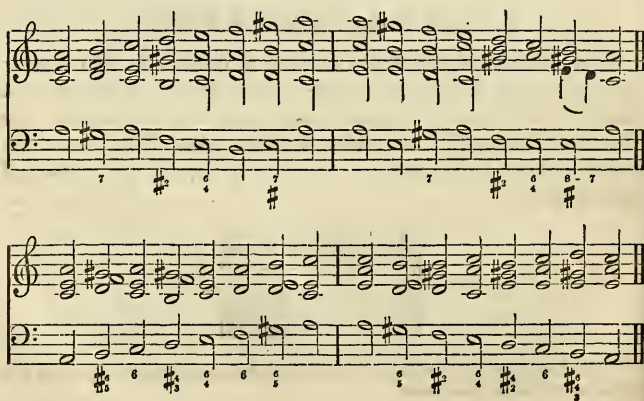
231. It is subject to the same laws as the chord of the seventh last described. Thus it generally resolves, as a dominant chord, into the tonic, its extreme intervals moving a semitone to the nearest degree, and its third ascending a semitone to the third of the tonic. But though the chord arises in the minor mode, it is as frequently used in the major ; and it is found resolving into a major tonic. It may also resolve into the second inversion of the subdominant in either mode, thus—



232. It has three inversions figured and resolved as follows :—



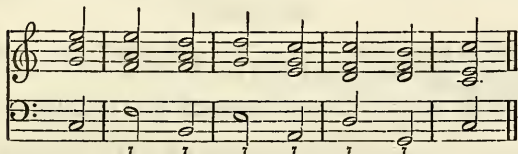
And it may be used in the accompaniment of the scale either in fundamental position or inverted, thus—



It is the use of this chord which renders it unnecessary to use the inversions of the chord of the minor ninth ; see § 228.¹

5. Sequences of Chords of the Seventh.

233. Before leaving the chords of the seventh, it may be remarked that though, in the general case, one such chord occurs at a time, sequences of sevenths may sometimes be met with. Sequences of dominant sevenths are used for a special purpose, as will be noticed in the chapter on modulation ; but a sequence involving different chords of the seventh may occur within one key, thus—



234. There is a certain form of sequence of chords of the sixth which must be explained by reference to chords of the seventh, thus—



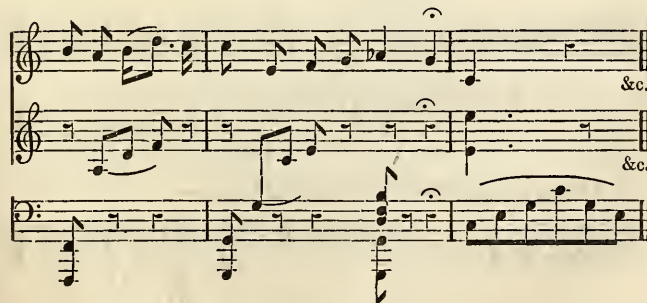
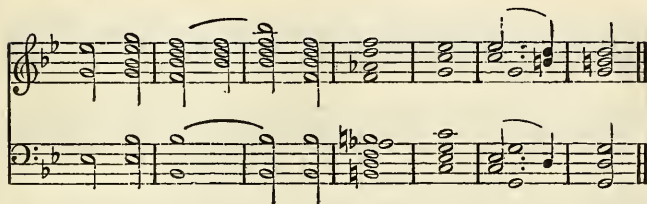
The chords here cannot be all really first inversions of common triads ; for then their fundamental basses would proceed upwards

¹ The chords of the seventh now given are those in common use. They are not all that may be formed, however; the alteration of a semitone of some interval in those already given will give rise to what may be considered as new chords of the seventh. But these are rare and exceptional forms, and therefore do not need here to be particularized. It is sufficient to give as an example the chord of the major seventh, either in the major or minor mode, which is a strongly dissonant chord thus—

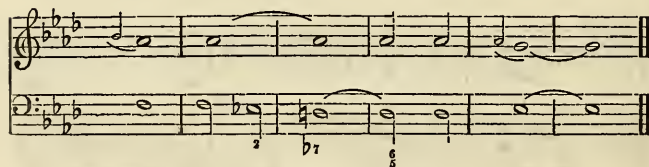
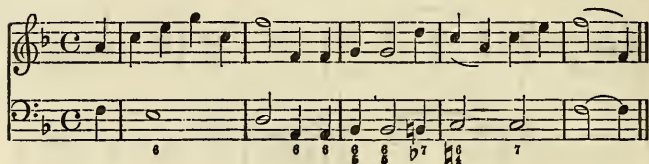


diatonically, and, if written, would involve the forbidden consecutive intervals at every step. An explanation of the sequence is subjoined; regarding which it may be remarked that a passing note (a crotchet) is twice used.

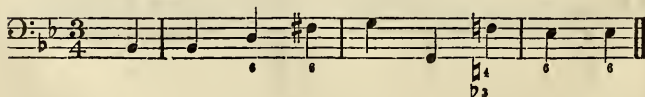


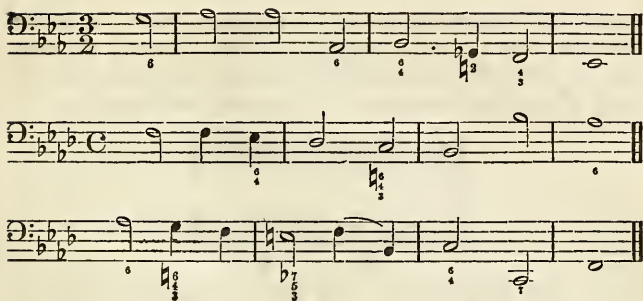


8. Fill up the inner parts in the following:—



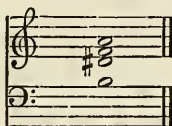
9. Add the accompaniment to these figured basses:—



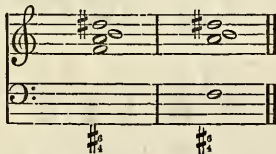


6. Chords of the Augmented Sixth.

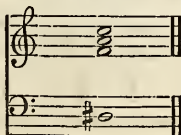
235. If the chord of the minor seventh on the diminished triad be modified by the sharpening of its third (see note, § 232), thus—



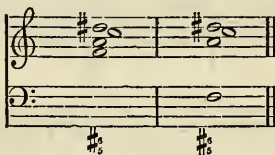
it gives by inversion a chord which is much used. In its second inversion, it is a chord of the sixth and fourth, in which the sharp sixth is the most prominent note ; whence the chord is called the chord of the augmented sixth. It is written and figured thus—



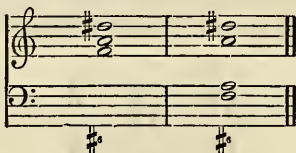
236. Again, if the chord of the minor seventh on the minor triad be modified by the sharpening of its bass, thus—



it gives by inversion a chord which is also much used. In its first inversion, it is a chord of the sixth and fifth, in which the sharp sixth is again the prominent note; whence it is also called the chord of the augmented sixth. It is written and figured thus—



237. The sixth being the note which is characteristic of both of these chords, the difference between them in respect of one of the inner notes often disappears, and the chord of the augmented sixth occurs in this simpler form (as if it were the inversion of the modified minor triad, d[#]-a-f)—



238. Only one inversion of the chord of the augmented sixth is to be found, viz., the first, having the third in the bass; but even that rarely.

Examples of the resolution of this chord are added¹—



¹ This chord and that of the diminished seventh are very often found together in the same passage.

Exercises.

1. Write the three chords of the augmented sixth in the keys of *d*, *g*, *e*, *b*, and *c* minor, with their resolutions.

2. Analyse the following passages :—



3. Fill up the inner parts in the following:—

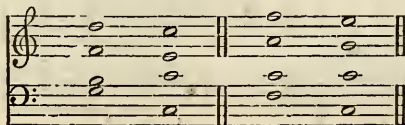
The musical score consists of two systems of staves. The first system has a treble staff with a melody and a bass staff with a bass line. The second system also has a treble staff with a melody and a bass staff with a bass line. The bass staff in the second system contains several measures with only a single note or a vertical line, indicating where the student should fill in the inner parts. The key signature is one flat (B-flat) and the time signature is 3/2.

CHAPTER VI

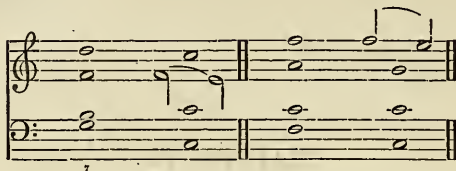
MODIFIED FORMS OF THE PRIMARY CHORDS.

239. ALL the primary chords used in music have now been noticed.—The number of chords which differ fundamentally is small ; the triad or common chord, the chord of the seventh, and the chord of the ninth. And the link of connexion between these—the connexion in virtue of which their sequence or intermixture is agreeable, or, as we call it, harmonious—is this, that they are all included in the great natural chord, which consists of the sounds elicited from a musical string by making it vibrate in successive subdivisions.

240. Of each of the three fundamental chords there are two modes, major and minor ; and each of these six chords is a source whence chords of other forms and effects spring by inversion. Reckoning all the inversions of all the chords, and all the different positions of which they admit, the resources which music has in the combination of them for variety of harmonic effect are seen to be great. But these are indefinitely increased by the application of a principle which has now to be learned ; viz., that any chord in a series may, unless there be some special reason to the contrary, have one or more of its notes replaced, wholly or in part, by adjacent notes in scale-relation to them, without affecting the fundamental progression of the harmony. Thus the progression from the chord of the dominant to that of the tonic, or from that of the subdominant to that of the tonic, which, in their simplest forms, are thus represented—



do not cease to be such when a note in the latter chord is altered in this manner—

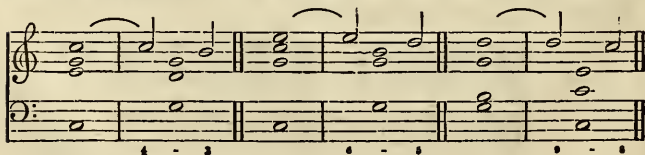


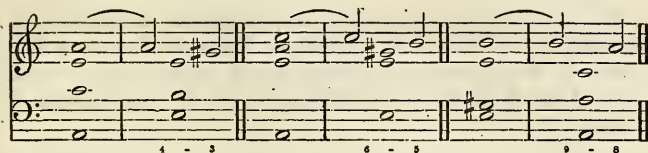
The harmony remains substantially the same. Some chords admit this kind of modification to a less extent than others ; generally speaking, it is the more dissonant chords, which, from their dissonance, are more delicate in their structure, that admit of it least. The nature of each chord must determine this for itself ; all that is necessary is that the characteristic peculiarity of each chord be preserved. Every license compatible with this is allowed ; always on the understanding that the use of such license does not lead to any violation of those rules of progression which have already been laid down as of universal application. This principle opens up the whole region of ornate harmony ; all the endless varieties of which are thus reducible to the simple materials of plain harmony.

The one principle, as it has been expressed, provides for all the different kinds of alteration of chords possible. It is expedient to classify these in the following way : (1.) alteration by substitution ; (2.) by passing notes ; and (3.) by organ point.

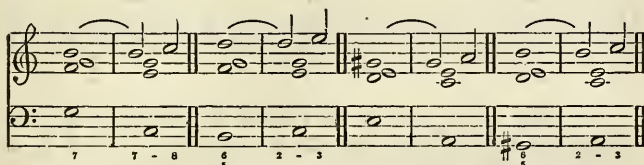
1. Alteration by Substitution.

241. In the following progressions, one of the notes of the first chord is prolonged into the second, with which it has no natural harmonic connexion ; by which the proper resolvent sound of that note in the second chord is delayed.

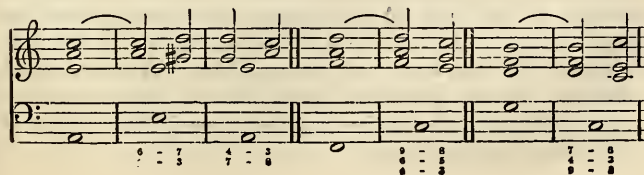
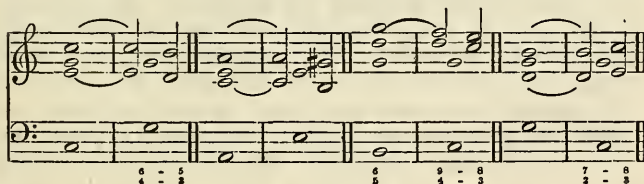




In the following progressions the same thing takes place ; but the note of the first chord which is prolonged ascends, instead of descending, into its proper resolvent in the second.



