RUDIMENTS

OF THE

SCIENCE OF HARMONY.

RUDIMENTS

OF THE

SCIENCE OF HARMONY,

OR

THOROUGH BASS.*

THE science of Harmony is not a study adapted for young children; but at the age of fifteen every youth evincing, by his love of music, a disposition to cultivate the art, ought to have some general knowledge of the principles of the science. Without this he will not be able to appreciate fully the merits of the finest compositions, nor to understand the meaning of much that he will meet with on the subject of music in works of general literature.

The following outline of the rudiments of harmony will not supersede more elaborate treatises, nor obviate the necessity of taking private lessons of a master, in the case of those who wish to write music professionally, but will perhaps suffice to convey (in an accessible form) as much information as is required by the great body of musical amateurs, and by those who merely wish to obtain the power of harmonising simple airs for their own amusement, or the gratification of children.

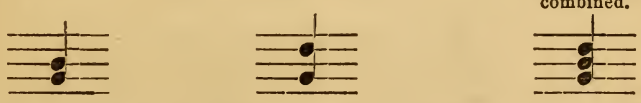
In schools, the Teacher must exercise his own judgment as to what parts of the subject may be adapted for class teaching, and what must be left to individual application.

OF CHORDS.

The theory of harmony is very simple, for however numerous, and diversified, the chords employed by a modern composer may appear, they all consist of, or may be considered as derived from, *thirds* and *fifths*.

Strictly speaking, there are but two perfect chords, or concords, in music,—*the third* and *the fifth*. They may be used separately, or combined, thus:—

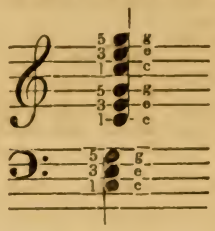
A Third. A Fifth. A Third and Fifth combined.



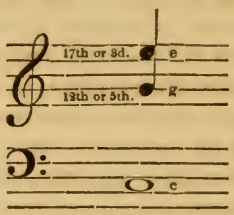
* The term 'Thorough Bass' is becoming obsolete. It originated in the use of figured basses, (explained page 90). To understand the nature of the chords belonging to every base note, and to know how to figure these chords was to have a *thorough* knowledge of basses, and of their harmonies. Hence the science of harmony itself was called 'thorough bass.'

The three notes of the third and fifth combined, form what is called *a Triad.*

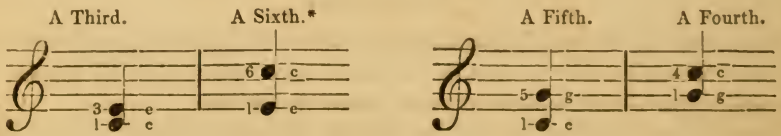
Music may be written in nine different parts for nine different voices, and yet all consist of thirds and fifths, as in the following example:—



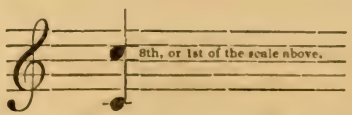
One of the most curious facts in the science is the tendency of every sound to generate its own third and fifth, or produce them of itself. If the student take an opportunity, when the room is perfectly still, to strike any one of the base notes of a piano, and at the same time place his ear close to the sounding board, he will distinctly hear two other sounds, fainter than the first, and considerably shriller. These are the twelfth and seventeenth, or the fifth and third in the two upper scales, thus,



The sounds thus generated, or self-produced, are called *harmonics*, and include a minor seventh, which may usually be distinguished, besides the third and fifth, by a good ear. *A sixth* is the same as a third, only inverted or turned upside down, and *a fourth* is the same as an inverted fifth; for example:—

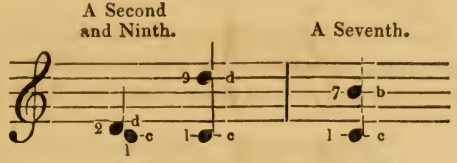


An eighth is not considered to form a chord when there are no intermediate notes, but is an unison with the first:—



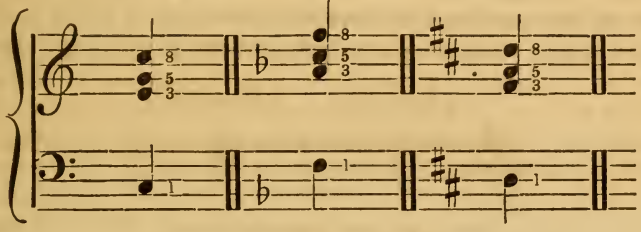
* A minor sixth. The major third becomes by inversion a minor sixth, and a minor third by inversion a major sixth.