In the following progressions, the same kind of prolongation is exhibited, more than one note of the first chord being prolonged in each case.

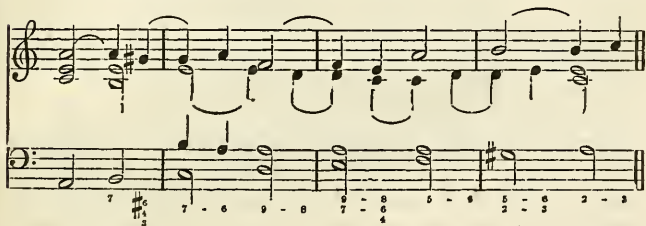


In the following progressions, this prolongation is exhibited in the bass note of the chords ; which, so far as the figuring is concerned, is tantamount to a prolongation of all the other notes of the first chord, as it is from the bass note that the figuring is reckoned.

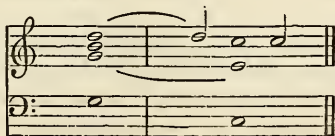


242. This prolongation of the note of one chord into the time of another, and resolving into the degree above or below it, is called *suspension* ; and its features are as follows :—

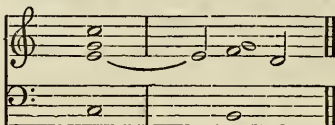
The suspended note is not repeated, but only prolonged ; so that the notes are syncopated ; this is indicated by the tie or bind which is used to denote the suspension. No new note is introduced by suspension ; the notes are the same as if there were no suspension. The suspension takes place on a stronger part of the measure than the resolution. The resolution of a suspended note takes place either by ascent or descent one degree ; but more than one note of a chord may be suspended, in which case the resolution may be effected partly by ascent and partly by descent. Any one part of a chord, whether in fundamental position or inverted, may be delayed by suspension, including the bass ; but there is no such thing as suspension of all the notes of a chord : that would merely be the repetition of the chord. There can be no suspension where both the suspending and the suspended notes belong to the same chord ; thus, in the chord of the dominant, the octave cannot suspend the seventh. Suspension should not violate the rules of progression ; thus the seventh, in the chord of the dominant, should not suspend the note one degree above it in the following chord, but the note below it. In suspension, both the suspending and the suspended notes are figured. Suspension takes place in both modes alike, major and minor. Suspension may take place through a series of chords in succession, thus—



In the following progression, if either of the two upper parts be suspended, the other parts taking their regular progression, the suspension is vitiated ; for the note suspended is heard at the same time as the suspending.



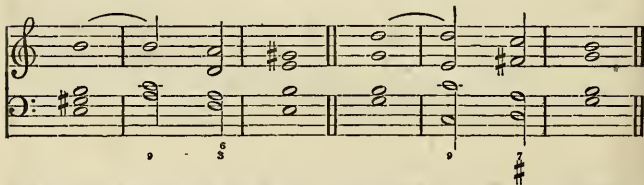
Suspension must avoid this.—In the following, the suspension causes three notes on adjacent degrees to be heard together.



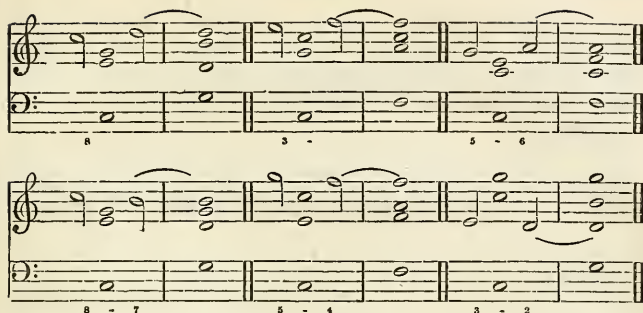
This has a bad effect, and it may be avoided by writing the parts in open harmony.—There are two exceptional forms of the resolution of a suspension which may be noticed : (1.) The suspending note may, before its resolution, proceed to some other unoccupied part of its chord, thus—



and (2.) A note may be suspended in one chord and resolved in another chord of which it forms a part ; so that, in effect, the chord on which it is suspended has that note altogether substituted for the resolvent note, and the chord in which the resolution takes place has no suspension at all, thus—



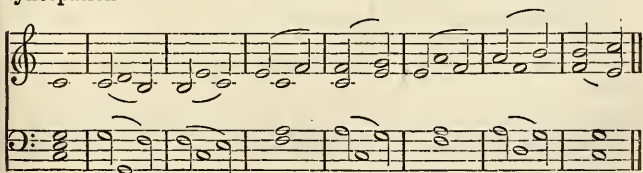
243. In suspension, as has been seen, the note of one chord is prolonged into the following chord, and so delays or retards its resolvent note. Chords may be modified, however, in a way the very reverse of this. In a progression of two chords, a note from the second may be introduced into the first by anticipation, producing a syncopation as before. This may be done with as great variety as suspension, and consequently with as great a variety of figuring. And, generally speaking, it is subject to the same rules. The following are examples of this anticipation :—



244. Both suspension and anticipation, as already exemplified, exhibit syncopation. They may be used, however, in a way that does not introduce syncopation. If the suspending note in the former case, and the anticipated note in the latter, be struck a second time, instead of being merely prolonged from the first chord, we have a modified form of suspension and anticipation without syncopation. In this case the tie is not required, although the same notes are used as before, and in the same places of the chords. The effect is altogether different from that of syncopation. The following are examples :—

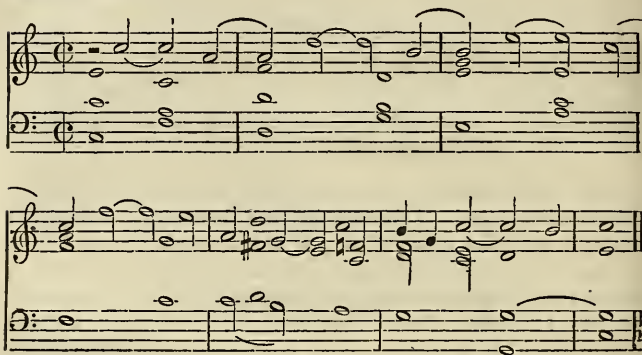


The ascending major scale, written with suspensions by syncopation in fig., § 242, is here given with the same notes, but without syncopation—



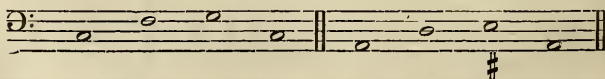
245. Suspension is sometimes used to do away with the effect of consecutive fifths. Whilst suspension is effected by syncopation,

there may be syncopation without suspension.¹ Suspension implies that one note suspends or retards a different one ; but when two chords have a common note which is not re-struck, but prolonged through the time of both, we have syncopation without suspension, thus—



Exercises.

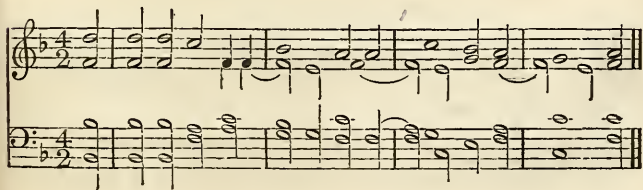
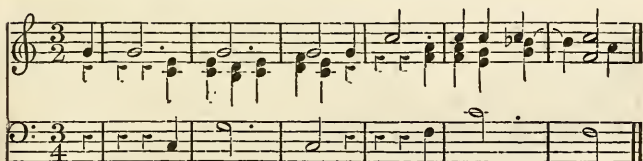
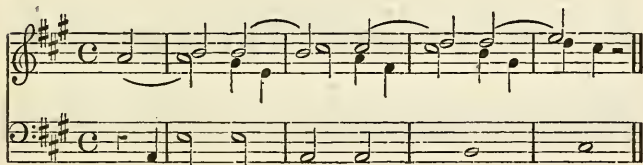
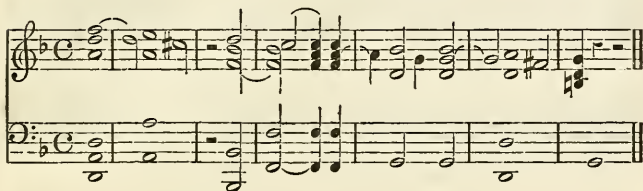
1. In fig. 1, § 241, transpose the major progressions into the keys of **a** and **e** major.
2. In fig. 1, § 241, transpose the minor progressions into the keys of **c** and **b** minor.
3. In fig. 2, § 241, transpose the major progressions into the keys of **b** and **d** major; and the minor progressions into the keys of **g** and **f** minor.
4. In fig. 3, § 241, transpose the major progressions into the keys of **g** and **a** major; and the minor progressions into the keys of **g** and **f** minor.
5. Write the harmony of any major scale, (1.) in melody, (2.) in bass, with suspensions.
6. Write the harmony of any minor scale, (1.) in melody, (2.) in bass, with suspensions.
7. Add the accompaniment with suspensions to the following fundamental basses :—



and transpose them into two other major and minor scales respectively.

¹ Sometimes called *consonant syncopation*.

8. Analyse the following passages, and reduce them to their plain harmony:—



Handwritten musical score for the song "The Rose Tree". The score is written on two staves. The top staff is in treble clef and the bottom staff is in bass clef. Both staves have a key signature of one sharp (F#) and a common time signature (C). The melody is written on the top staff, and the bass line is written on the bottom staff. The music is in a simple, folk-like style. The lyrics "The Rose Tree" are written below the bottom staff. The score ends with a double bar line.

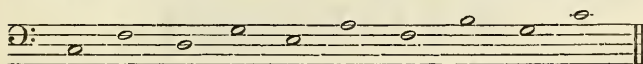
A musical score for 'The Bird Song' in G major, 2/4 time. The score is written on two staves. The upper staff is in treble clef and contains a melody of eighth and sixteenth notes, with some notes beamed together. The lower staff is in bass clef and contains a bass line with eighth and sixteenth notes, including a key signature change to one flat (F major) in the final measure. The title 'THE BIRD SONG' is written in all caps above the first staff.

A musical score for the song "The Rose Tree". It consists of two staves. The top staff is in treble clef and the bottom staff is in bass clef. The music is written in a simple, folk-like style with many ties and slurs. The key signature has one flat (B-flat). The melody is primarily in the treble staff, with the bass staff providing a simple harmonic accompaniment. The piece ends with a double bar line and repeat dots.

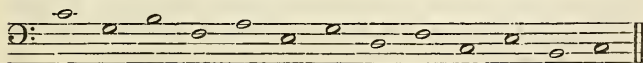
A musical score for the song 'The Rose Tree'. It features two staves: a treble staff and a bass staff, both in G major (one sharp) and common time. The melody is written in the treble staff, and the bass line is in the bass staff. The music consists of a single line of notes with some rests and a final double bar line. The notes are: G4 (quarter), A4 (quarter), B4 (quarter), C5 (quarter), B4-A4 (beamed eighth notes), G4 (quarter), F#4 (quarter), E4 (quarter), D4 (half), C4 (half). The bass line consists of: G2 (half), F#2 (half), E2 (half), D2 (half), C2 (half), B1 (half), A1 (half), G1 (half).



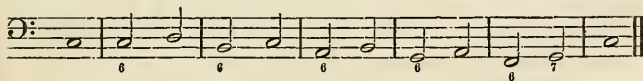
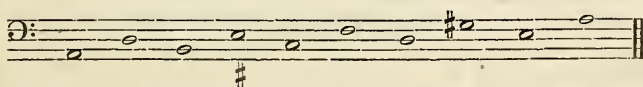
9. Add the accompaniment to the following fundamental basses, using suspensions :—



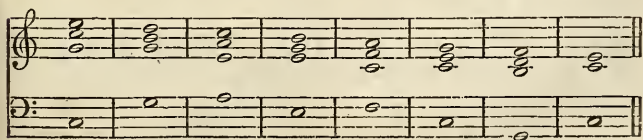
7



7



10. In the annexed progression, suspend (1.) the highest part, (2.) the second, (3.) the highest and second together, in succession ; and figure the results.