The second and seventh are not concords, but discords, which may be introduced occasionally for the sake of effect. *The ninth* is, of course, the same as a second:



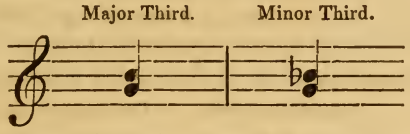
What is called the *common chord* consists simply of a perfect triad, or third and fifth combined, but it is generally written with the addition of the eighth.

THE COMMON CHORD IN DIFFERENT KEYS.

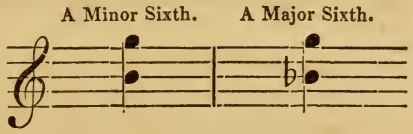


MAJOR AND MINOR CHORDS.

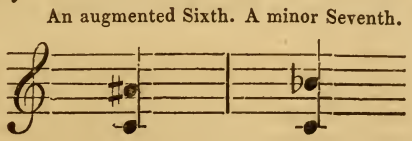
A third may be either *major* or *minor*, and in both cases the effect is considered equally perfect, although the minor third is, of course, only adapted for plaintive music.



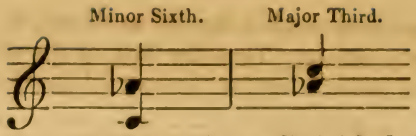
The minor third becomes by inversion a *major sixth.*



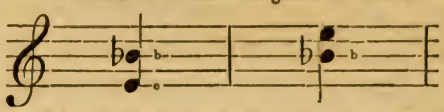
The augmented sixth is not considered a concord, but is one of the most pleasing discords employed in music. It contains the same number of tones and semitones as *a minor seventh,* although the two chords, or rather discords, are written differently.



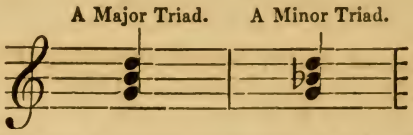
A minor sixth is considered as perfect a concord as a major sixth, because when inverted it becomes a major third.



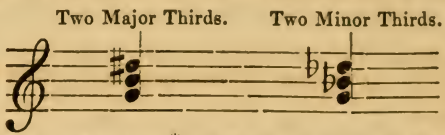
A minor fifth, or, more correctly speaking, *a diminished fifth*, although, when introduced with judgment, often producing a pleasing effect, is to be considered a discord. By inversion it becomes *an augmented fourth*, which is also a discord.



The third and fifth combined, we have said, form what is called a triad; but as the third may be major or minor, there are consequently *major* and *minor triads*.



Each of these triads forms a perfect consonant chord. The triad may be regarded as comprising not only a third and fifth, but also as consisting of two thirds; and it is a fact worth noting, that the two thirds in every perfect triad always consist of a major and a minor third. When the first third is major, the second must be minor. When the first third is minor, the second must be major. Two major thirds combined, or two minor thirds combined, produce a discord, although the latter is one of a pleasing character. The student should strike the notes upon a piano-forte to observe the difference of effect.

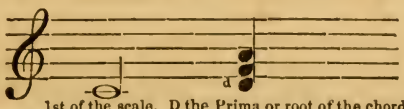


NAMES OF THE INTERVALS* FORMED BY CHORDS AND DISCORDS.

Before we proceed to any further explanation of the nature of chords and discords, it is necessary that the student should make himself acquainted with the names of the intervals between each, and with their quantities, in reference to the tones and semitones they contain. Here let us recall to mind that the interval between B and C, and between E and F, is always a semitone, unless one or other of those notes be raised or depressed by a sharp or a flat; while the interval between all the other degrees of the scale, next to each other, is a whole tone.