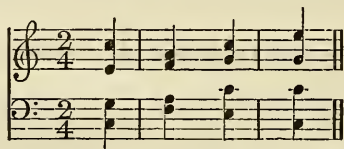


2. Passing Notes.

246. In the highest part of the following progression—

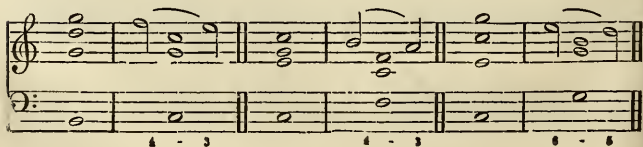


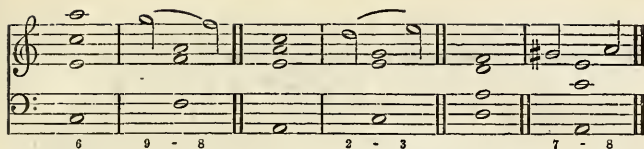
there are notes introduced into the first three chords other than those which belong to these chords, and having no harmonic connexion with them. The passage, reduced to its simplest form, would appear thus—



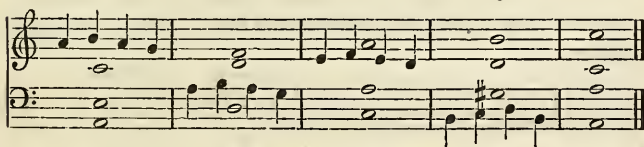
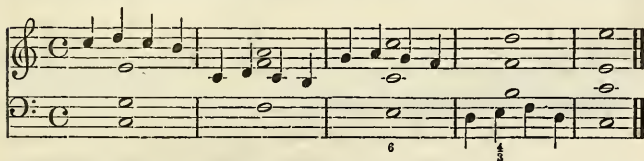
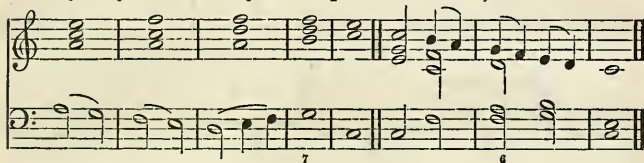
When one of the notes of a chord has its place supplied, in whole or in part, by notes which have no harmonic connexion with the chord, and which are introduced without any preparation in the previous chord, such notes are called *passing notes*. They are introduced for melodical purposes (as has been already indicated), *i.e.*, to make the melody flow more smoothly by breaking the skips which may be in it. At the same time a new harmonic effect is produced which requires to be taken account of, since they are sounded with chords to which they do not belong, and consequently interfere with the consonance of these chords. Their properties are the following.

247. Passing notes may be of different lengths, from the minim downwards. When they are minims, they may be figured like the previous chords.



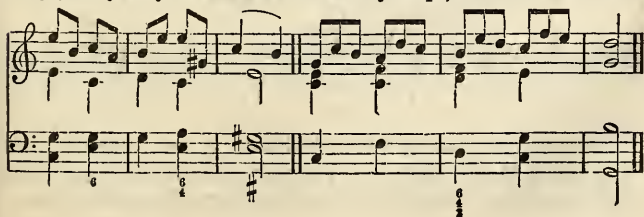


They may occur in any of the parts of a chord, thus—

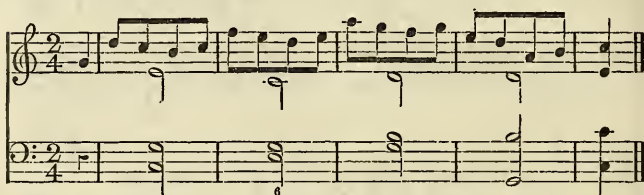
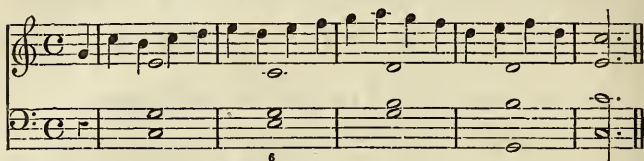


Amongst the notes substituted for any note of a chord, more than one may be a passing note, as in last example. In general, there are not more than two passing notes thus introduced, however, since more than one of the substituted notes will be found to be notes in the chord, as in that example.

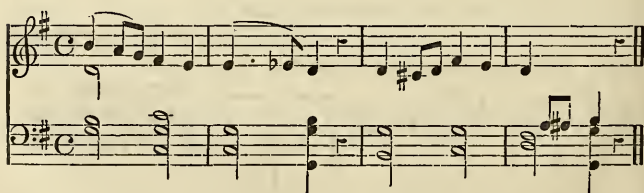
Passing notes do not always make the melody proceed diatonically ; they may themselves be used by skips, thus—



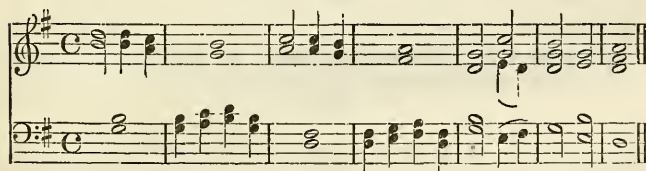
They may occur either in the strong or in the weak parts of the measure ; thus, see above, and compare the following :—



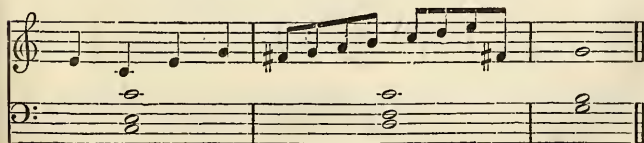
Passing notes are either diatonic, *i.e.*, belong to the scale corresponding to the chord in which they occur, or they are chromatic, *i.e.*, do not belong to that scale. When they are chromatic, however, they should lead immediately into a note of that scale, thus—



There may be passing notes substituted in more than one part of a chord at the same time ; though this seldom happens in more than two. Passing notes in thirds very often occur, thus—



A larger number of passing notes than two in any part of one chord is exceptional. When it does occur, it is generally in the form of a *running* passage; e.g., the run of a scale may be found on one chord, thus—



But the scale must correspond to the chord on which it is placed.

248. With regard to passing notes, it may be further generally

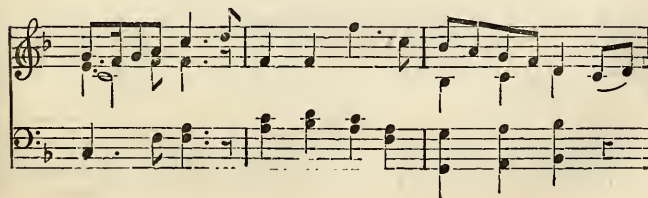
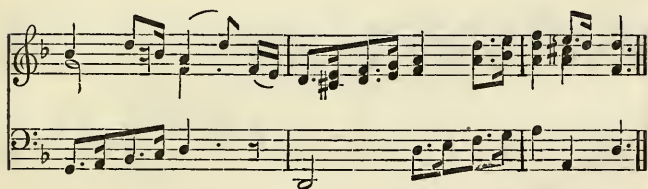
remarked that, so grateful is diatonic melody to the ear, there are very few passages, even of the simplest construction, in which passing notes do not occur, and that with their help the simplest materials, even the three natural harmonies of the scale, suffice for the construction of pleasing and effective pieces. They are used in an endless variety, either by themselves or mingled with suspensions; care being taken to avoid the forbidden progressions. They are always easily distinguished from the essential notes of the part in which they occur, by reference to the accompanying harmonies. It is impossible, as has been already stated, to distinguish such passing notes fully when we have only a melody before us; but the progression of the harmony determines at once what are passing notes, whether they are diatonic or chromatic. It is this examination of the context of a particular chord which is the great key to its character when that is in itself doubtful; just as in language we must judge of the meaning of doubtful words in the same way. This remark applies, whether it is by the eye or by the ear that we seek to judge of a chord.

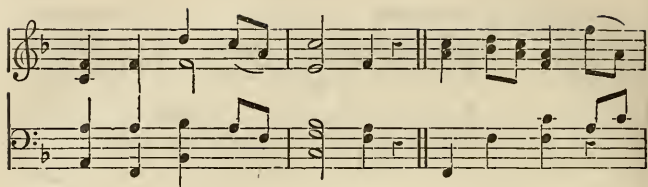
Exercises.

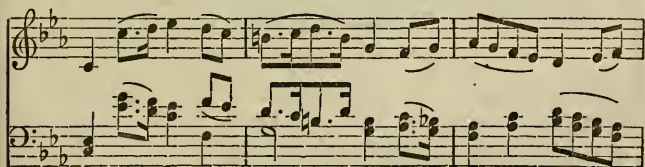
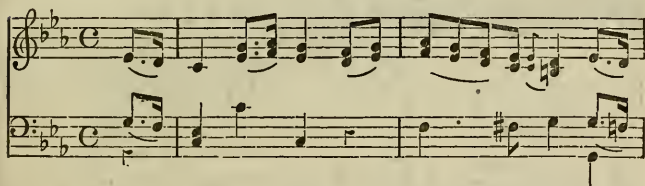
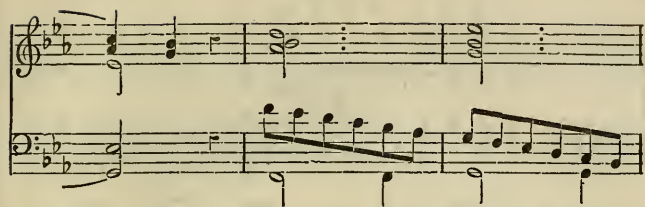
Analyse the following passages, and write them in plain harmony¹:-

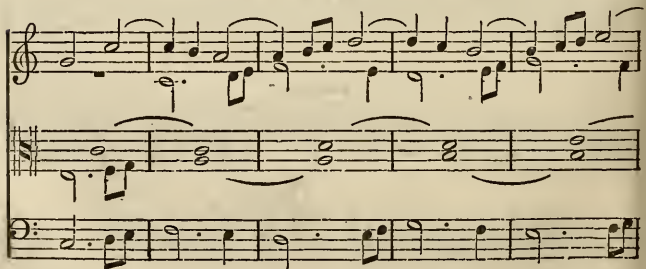
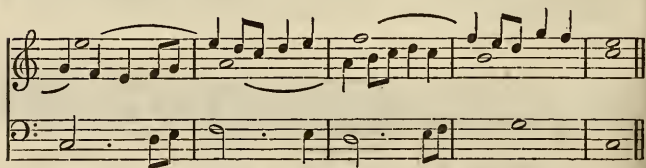


¹ The last two exercises given here, and the last under § 245, are taken from Catel's *Treatise on Harmony*.

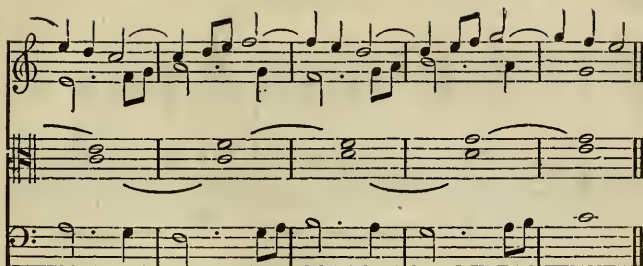






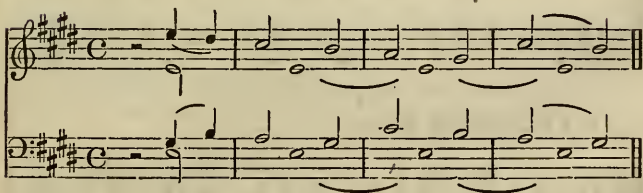
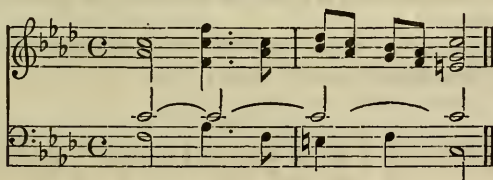


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3. Organ-Point.

249. In each of the following progressions one note is sustained throughout the entire series of chords.



In the one case, the note is sustained in one part ; in the other, in two. In both cases the note so sustained is in harmonic relation to all the chords during the time of which it is sustained, passing notes excepted. Such a passage may extend over a number of measures, thus—

The first example shows a treble and bass staff in 4/2 time. The bass staff has a sustained note (G) in the first measure, which is sustained through the second measure. The treble staff has a melody that changes in each measure. The second example shows a treble and bass staff in 4/2 time. The bass staff has a sustained note (G) in the first measure, which is sustained through the second measure. The treble staff has a melody that changes in each measure.

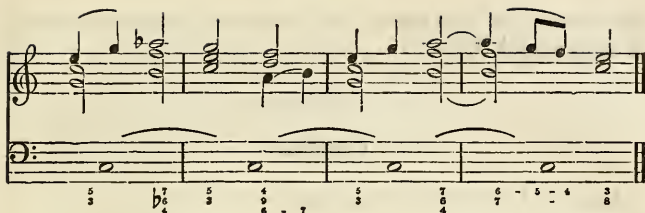
Here the sustained note is a note in all the chords through which it is sustained.

A note is often found sustained through a series of chords, though not a member of all of them ; thus—

The example shows a treble and bass staff in 4/2 time. The bass staff has a sustained note (G) in the first measure, which is sustained through the second measure. The treble staff has a melody that changes in each measure.

and in a longer series, thus—

The example shows a treble and bass staff in common time (C). The bass staff has a sustained note (G) in the first measure, which is sustained through the second measure. The treble staff has a melody that changes in each measure. Below the bass staff, there are numbers indicating the chords: 5, 7, 5, 9, 11, 7, 9, 11, 13.



Such a note, when its length does not extend beyond one or two measures, is called a *holding note*; when beyond that, it is generally called a *pedal* or *organ-point*.

The principle of such notes is not different from that of passing notes, and notes of suspension and anticipation. For where a sustained note is not a member of any chord, it is either the suspension or the anticipation of a note which is, or it is a passing note. But the *effect* of the sustained note is very different, and altogether peculiar.

With reference to any given key, the notes thus sustained are the dominant and the tonic.

250. The sustained note has thus a certain connexion with the chords upon it; if it had not, it would produce most discordant effects. When it is the dominant, the chords commonly used, besides the chord of the dominant itself, are those which admit of immediate resolution into the chord of the dominant. And when the tonic is the sustained note, the chords preferred are those which resolve immediately into its own chord, particularly all the chords of the seventh; those also are allowable which resolve into the subdominant.

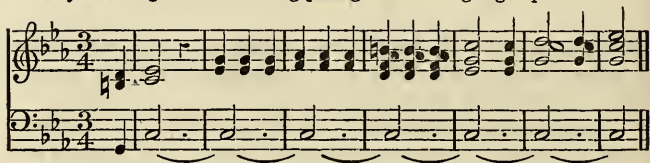
Each sustained note must commence and close with its own harmony; thus the dominant must have its own chord for the first and last of the accompanying chords; and so the tonic. In fact, relatively to the whole piece, the series of chords on a sustained note is as it were only one sustained chord; but for variety's sake some connected chords are introduced within its own duration.

251. The sustained note is most commonly in the bass; but may sometimes be found in the other parts. Sometimes the same note is sustained at octaves in two parts. A frequent place for the occurrence of an organ-point is at the final close of a piece.

Occasionally the note forming the organ-point is repeated instead of being simply sustained.

Exercises.

Analyse and figure the following passages containing organ-points:—





CHAPTER VII.

CADENCES.

252. THE division of a piece of music into phrases and periods, as described in Part I., Chap. VI., applies equally to a melody unaccompanied and to a melody with its accompanying harmony. It is necessary to refer to the connexion of phrases and periods again, only in so far as there is anything in the progression of the harmony which is indicative of these divisions.

The ending of a phrase or a period is termed a *cadence*. There are different kinds of cadences, more or less complete, just as there are different kinds of pauses in a sentence, more or less complete. That this is the case is evident to the ear, on listening to the examples given in Part I., Chap. VI. It is only when we are acquainted with harmony, however, that we can satisfactorily distinguish the nature of the different cadences.

253. The most marked cadence of all is that which terminates an entire piece. It must give to the ear an impression of finality ; not leading it in any way to expect a continuation of the music. The progression which is found to do this is that from the chord of the dominant, with or without the seventh, to the chord of the tonic ; it is hence termed the *final* or *perfect cadence*. The chord preceding the dominant may vary : a very common one is the chord of the sixth and fourth on the dominant note as bass (second inversion of chord of tonic) ; another very common one is the chord of the subdominant, or of its relative minor ; another is the first inversion of the chord of the minor seventh on the minor triad of the second of the scale ($\frac{6}{5}$). Since this last chord prepares two of the notes in the chord of the dominant seventh, it is the most satisfactory introduction to the perfect cadence.

The image displays four systems of musical notation, each consisting of a treble staff and a bass staff. The notation represents various cadential progressions. The first system shows a progression from a dominant seventh chord to a tonic chord. The second system shows a progression from a dominant seventh chord to a tonic chord, with a figured bass notation of 6 4 7 below the bass staff. The third system shows a progression from a dominant seventh chord to a tonic chord, with a figured bass notation of 6 4 7 below the bass staff. The fourth system shows a progression from a dominant seventh chord to a tonic chord, with a figured bass notation of 6 7 6 7 below the bass staff.

254. There are certain limitations to which the progression of the chord of the dominant to that of the tonic is subject in forming a perfect cadence :—(1.) The chords should both be in fundamental position. This position of a chord gives it a stronger effect than an inverted one ; it is therefore almost exclusively used in a final cadence. The second inversion of the chord of the dominant seventh may sometimes be found, though it gives a much feebler impression of finality than when the chord itself is taken fundamentally ; the first inversion is never, or almost never, found in this connexion. (2.) The chord of the tonic, concluding the

harmony, must not only be taken in fundamental position, but must have the octave of its bass in the melody. The only other notes on which the melody could end are its third and fifth, and neither of these notes gives a sufficiently final impression for the perfect cadence. Exceptions in this respect are very rare. (3.) The distribution of the accent is an essential element in the character of a cadence. In the perfect cadence, the concluding chord of the tonic must come in with the strong accent of the measure. If either of the two last features be wanting to the progression, it is no longer a perfect cadence.

255. There is another progression which is found to serve the purpose of a final cadence ; that from the chord of the subdominant to the chord of the tonic.¹ It is used as such, however, only in sacred music ; but its effect is striking. Both chords must be taken in fundamental position, and the accent must be distributed as in the other form of perfect cadence ; but it is not necessary in this case that the melody should conclude with the tonic note. This cadence is therefore eminently a harmonic, and not a melodic, cadence.



The final or perfect cadence may sometimes be found in other periods than the final one of a piece.

256. The cadence which is used at the end of a phrase or period in course of a piece, and which commonly leads the ear to expect continuation of the music, is called, in contrast to the former, the *imperfect cadence*. It is exceedingly various in form ;

¹ This cadence is sometimes termed 'plagal,' as the former is sometimes termed 'authentic.'

though the commonest is that ending with the chord of the dominant. There is not in this cadence the same limitation of the progression, as regards the position of the chords, the distribution of the accent, or the last note of the melody, as there is in the perfect cadence. The most common progressions used to serve as imperfect cadence are the following :—

(1.) From the chord of the tonic to that of the dominant, accented or not accented ; or to its first inversion.

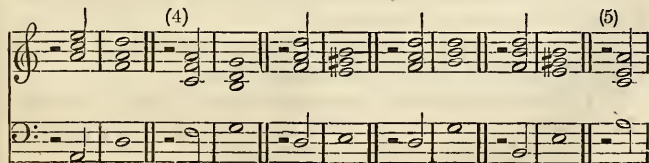
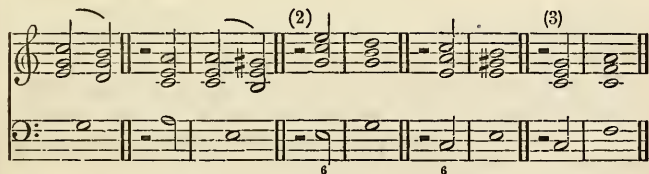
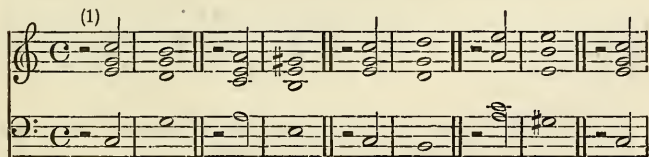
(2.) From the chord of the tonic, first inversion, to the dominant as before.

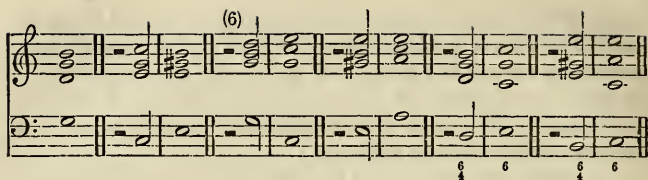
(3.) From the chord of the tonic to that of the subdominant.

(4.) From the chord of the subdominant, or its relative minor, to that of the dominant.

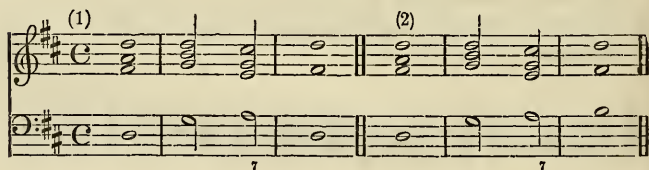
(5.) From the relative minor (or major) of the chord of the tonic to the chord of the dominant.

(6.) From the chord of the dominant to an inversion of the chord of the tonic, or to a position of it in which the third or fifth is uppermost.





257. Other forms of the imperfect cadence are those peculiar ones which are called the *interrupted* or *deceptive cadence*. If in a perfect cadence there be substituted for the concluding chord of the tonic some other unexpected chord which leads on to a continuation of the music, the ear is, as it were, deceived, and the perfect cadence is broken; hence the names applied to this form of cadence. Compare the two following passages with each other:—



The progressions which constitute interrupted cadences are very various; the most common are the following:—

(1.) The substitution (in the major mode) of the chord of the relative minor of the tonic for the chord of the tonic itself.

(2.) The substitution (in the minor mode) of the chord of the relative major of the subdominant for the chord of the tonic.

(3.) The introduction of a minor seventh into the chord of the tonic concluding; which, as will be seen in the next chapter, makes it cease to be a tonic and become a dominant, thus leading out the key of the piece.

(4.) The substitution of any other chord of the dominant seventh instead of the chord of the tonic.

(5.) The substitution (in the minor mode especially) of a chord of the diminished seventh for the expected tonic.

(6.) The substitution for the expected tonic of any of the non-related chords into which the chord of the dominant may progress by chromatic transition (See next chapter.)

(2) (3)

7 6 5

(4)

6 7 7 6 7 7 7

(5)

7 7 7 7

(6)

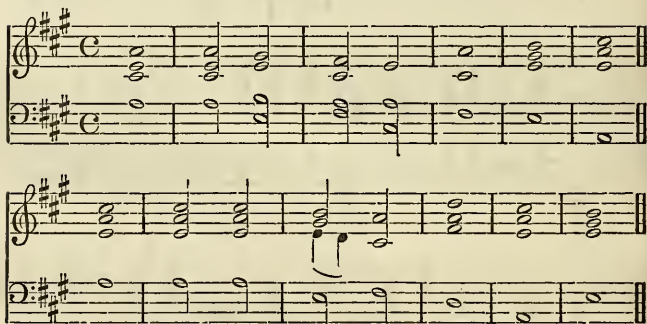
7 7 6 6 6 7

6 7 6 6 6

CHAPTER VIII.

MODULATION.