* The term *interval* we have already defined to be the distance between one note and another. In speaking, however, of chords, every note in a chord is commonly termed an interval, including even the first note of the chord. Upon this subject musicians differ. We follow the opinion of those who say that it is a misnomer to call the first note of the chord an interval. The term is derived from the Latin *intervallum*, a ditch, and the preposition *inter*, between. There can be no *inter* in reference to one object, as in reference to two objects. One o'clock, for example, is not an interval; but we may speak of the interval between one and two o'clock. Hence a *third* is an interval, because it includes two sounds, and the semitones between them; but not the first or root of the chord.

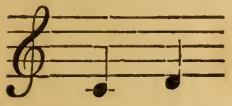
The first of every chord is called *the prima* or root, to distinguish it from the first of the scale, merely. Thus the first of the scale in the following instance is C, but the prima or root of the annexed chord is D.



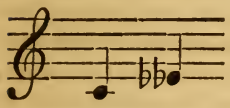
1st of the scale. D the Prima or root of the chord.

A Chromatic semitone or augmented unison, containing one semitone.

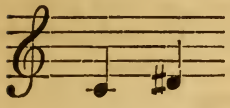
*A Diatonic Semitone,** or Minor Second, containing one semitone.



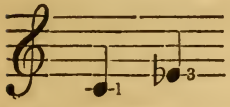
A Major Second, containing two semitones.



A Diminished Third, containing the same.

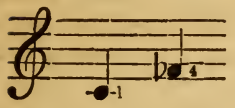


An Augmented Second, containing three semitones.

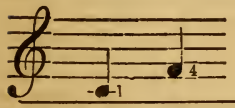


A Minor Third, containing three semitones.

A Major Third, containing four semitones.



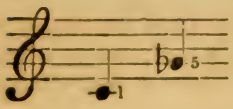
A Diminished Fourth, containing the same.



A Perfect Fourth, containing five semitones.

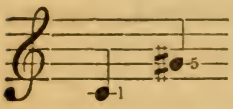
* When the semitone changes its place on the staff, it is called *diatonic;* when it arises from sharpening or flattening the same note, without changing its place, it is called *chromatic.*

An Augmented Fourth, containing six semitones.

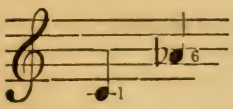


A Diminished Fifth, containing the same.

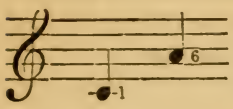
A Perfect Fifth, containing seven semitones.



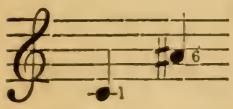
An Augmented Fifth, containing eight semitones.



A Minor Sixth, containing the same.



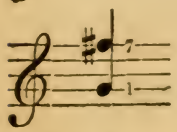
A Major Sixth, containing nine semitones.



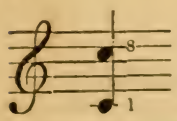
An Augmented Sixth, or Extreme Sharp Sixth, containing ten semitones.

A Diminished Seventh, containing nine semitones, the same as a Major Sixth.

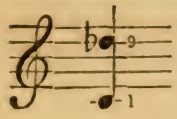
A Minor Seventh, containing ten semitones, the same as an Augmented Sixth.



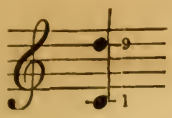
A Major Seventh, containing eleven semitones.



The Octave, containing twelve semitones.



A Flat Ninth, containing thirteen semitones.

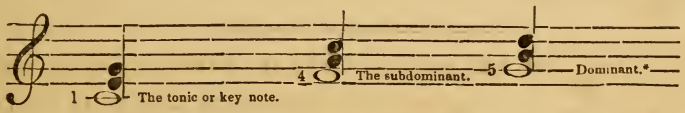


A Major Ninth, containing fourteen semitones.