258. AN analysis of the following passage shows that it consists of five different chords repeated in a certain order :—



These chords are the chords of the tonic, dominant, subdominant, dominant seventh, and relative minor of the tonic. But every note in the passage is within the scale of the piece, viz., a major ; so that all its chords are within the key of the tonic. Further, an analysis of the scale-harmonies given in preceding chapters will have shown that, besides these chords, those of the relative minor of the dominant, the relative minor of the subdominant, the chord of the dominant ninth, the chord of the minor seventh on the minor triad, are also used in them. Thus the tonic chord of a piece has five attendant chords, its dominant (triad, seventh, or ninth), subdominant, relative minor, relative minor (or major) of dominant, relative minor (or major) of subdominant (triad or seventh) ; all of which may be used within the key of the tonic.

This is just the six-fold group already explained in considering the subject of scale-relation.

259. An analysis of the following passages will show that chords occur which are not related to the tonic as the members of this group, and that such chords introduce notes which are out of the scale of the piece :—

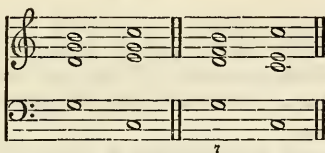
The image displays four musical staves, each with a treble and bass clef, illustrating chords and notes outside the tonic scale. The first two staves are in E major (three sharps). The third and fourth staves are in D minor (one flat). The first staff shows a chord with A# in the upper part. The second staff shows a chord with G# in the upper part. The third staff shows a chord with A# in the upper part. The fourth staff shows a chord with G# in the upper part.

Thus, in the first the note a^\sharp is out of the key of the piece, which is that of e major ; and the chord in which it occurs is none of the relatives to the tonic. In the second, the note g^\sharp is out of the key of the piece, viz., d minor, and the chord which introduces it is none of the relatives of the tonic. In the one case the note out of the key is in the upper part ; in the other, in one of the inner parts. These notes are signs that the piece goes out of

the key in which it commenced, into some other. This, as already explained so far with regard to melody, is called *modulation*. And the relation of the chords which bear these notes can only be explained by the supposition of a change of key.

260. Modulation may take place from any one tonic into any other ; from *c* major, *e.g.*, into any of the major or minor keys with sharps or flats, or from *a* minor into any of the minor or major keys with sharps or flats. But not into any one of these indifferently : for each of these modulations has an effect peculiar to itself, and is therefore introduced for a special purpose. As a rule, the frequency with which modulation takes place into any one key from an assumed key, varies with the degree of nearness with which the two are related. As any one key has five others related immediately to it, it holds in five cases out of six that, when there is modulation from that key, it is into one or other of these ; and of these, again, the keys of the dominant and of the relative minor of the tonic are the two into which modulation most frequently takes place. This is quite natural ; from the fact of the relation existing between these six keys they naturally assist each other, their common notes making their connexion and interchange smooth and satisfactory.

261. Modulation is effected by introducing into the passage the note which is characteristic of the new key, § 146. But this note may occur in any of the parts ; which is the reason that modulation cannot be satisfactorily determined by reference to melody alone, § 150. Since this characteristic note of a key is the seventh or leading note of its scale, and since this note is the third of the chord of the dominant, it follows that it is by this chord that modulation is effected. This is the most general rule for modulation that can be given :—‘ We pass into any new key through the chord of the dominant of that key.’ And the result is still more clear and decided if it be the chord of the dominant seventh that is used : the key of such a chord can never be doubtful. Thus, whilst the first of the two following progressions seems to be from the dominant to the tonic in the key of *c*, it is not certainly so ; it might be from the chord of the tonic to that of the subdominant in the key of *g* : but the second progression can be nothing else than from the dominant to the tonic in the key of *c*.



262. Modulation into the key of the dominant (g) is, according to the rule, effected through the chord of *its* dominant (d), thus—



In (1) the tonic is followed by the chord of the dominant : this is not the modulation, however, but merely a progression to the dominant of the tonic. Still this progression prepares the way for the coming modulation, and is therefore frequently used preparatory to it. The third chord, that of d major, is on the dominant of the new key, and introduces the characteristic note, f \sharp ; it announces the modulation coming. The last chord, that of g, is no longer the dominant of the tonic, c, but the new tonic, the result of the modulation.—In (2) the progression of chords is the same, and the modulation is effected within the same number of chords ; but the modulating chord is prepared by the chord of the dominant in its second inversion, as it very often is, and the characteristic note of the new key occurs in the second part.—In (3) the old tonic is separated from the new only by one chord, the modulating one, so that the modulation is more abrupt. The modulating dominant here bears the seventh.—In (4) the old tonic is separated from the new by two chords, as in the first two examples, progressing into the modulating dominant through its

own relative minor. Comparing these four examples, it may be observed, (1.) that the number of steps from the old tonic to the new is not always the same, and (2.) that the modulation is most smoothly effected when there is one note common to the two chords in each progression.

263. The scale of *c* may exhibit in its accompaniment modulation into the key of *g* major ; in its upper part only, however, as the notes in that part alone are common to it and the scale of *g*.



264. Modulation to the key of the subdominant (*f*) passes through the chord of its dominant (*c*). In this case, the old tonic itself becomes the modulating dominant, thus—



In (1) there is progression from the old tonic into the chord of *f* as dominant, before the modulation takes place into it ; the third chord is the modulating dominant, bearing the seventh ; and the fourth chord is that of *f* as a new tonic. The progression from the first chord to the second (*c* to *f*), is the same fundamentally as that from the third to the fourth (*c* to *f*). Why may not the

first progression be looked on as modulation? Because, whilst *c* is the dominant to *f*, its third note, which is the leading note in key of *f*, is in the old key (*c*); whereas in the modulation into the key of the dominant (*g*), the corresponding third in the modulating chord (*f*♯) was not. This progression is indecisive, therefore, till it introduce the note in which the scale *f* differs from that of *c*, which is *b*♭, or the minor seventh on the dominant of *f*; as in the progression from the third to the fourth chord in the example.—In (2) the old tonic is immediately followed by the modulating dominant, in its first inversion, and having the seventh in the highest part.—In (3) the dominant of the old key occurs between the old tonic and the modulating dominant; and the minor seventh is in the bass.—In (4) we have an example of the only condition under which the modulating dominant may want the minor seventh (*b*♭.) This note, as has been seen, must be heard announcing the new tonic; if not in the modulating dominant, then in some chord preceding it. In this example it occurs as the third in the minor chord of *g*, which may here occur smoothly enough, as it has common notes with both the preceding and the succeeding chords.—In (5) the peculiar note of the new key is introduced by the same expedient; but is sustained through the modulating dominant also.

265. The modulation to the key of the subdominant occurs more frequently as the restoration of the original key of a piece after modulation into the key of its dominant, than for its own sake.

The scale of *c* may exhibit in its accompaniment modulation into the key of *f*; in its lower part only, however, as the notes in that part alone are common to it and the scale of *f*.



266. Modulation from the tonic into its relative minor (*a*) is effected by passing through the major chord on *e* as modulating dominant; this introduces the sharp seventh characteristic of the minor scale.

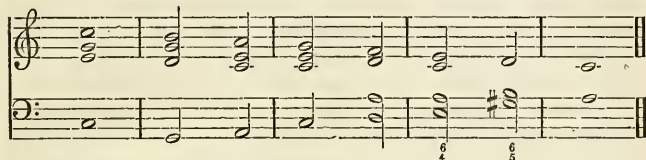
The image contains seven musical examples, numbered (1) through (7), each consisting of a two-staff system (treble and bass clef). The examples illustrate various modulation techniques:

- (1) Progression from C major to A minor.
- (2) Progression from C major to A minor in first inversion.
- (3) Progression from C major to A minor with the seventh.
- (4) Progression from C major to A minor with the seventh.
- (5) Progression from C major to A minor with the seventh.
- (6) Progression from C major to A minor with the seventh.
- (7) Progression from C major to A minor with the seventh.

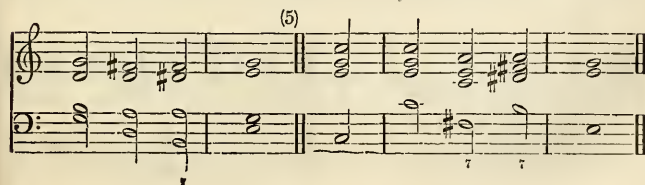
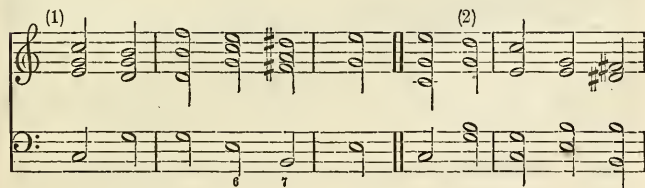
These examples should be analysed and compared as in the two former modulations, thus :—

In (1.) there is progression into chord of a minor before modulation into the key of it.—In (2) there is the same, but into its first inversion ; and the modulating dominant has the characteristic note of the scale in the bass.—In (3) there is the same, but the modulating dominant has the seventh.—In (4) there is immediate progression from the old tonic to the modulating dominant, with or without the seventh.—In (5) the dominant of the old tonic prepares the modulating dominant.—In (6) the chord of the subdominant and its relative minor occur between the old tonic and the modulating dominant.—In (7) there is sequence of fifths in the bass.

267. This modulation is very common ; and may be exemplified in the accompaniment of the scale of *c* more variously than either of the former modulations, owing to the manner in which the minor scale is derived from the major.



268. Modulation into the relative minor of the dominant (e) is effected by passing through the major chord on b as modulating dominant; which introduces the sharp seventh (d \sharp) of this minor key.

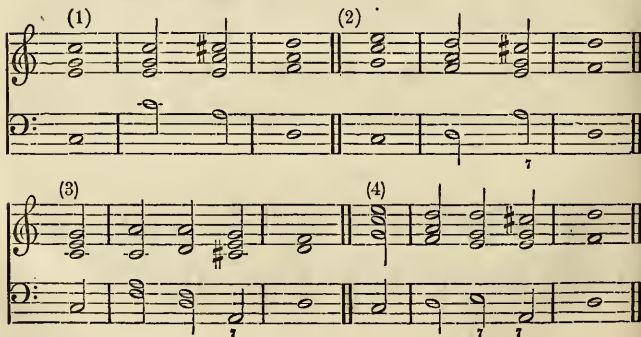


Here, in (1) the old tonic is immediately followed by the modulating dominant, with or without the seventh ; which is rather abrupt and harsh from the want of relation between these two chords.—In (2) the old tonic goes into the modulating dominant through the chord of *e* minor in its own key ; which is more gradual, and therefore better.—In (3) between the old tonic and this chord of *e* minor, there occurs the dominant of the old tonic, which is nearly related to both chords ; this makes the modulation still more gradual.—In (4) the old tonic is separated from the modulating dominant by its own dominant, and the major chord on *d*, which has common notes with the chords both preceding and succeeding.—In (5) the modulating dominant is preceded by the chord of the seventh on the second of the scale, see § 231.

269. This modulation may be exemplified in the accompaniment of the scale of *c* ; in the same part of it as that which exemplifies modulation into the key of the dominant, thus—

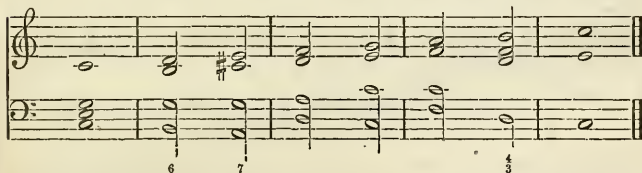


270. Modulation into the key of the relative minor of the subdominant is effected by passing through the major chord on *a* as modulating dominant ; which introduces the sharp seventh (*c#*) characteristic of this minor scale, thus—

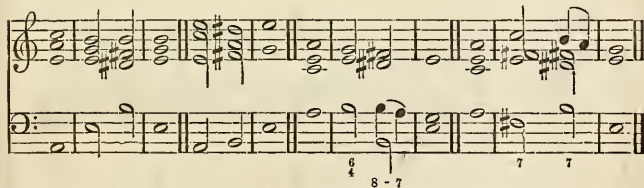


In (1) the old tonic is followed immediately by the modulating dominant ; a progression not harsh in this case, from the number of notes common to both.—In (2) the old tonic goes into the chord of relative minor subdominant in its own key before modulating into it.—In (3) The chord of *d* minor in the key of the old tonic introduces the modulating dominant, but is itself introduced by the subdominant major.—In (4) the progression from the old tonic is the same as in (2), but another step is introduced before going into the modulating dominant, viz., the chord of *e* minor with the minor (but not dominant) seventh ; which chord has two notes in common with the modulating dominant.

271. This modulation may be exemplified in the accompaniment of the scale of *c* ; in the same part of it as that which admits of modulation into the key of the subdominant itself, thus—



272. Modulation is performed from a minor tonic to each of its related keys in the same way. Thus, modulation from the tonic to the key of its fifth or dominant¹ is effected by passing through the major chord on *b* as modulating dominant, which introduces the sharp seventh (*d*[#]) characteristic of this minor scale, thus—

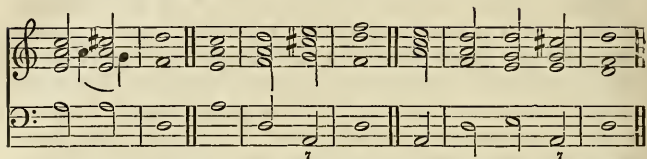


Each of these processes may be analysed as before.

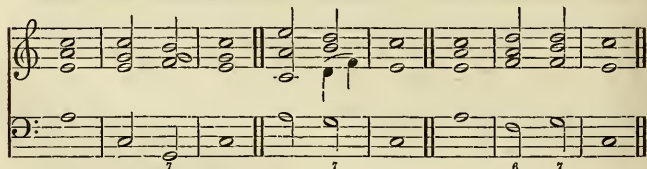
Modulation from the key of the minor tonic to that of its subdominant (*d*) is effected by passing through the major chord of *a* as

¹ *e* minor, that is ; for the chord on the fifth note of the minor scale is only major when it is used as a dominant.

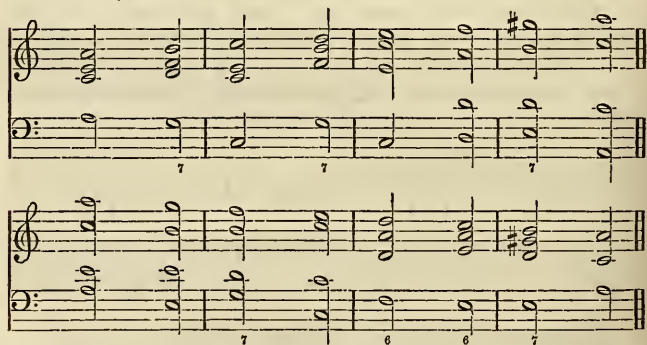
modulating dominant, which introduces the sharp seventh (c \sharp) characteristic of this minor scale, thus—



Modulation from the key of the minor tonic to that of its relative major passes through the major chord of *g* as modulating dominant. The seventh, however, should be one of the parts of the chord, as the chord of *g* major is itself in the key of *a* minor, and is not, therefore, decisive as a modulator, thus—



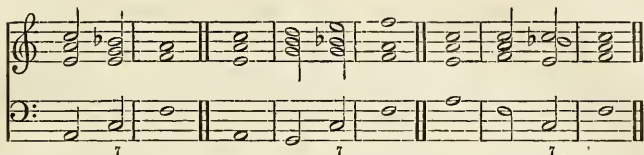
This modulation may be exemplified in the accompaniment to the minor scale, thus—



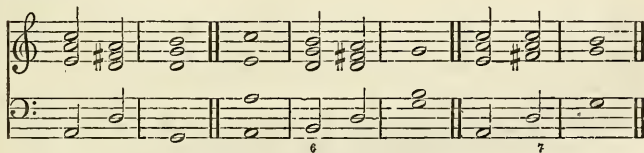
The other modulations cannot be exhibited in the minor scale,¹ as it does not, like the major scale, consist of two symmetrical parts of which each is alike part of two scales.

¹ Not in the form of the minor scale, at least, which we have assumed as the standard form. It is possible to exemplify these modulations in other forms of the minor scale.

Modulation to the key of the relative major of the subdominant is effected through the major chord of c as modulating dominant, thus—



And modulation to the key of the relative major of the dominant is effected through the major chord of d as modulating dominant, thus—



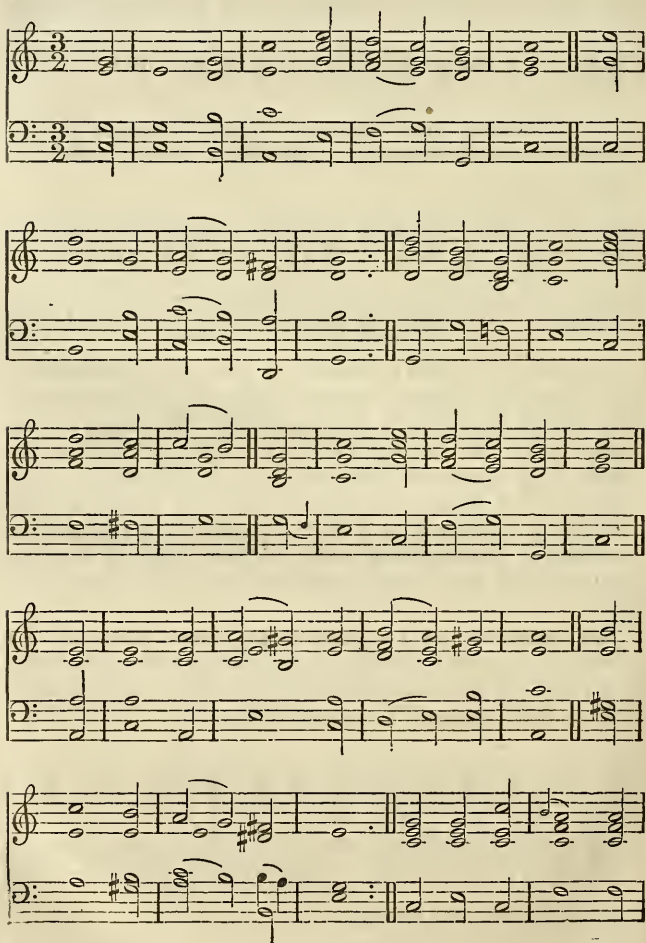
273. In all the cases of modulation now given, the new key is introduced not suddenly, but after notice given by its dominant. This kind of modulation is called *gradual*. The length of time during which the new key may be employed is indeterminate. Sometimes it continues to the end of the period in which it is introduced; if it be in a cadence at the end of a period that the new key is introduced, as it very commonly is, it may embrace the whole of the succeeding period, or part of it; on the other hand, the next period may immediately resume the former key, § 146.

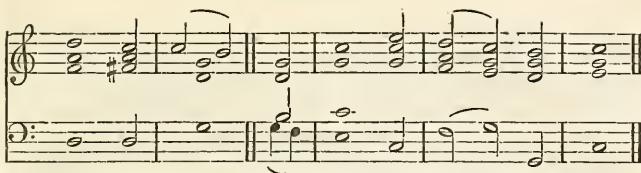
The introduction of a new key is not always announced by a modulating dominant. In the following passage, the second period is in one of the relative keys of the tonic; and no notice whatever is given of the change till it is made, thus—



See also the following example.

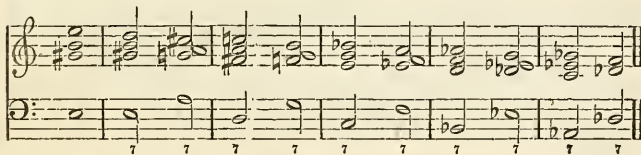
274. There may be more modulations than one in the same piece ; but the original key of the piece must in all cases be restored before the close, § 147. Every piece must give an impression of one predominant key. The following psalm-tune exhibits several modulations :—





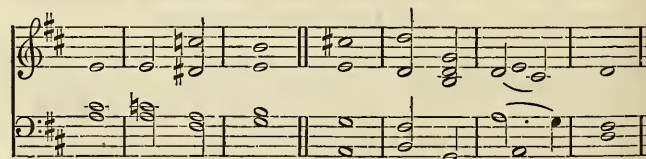
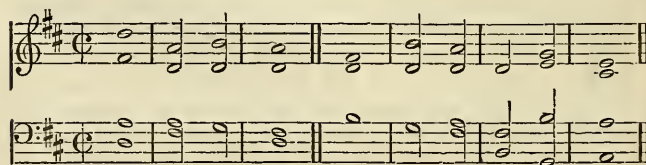
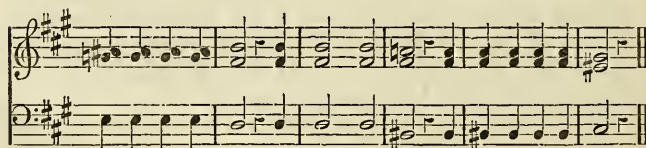
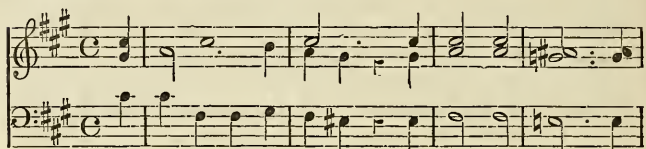
Thus, the first period is entirely in the principal key, c major ; the second, commencing in the same, modulates into the key of the dominant ; the third, commencing in that key, returns momentarily to the principal key, but resumes at the close the key of the dominant ; the fourth period is entirely in the principal key ; the fifth period commences suddenly in the key of the relative minor, and continues therein ; the sixth period, commencing in that key, modulates through it into the key of the relative minor of the dominant of the principal key ; the seventh period resumes the principal key, and modulates into that of its dominant in the concluding cadence ; and the last period is entirely in the principal key.

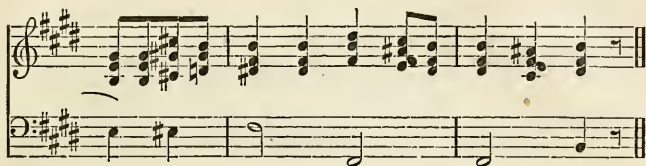
275. If the chord of the dominant seventh of a particular key is the means of modulating into that key, the use of two such chords in succession resolving into each other by natural progression will effect a modulation into a key one degree further removed from the original ; the use of three such chords in a similar way will effect modulation into a key two degrees further removed ; and so on, through any number of such chords in sequence. A continued modulation through the whole circle of keys may be effected in this way, from c# to c, and from that to cb ; part of that series is here given, and the modification of the progression peculiar to the several parts should be observed.



The third form of deceptive cadence, fig., § 257, is one step in this series. The fourth form of deceptive cadence in the same figure is also an example of modulation by a succession of chords of the dominant seventh, proceeding, however, not according to their natural resolutions, but by licence.

276. Modulation is also effected by the chord of the diminished seventh, as in the following examples ; which the student may transpose into their respective keys without sharps or flats, and which he may also transcribe with the chord of the dominant seventh, as modulating chord, instead of that of the diminished seventh, for the sake of comparing them.





277. The occurrence of sudden or *abrupt* modulation into remote keys is of rare occurrence compared with that of *natural* modulation, or modulation into the related keys ; and it is had recourse to, not so much for the pleasing variety of effect which natural modulation aims at, as for some peculiar, and, as it might be termed, dramatic effect. The more remote the relation between the keys, the more startling the effect of the contrast. But this kind of modulation seldom occurs in short pieces ; because it is seldom that there can be any necessity for it.

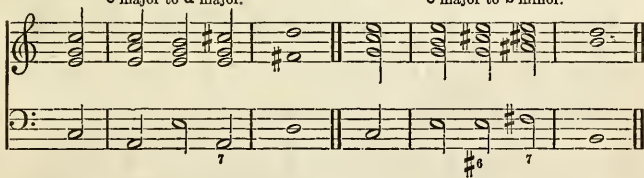
For the modulation that takes place from any tonic to keys not immediately related to it, no rule can be prescribed, except that, in the chords which form the steps in the process, there should generally be some note common to each two adjacent chords. A few examples of the more common modulations of this kind are added.

(1)

C major to d major.