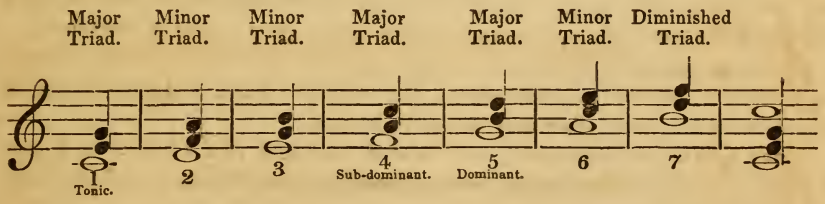
The student should take great pains to understand thoroughly the nature of the above intervals and to remember their exact names. He should strike them upon the piano frequently, until he can tell the name of each without looking at the notes; and he should examine music written in different keys, to analyze the intervals between the lowest base note, and the uppermost note of the air. It is especially important to make himself well acquainted with the difference between a *minor seventh* and a *major seventh*, upon which much depends, in the science of harmony.

OF THE HARMONY BELONGING TO MAJOR SCALES.

Every full perfect chord contains simply a third and a fifth; but the third and the fifth may be derived from different *roots*. Sometimes the first of the scale may be considered the root, sometimes the fifth, and sometimes another note. According to a system adopted very generally in England, there are but three roots, otherwise called *fundamental basses*. These roots are the *first*, the *fourth*, and the *fifth* of the scale, known by the names of *the tonic*, *the sub-dominant*, and *dominant*.

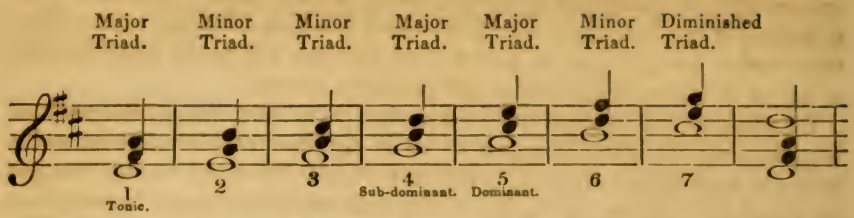


According, however, to the system of the Abbé Vogler (a very high authority, followed by most German writers), every note may be treated as a root, or fundamental base, from which a third and fifth may be derived. The harmony of the major scale, therefore, comprises the following triads, some of which have major thirds, others minor. The triad formed upon the seventh of the scale is called *a diminished triad;* it consists of two minor thirds, and is not a perfect chord, but a discord, which requires what is termed *resolution ;* a term we shall hereafter explain.



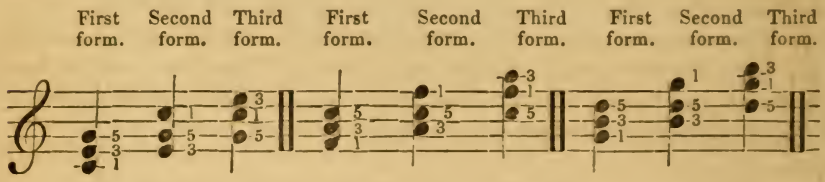
* The reason why the fifth of the scale was called the dominant is supposed to be because of its *predominance* in old church music.

The same in the key of D.



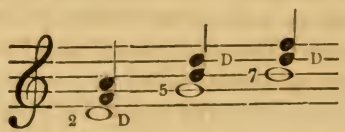
The reason it is necessary to regard every triad as derived from some root is, that when the three notes forming the triad change positions—the third becoming by inversion a sixth, the fifth a fourth, and the first an eighth—they still belong to the same chord, form essentially the same harmony, and are better understood by their original names, than they would be by sometimes calling the third a sixth and the fifth a fourth.

Every triad may be employed in three different forms, as in the following example.



OF THE MODE OF USING THE TRIAD.

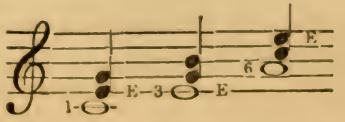
Suppose the note to be harmonised is D, we must consider to what triad it belongs. If we are in the key of C, it will be found that D belongs to three different triads—namely, the triad on the second, the fifth, and the seventh of the scale.