(2)

C major to b minor.

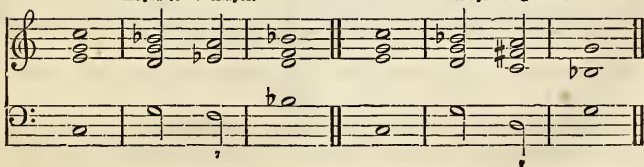


(3)

C major to b♭ major.

(4)

C major to g minor.



(5)

a minor to e major.

(6)

a minor to a major.

278. Of the keys which are not related to each other in the nearest degree, the two between which there is most frequently modulation is a major key and a minor on the same note, or *vice versa*. Although these keys differ in two notes, and in a very different way from that in which any two major keys, *e.g.*, c and d, differ, they have still a strong link of connexion, from the fact that the minor scale is derived immediately from the major, and from the other fact that the chord of the dominant in each is one and the same. There is thus a ready passage between these two keys; and they are frequently found assisting each other. Very commonly the way in which this assistance is rendered is by one period of a piece being in one of the two keys, while the piece as a whole is in the other. In such a case, the signature is formally changed. But often the change of key occurs in course of a period, or even of a phrase. The signature is either formally changed (see Ex. § 152), or modulation is denoted in the usual way by flats, sharps, or naturals occurring in course of the piece. A peculiar use of this modulation is the following: In a composition in the minor mode, the last chord of the concluding period is often not minor, as the whole course of the period would lead us to expect, but major; thus—

The contrast of this unexpected final progression with the preceding ones has a striking and good effect.

279. It remains to notice enharmonic modulation, or the abrupt modulation effected by an enharmonic change of one of the notes

of the modulating chord. This takes place chiefly in connexion with the chord of the diminished seventh.

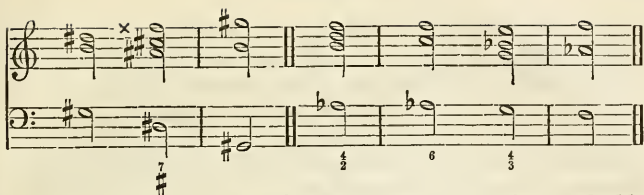
This chord admits of three enharmonic changes, thus—



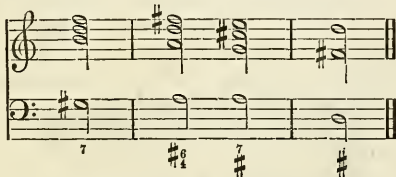
the small notes indicating the fundamental basses. The first chord is that of the diminished seventh itself in the key in which it arises, a minor : in the second chord, the $e\sharp$ is enharmonically substituted for the f , making the chord a first inversion of the chord of the diminished seventh of $e\sharp$, (figured $\sharp 6_5$), which is naturally derived from, and resolved into, the tonic of the scale of $f\sharp$ minor : in the third chord, there is an enharmonic change of two of the parts, viz., of f into $e\sharp$, and of d into $c\times$, making the chord a second inversion of the chord of the diminished seventh on $c\times$ (figured $\sharp 6_3$), which is naturally derived from, and resolved into, the tonic of the scale of $d\sharp$ minor : in the fourth chord, the bass $g\sharp$ is changed into $a\flat$, making the chord a third inversion of that of the diminished seventh on b , (figured $\frac{4}{2}$), which is naturally derived from, and resolved into, the tonic of the scale of c minor. Considering the progression into the tonic of a minor as its natural resolution within its own key, the progressions of the chord, enharmonically changed, into the other tonics which are here exhibited, are so many instances of abrupt modulation into these tonics.



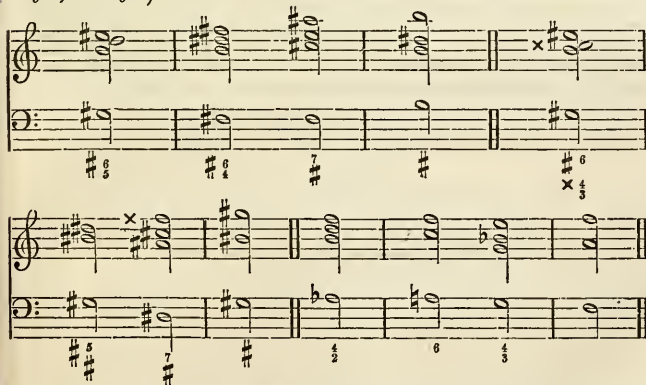
280. The chord of the diminished seventh admits of resolution, however, also into the tonic of the major key on the same note as



282. The chord of the diminished seventh is also resolvable into the chord of the subdominant of its major resolvent tonic, § 231 ; which may be viewed as a progression preparatory to modulation into the key of which that chord is the tonic, thus—



Here the modulating dominant immediately follows the chord of (d major, as) the subdominant, but introduces it immediately after as the new tonic. This applies to the chord in each of its three enharmonic changes ; so that we have, as annexed, three other modulations into the key of the subdominants (b major, g# major, f major) of their proper major resolvents (f# major, d# major, c major).



283. The chord of the diminished seventh is thus exceedingly

rich in its resources for modulation. Not reckoning its two natural resolvents, it gives the means of modulating immediately, by the mere fact of its resolution, into six other keys, three minor and three major ; and it further gives the means of modulating, by one step more, into eight other keys, four minor and four major. The extreme flexibility of this chord appears to arise from the peculiar way in which it is constituted ; it consists of three minor thirds, by which the parts of the chord are so equally balanced as to prevent any tendency to one special resolution.

284. The chord of the diminished seventh is not the only chord which may be resolved so as to effect enharmonic modulation. Indeed any chord may be enharmonically changed for this purpose : thus so familiar a chord as that of the dominant may be resolved as if it were the chord of the augmented sixth, thus—



The student may, by way of exercise, transpose into other keys the examples of modulation which have been given.¹

¹ It is not necessary to make any further remarks on the discovery of the key or keys used in course of a piece, after what has been said on the subject in Part I. ; except (1.) that the same means of discovering them as were there indicated are available for that purpose still ; (2.) that all the parts must be examined in looking for any change of key, as the characteristic note of a new key may occur in any part ; (3.) that the opening, and especially the concluding, chords furnish additional and very satisfactory evidence of the key.

CHAPTER IX.

LOGICAL ANALYSIS.

285. ALL the elements for the grammatical analysis of a musical composition have now been presented. There is no composition of which the grammatical structure may not be comprehended by the student who knows the chords which form the natural harmony of the scale, with the chords derived from them by alteration or inversion of their intervals ; the modification of these chords by the introduction of casual extraneous notes ; the conditions under which a number of chords is arranged in series, in other words, the laws of progression, and the conditions under which different groups of mutually related chords come to the assistance of each other, as in modulation. The elements of this analysis, and the laws of their connexion, are few in number ; but the circumstances in which they are exemplified are indefinitely various. So that, whilst it is admitted that the science of musical composition is from its nature unfitted to become a means of mental discipline for the many, it is not to be disputed that, to the few who have the time and the inclination to study it, it affords a discipline analogous to that which the grammatical analysis of language yields to those who study it.

286. But as language admits of a higher analysis than the grammatical, an analysis which deals with its subject-matter and not merely with the form in which that is expressed, so does music. A musical composition is constructed upon a certain plan ; it is characterized by unity in its subject-matter, yet by variety in the forms by which that is expressed. To be understood, it must be subjected to an analysis which shall bring out these characteristics ; an analysis for which there is no recognised technical name, but to which we may apply the name given to the corre-

sponding analysis in language, viz., logical analysis. It does not fall within the design of this treatise to exhibit this analysis in detail ; but, as the student is now far enough advanced to proceed with the study of it, a few hints, showing the general nature and process of this analysis, are added as a concluding chapter.

The object of the analysis, then, is to discover, amidst all the variety of expression which may mark a musical composition, the principle of its unity.¹ This is different in different kinds of composition.

287. In a short composition, such as the psalm-tune or chorale, the unity lies in these three features : (1.) there is the one predominant key, whether there be any modulation in it or not ; (2.) there is a symmetry of phrase and period ; and (3.) there is a sameness of melodic and harmonic character throughout. The variety of expression which it admits of arises (1.) from the fact that the melody of its phrases and periods, though the same in style, is different in sequence of sound, and consequently admits of different combinations of chords as accompaniment ; and (2.) from occasional modulation. But such compositions, from their shortness, give an inadequate idea of the means of musical expression.

288. The 'song' depends for its unity and its variety on much the same features as the chorale. It admits of considerable variety of form, however. When it is prolonged, there is generally a repetition of the first period ; which greatly strengthens the sense of its unity ; see § 139.—The 'anthem' is a form of sacred music next in order above the psalm-tune. It consists of several movements or periods of some length, which may vary in key, rhythm, and time ; but which must be alike in style, and which (in the longer anthems) are generally connected by the repetition of a subject or refrain between them.

289. It is the 'chorus,' in its higher forms, that most fully exhibits the resources of expression in concerted vocal music. Such a composition consists of but one lengthened movement, and,

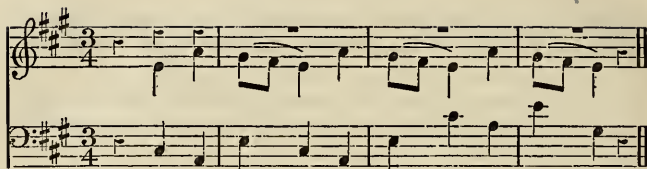
¹ Every art has a principle of unity for its own compositions, which may be illustrated more or less by reference to the same principle in other arts. But it only leads to confusion to push such analogy too far. Although language and music, therefore, have been compared in the text so far as to bring out the fact that both have a principle of unity for their compositions, it is not intended to be conveyed, as is sometimes done, that these principles are the same or even similar, and that we can come to a perception of the one by following out an analogy between them, which must be quite imaginary.

from this fact, requires greater means both of unity and of variety than the shorter kind of compositions already noticed. Reference to a particular example will best illustrate what these are.

The first chorus in Handel's 'Messiah,' entitled, 'And the glory of the Lord,' consists of one hundred and thirty-eight measures in three-crotchet rhythm. It has the following symphony or instrumental introduction of ten measures :—



This consists of three phrases as marked. The first has a distinctive subject in the melody ; so has the second ; the third has not, but has the subject of the second repeated a fifth below, forming its alto part, at the same time that it has an additional measure of cadence to the whole. This introduction presents a subject, therefore, of two parts or phrases. An examination of the chorus shows that this double subject is the foundation of the whole composition : it is constantly occurring, now the first phrase of it, and now the second. At the end of about thirty measures, another phrase is introduced, of similar length, and to be used in a similar way—



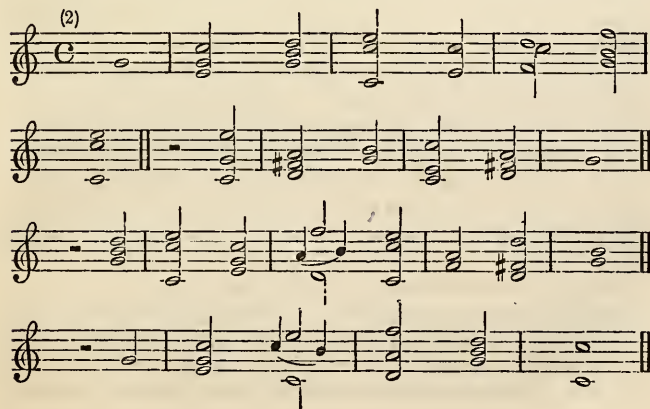
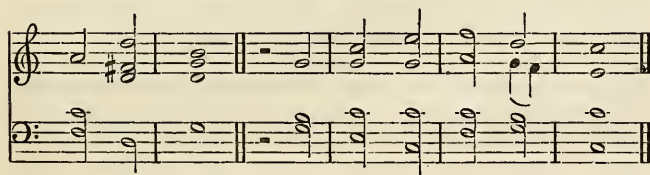
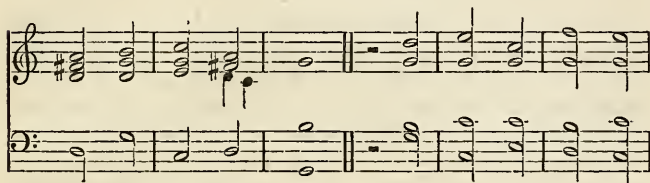
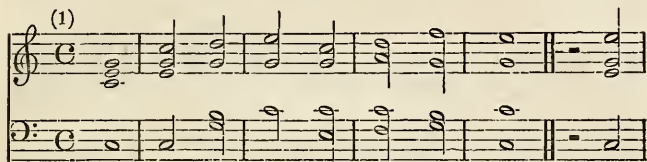
Thenceforward, the subject is threefold ; and its phrases continue to follow each other in a great variety of ways, sometimes in different parts, treble, alto, tenor, or bass ; sometimes in different keys ; sometimes accompanied with a different number of parts, one, two, or three ; sometimes as accompaniment to each other ; sometimes the whole of one of the phrases given, sometimes only a part ; and so on in the closest sequence till the end of the piece. The only interruption in this chorus to the flow of the subject is the occasional pause resulting from a cadence introduced to give rest to the ear for a moment ; there is not here the interruption to the subject caused by a long-sustained note, or a long diatonic run upon one syllable, which some other choruses show. Thus the whole substance of this chorus may be said to be comprised in the ten measures within which its threefold subject is embodied. It is immediately apparent, then, what a strongly felt unity there must be throughout the whole, and yet amidst what a remarkable diversity of expression this unity exists. An examination of other choruses would lead to the same result ; we shall, therefore, now classify the means of expression which such an examination suggests.

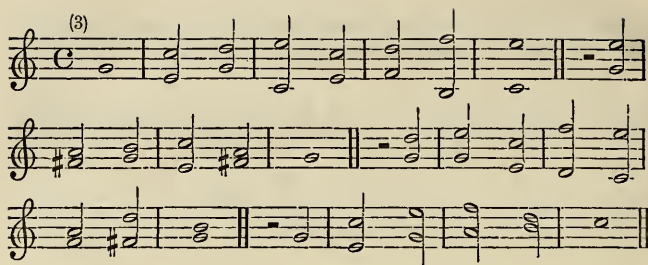
290. The unity of such a piece is maintained by the presence of the same subject throughout, whilst diversity is given to it by the different ways in which this subject is accompanied.

(1.) The subject may occur in any one of the four parts, as may be seen in the chorus above mentioned ; different effects resulting from its different positions. Some idea of this may be got by comparing the accompaniments of the scale in figs., §§ 182, 184, with those in § 180 ; where the scale is exhibited as subject in all the parts successively.

(2.) The subject may be accompanied with a different number of parts, one, two, or three. Regarding this it is to be observed, that the parts of an accompaniment to a given subject are not the same in respect of their own melody, when their number is dimi-

nished. Here is an example of a short melody arranged for four, three, and two voices successively—





It will be seen that there is a marked difference in the parts of the accompaniment to the subject, though the progression of the harmony is the same in all three. This difference depends on two considerations—(1.) When one or two of the parts are omitted, the remaining part or parts must be recast so as to include the essential notes of the various chords, which may previously have occurred in the omitted parts ; (2.) The remaining parts must be made as melodious as possible, and particularly the lowest remaining part must be made as bass-like as possible, to give some impression of completeness and stability to the arrangement of the whole. These are the two general rules to be observed in diminishing the number of parts in a composition ; the first being the most general, and the second modifying it in certain cases. The more detailed rules that are generally given may be viewed as included in these two. If the two upper parts of fig. 1. be sung, or the two upper parts of any composition arranged for four voices, the harmony will seem insipid and feeble, and the second part monotonous ; the reason being that many of the characteristic notes of the chords lie in the parts omitted. Reduction of the number of parts, therefore, implies their re-arrangement. But, on the other hand, it implies no change in the harmonic structure of the piece ; for the analysis of figs. 1, 2, and 3, above is precisely the same. Every harmony in two parts is thus written with the full harmony of four parts present to the mind, and on the same fundamental basses.

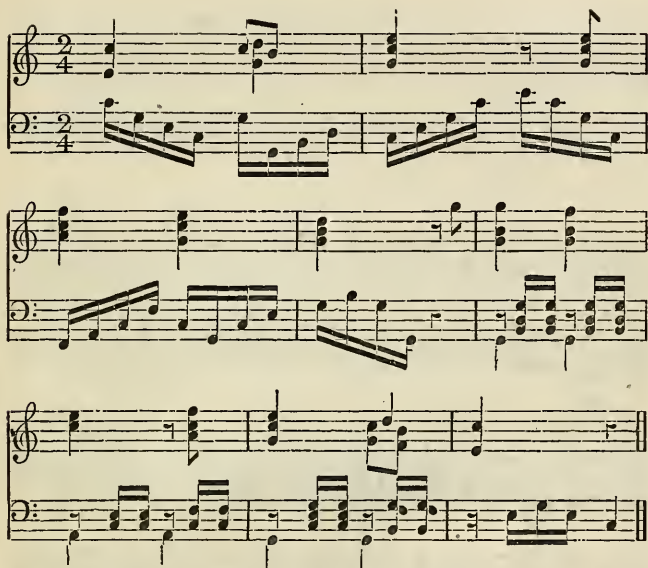
291. (3.) The same subject, in the same part, may be differently accompanied, and in the same key. Different positions and inversions of the chords may be used, and the various chords of the seventh may be employed to colour the harmony more deeply. The different accompaniments which have been given to the scale

292. The variations of accompaniment just spoken of are all plain harmony ; but a much wider variety offers itself if we take into consideration the forms of ornate harmony. Of these the three following may be distinguished : (1.) The harmony may be coloured by the use of rests in a certain order in the various parts, thus—

The image displays four systems of musical notation, each consisting of a treble and bass staff in 3/8 time, key of B-flat major. The notation illustrates various ways to create ornate harmony using rests. In the first system, chords are formed with some notes having eighth-note rests. The second system shows more complex rests, including sixteenth-note patterns. The third system features sixteenth-note runs in the bass staff. The fourth system shows chords with dotted notes and rests in the bass staff.

(2.) The notes in the chords, instead of being struck together, may be spread out so as to be struck in succession,¹ as has been seen already in several examples, and this in any part, thus—

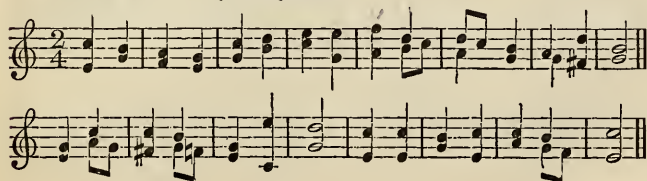
¹ This form of ornate harmony occurs less in vocal than in instrumental music. It is termed 'arpeggio,' *i.e.*, the manner in which the chords are struck on the harp.

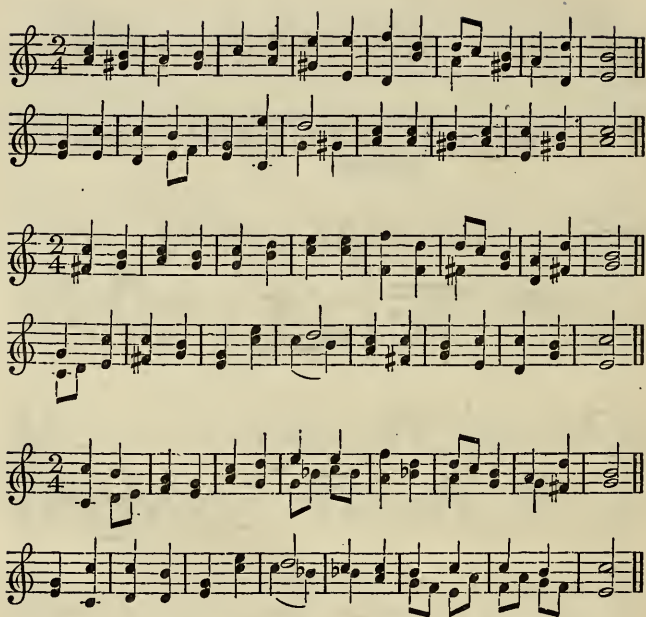


This arrangement may be combined with the former.

(3.) There may be a free use of passing notes, either upon the basis of the plain harmony, or on that of either of the two foregoing varieties of ornate harmony. The examples already given of passing notes, fig. §§ 246, 247 may suffice.

(4.) The same subject may be differently harmonized as to key. This is illustrated so far by a comparison of the scale-accompaniments given in Chaps. I. II. III., which are in one key, with those accompaniments given in §§ 263-269. The following example is the eighty-second exercise in Turlé & Taylor's *Singing Method*; which the student may analyse—





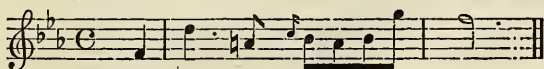
And the two following bass parts are basses on which to construct further variety of harmony to the subject given in fig. 2, § 291.



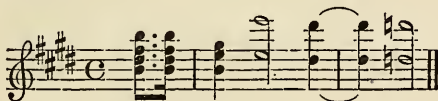
NOTE.

THE student is referred to the following miscellaneous examples for analysis; not to mention those of a simpler kind which any ordinary collection of psalm-tunes and chants will furnish:—

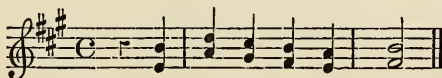
1. The Chorales in Mendelssohn's 'St. Paul,' viz., 'Sleepers, wake!' 'To Thee, O Lord;' 'To God on High.'
2. Introduction to the Overture 'Zauberflöte.'—Mozart.
3. Extract from the Overture 'Euryanthe.'—Weber.



4. Introduction to the Overture 'Stradella'—Flotow.
5. Introduction to the Overture 'Masaniello.'—Auber.
6. Extract from the Overture 'Il Barbiere.'—Rossini.

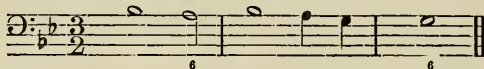


7. Extract from the Glee 'The Load-Stars.'—Shield.

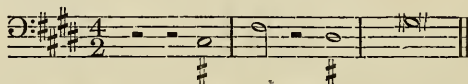


8. Haydn's Third Mass—'Agnus Dei.'
9. Mozart's Twelfth Mass—'Gloria' (61st measure from the end, and twelve following measures); and 'Agnus Dei' (first period).
10. Haydn's 'Spring.' *Air*, 'With joy the Impatient Husbandman.'
11. Handel's 'Alexander's Feast.' *Chorus*, 'At last, divine Cecilia came.'
12. Mozart's Requiem—'Dies Iræ.'
13. Handel's 'Messiah.' *Chorus*, 'And the Glory of the Lord.'

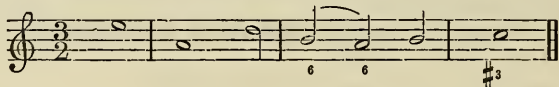
14. Extract from Purcell's Anthem—'O God, Thou art my God!' Given figured bass and melody, to fill up the inner parts.



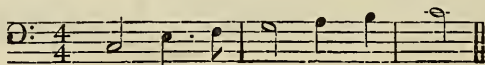
15. Extract from Crotch's Anthem—'How dear are Thy Counsels!' Given figured bass and melody, to fill up the inner parts.



16. Trio in Purcell's Anthem—'Be merciful to me, O God!' Given figured bass, to add alto and tenor parts, and compare with the original.



17. Write an alto-and-tenor, and a soprano-alto-and-tenor, accompaniment to the bass solo in R. A. Smith's Anthem—'God be Merciful unto Us.'



1. The first part of the paper is devoted to a general discussion of the problem.

2. The second part is devoted to a detailed study of the case of a single particle.

3. The third part is devoted to a study of the case of a system of particles.

4. The fourth part is devoted to a study of the case of a system of particles.

5. The fifth part is devoted to a study of the case of a system of particles.

6. The sixth part is devoted to a study of the case of a system of particles.

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11. The eleventh part is devoted to a study of the case of a system of particles.

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13. The thirteenth part is devoted to a study of the case of a system of particles.

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29. The twenty-ninth part is devoted to a study of the case of a system of particles.

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