We may take then for the accompanying chords, the two notes belonging to any one of the above triads; but if in one part of the harmony we take G, for a third part we must take B, because G and D belong only to *one* of the triads.

If to accompany D in one part we take F, then the third part may be either A or B, because, as will be seen above, the two notes F and D belong to *two* of the above triads, and either may therefore be used.

If the note to be harmonised be E, we shall find that, in the key of C, E also belongs to three different triads, derived from the first, the third, and the sixth of the scale, thus :—

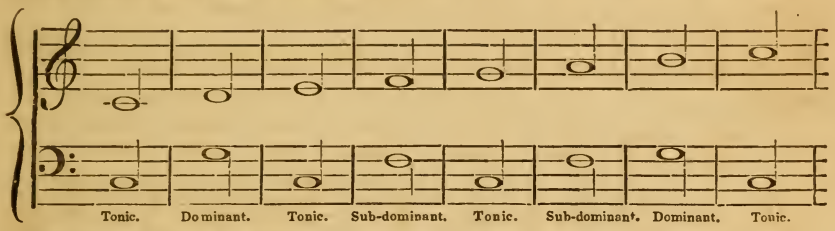


In harmonising E, therefore, for two parts, we may take, if we please, B; but in consequence of taking B, if we wish to add a third part, we must then take G, because B only belongs to one of the above triads, and determines, therefore, the chord to be employed: G, B, and A, for instance, will not be found together in any of the above triads, and would produce a discord.

On examining the scale, it will be seen that *every note*, in a similar manner, *may be harmonised as belonging to three different triads.* The harmony, however, most frequently used, is that of the triads belonging to the tonic, the sub-dominant, and the dominant. Every note of the scale may be treated as belonging to one of these three chords, as in the following example; but to employ them exclusively would produce a monotonous effect.

THE SCALE

Harmonised with the Tonic, Sub-dominant, and Dominant, in the base.

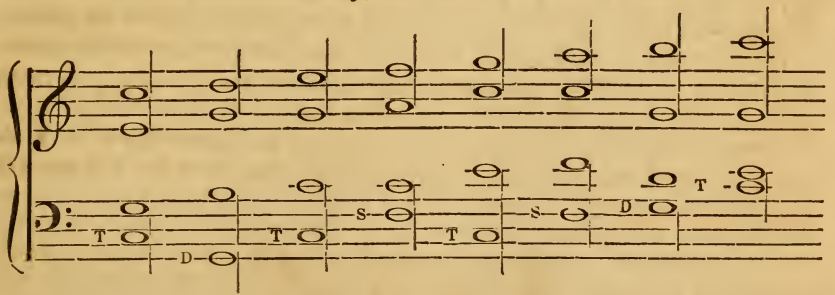


In writing music in three parts, three different notes may, as we have explained, be employed; but if a fourth part be added, it must be done either by introducing a *dissonant* note for the sake of some particular effect, or by *doubling* one of the three notes. When one of the three notes is doubled, the note to be preferred is generally the first, or root of the chord, sometimes the fifth, and, but very seldom, the third.

Without using any dissonant notes, it is possible to harmonise the scale for four voices with the chords only of the tonic, sub-dominant, and dominant, and with their roots in the base. The scale may be harmonised much more effectively by employing, as well, other chords; but the student will find it a good exercise hereafter to harmonise the scale upon this principle, without having the following example before him.*

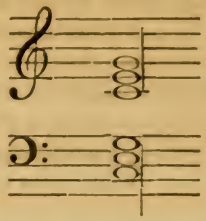
THE SCALE

Harmonised for four parts, with the chords of the Tonic, Sub-dominant, and Dominant only, and their roots in the base.

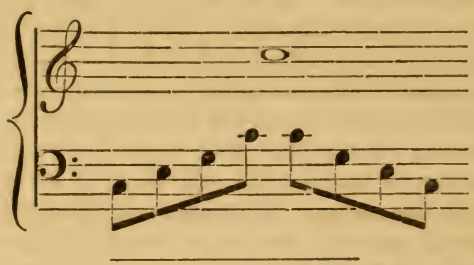


* Taking care to avoid consecutive fifths and octaves, to be hereafter explained.

The preceding is an instance of what is called *dispersed harmony*. Harmonies written in the following manner would be called *close harmonies*.



The example we have given of the scale harmonised may be taken as an illustration of what is termed harmony in *simple counterpoint*. Formerly, when notes were written without stems, they were called *points*, and to harmonise in simple counterpoint was to put point counter to, or against, point; that is to say, note against note. The same note may be harmonised with any number of notes belonging to the same chord, as in the following instance; but the harmony in that case would not, of course, be called simple counterpoint.



OF DISCORDS.

It cannot be too often repeated, in order that the fact may be well impressed upon the mind, that every full perfect chord contains simply a third and a fifth. When any note is introduced not belonging to the triad, in its first, second, or third form, the chord is changed into a discord.

Discords are greatly used in music, because, in dwelling upon them occasionally, the sweetness of the perfect chord is more fully felt by contrast.

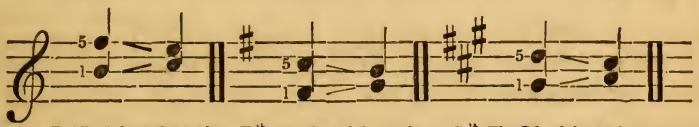
The term *chord* is a general term, which is often made to include *discords*, so that discords are frequently termed *chords* by musicians, in speaking generally on the subject; but as it is desirable in an elementary work to use the greatest precision of language, we shall here never use the term chord when we are speaking of harmonies containing a dissonant note.

All discords follow one general rule: *they require to be succeeded by the harmony of the perfect chord.* However pleasing the occasional introduction of a discord may be, the ear is not satisfied to rest upon it—it requires to be conducted to a state of repose. Music without occasional discords is tame and spiritless, but nothing would be more unpleasing than music consisting entirely of discords; and for the same reason, when, in a composition, discords are allowed to predominate over chords, however scientific the music may

be considered, it is bad in principle and in effect, and more especially so in vocal music.

The first discord we have to notice is that of *the diminished fifth*, in the triad on the seventh of the scale. Like every other discord, it must be followed by a perfect chord, and this is called *the resolution* of the discord. The dissonant note in this case is the fifth, called a diminished fifth, because, as an interval, it contains one semitone less than a perfect fifth. The manner in which it resolves is by *descending one degree* in the staff.

Resolution of the diminished fifth in different keys.



B, The 7th of the scale. F ♯, The 7th of the scale. G ♯, The 7th of the scale.

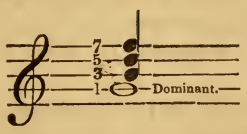
This example will serve to illustrate the rule which applies very generally, *excepting in minor keys*, to the *seventh of the scale*. The seventh of the scale in major keys requires to be followed by the eighth, from which it is but a semitone distant. If the student play through the scale of C till he comes to B, he will find that the ear would not be satisfied with resting there, nor with descending to A, but that the natural progression of the note is to C. So in harmony, when the seventh from the key note occurs in one of the under parts, it still requires to ascend to the eighth. Hence, in the above example, B, the seventh, ascends to C; F, the seventh, ascends to G; G, the seventh, ascends to A. The rule, however, excepting when accompanied by a diminished fifth, is not to be regarded as an invariable one. This tendency of the seventh to rise to the eighth occasions it to be called *the leading note* of the scale, because it leads on to the tonic or key note.

The *third* of the diminished triad is free to ascend or descend, and every other note of every other triad in the scale is free to ascend or descend, and is bound by no rule in that respect.

OF THE DOMINANT SEVENTH.

This discord, of which great use is made, is identically the same with the diminished triad, with the addition only of *a dominant base*. When the dominant is taken for the root, then the diminished fifth becomes a minor seventh, counting from the dominant, and is hence called

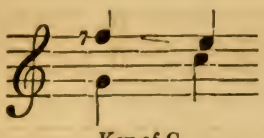
A Dominant Seventh.



It is important to notice that the dominant seventh is *a minor seventh*, and

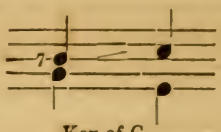
not *a major seventh*, like the seventh of the scale; or, in other words, a whole tone, and not a semitone, from the eighth. Were it the major seventh of the scale, it would be a leading note to the eighth; but as a minor seventh, it requires *to descend* to the sixth.

A Minor Seventh resolved.



Key of C.

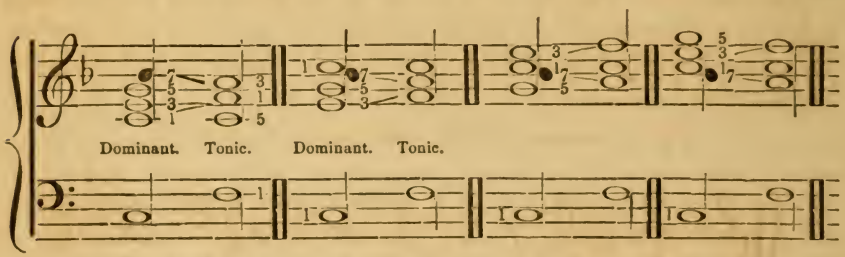
The Seventh of the scale resolved.



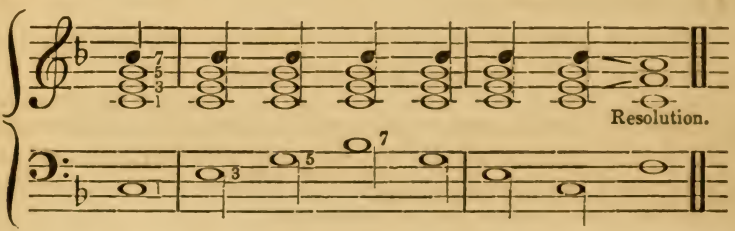
Key of C.

The diminished fifth, as part of a *triad*, may be employed in *three* different positions. The dominant seventh may, in like manner, be employed in *four* different positions. In the following example the dominant seventh is written as a crotchet, while the other notes are in minims, that it may be the more easily distinguished by the eye.

The four positions of the Dominant Seventh, with its resolutions.



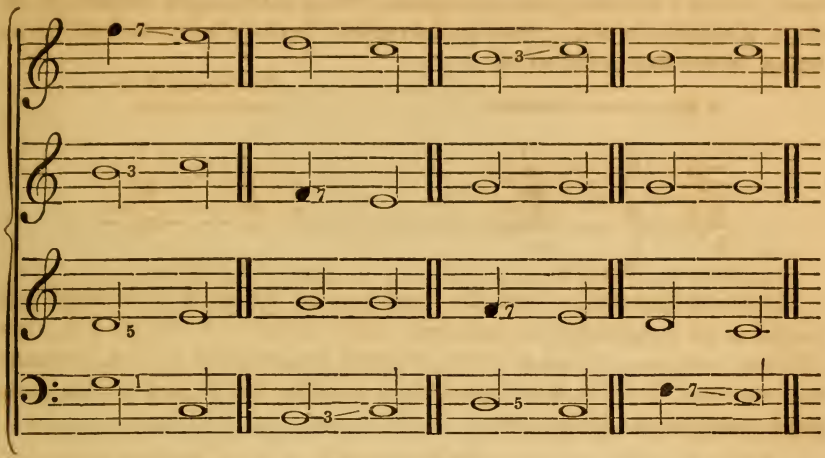
In this example the two roots of the dominant and tonic are placed in the base, but the third, fifth, or seventh may be placed in the base instead of the dominant root, if preferred. The discord of the dominant seventh is often played thus:—



This example should be played by the student on the piano, in order that he may learn to recognise the dissonant note which forms at once the diminished fifth and dominant seventh, whenever he hears it, without having the music before him.

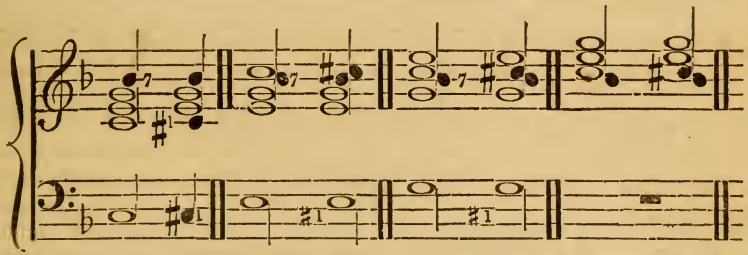
The following is an example of the dominant seventh, with its resolutions written in *score*. This is a term used to distinguish music, written with all the parts complete, from music written or printed with each part in a separate book.

Dominant Seventh.



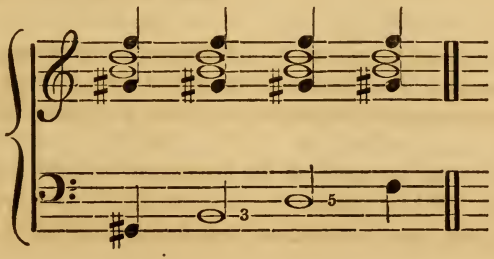
Another discord, which is often used with very good effect, is called *The Diminished Seventh.*—The discord of the *diminished* seventh differs only from the discord of the *dominant* seventh in this, that the intervals of the discord are diminished, or lessened, by raising the dominant root a semitone. The diminished seventh, however, only occurs in minor keys.

The Dominant Seventh and Diminished Seventh.



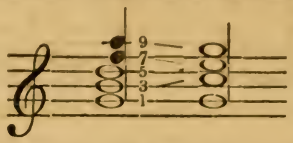
In each of the above positions of the diminished seventh, the original root C, being raised a semitone, becomes C ♯, the seventh of D minor.

The discords of the diminished seventh may be repeated in the same position in the treble with the third, fifth, and seventh in the base, as in the instances we gave of the dominant seventh. The following is an example of the diminished seventh, in the key of A minor.



The discord called *the added ninth*, is formed by adding a third to the dominant seventh. The discord is then composed of two triads; one having a major third, the other a minor. The dissonant notes are *the seventh* and *the ninth*, both of which must *descend* one degree.

The added Ninth with its resolution.



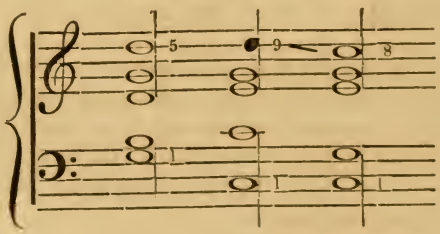
The added ninth may be employed with or without the seventh, and may be introduced in five different positions, but the most effective form of the discord is that of the above example.

What in England has been called the chord of *the added sixth*, upon a subdominant root, is by German writers not considered as a distinct chord, but merely as the triad belonging to the second of the scale, in its second form.

The added Sixth. Triad belonging to the second of the scale. The same in its second form.

Besides the rule we have mentioned, that every discord requires to be *resolved*, or followed by the perfect chord, there is another, equally important;—it must be *prepared;* that is to say, the dissonant note must not be suddenly or abruptly introduced; it must first be heard as a *consonant* in the preceding chord. With these two rules of preparation and resolution every note of the scale may be introduced as a dissonant note thus:—

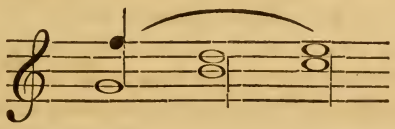
The Ninth prepared as a Fifth and resolved as an Eighth.



To the rule that all discords require to be prepared, by being first heard as consonants in the preceding harmony, there is one exception. The rule does not apply to the diminished fifth or dominant seventh. The note forming these dissonances may always be introduced abruptly, or without preparation. Discords prepared and resolved as in the preceding example are sometimes called *discords by suspension*, but the term appears to be wrongly used. By the best German writers, discords by suspension, or suspended discords, are only those repeated once, or oftener, before their resolution; the resolution

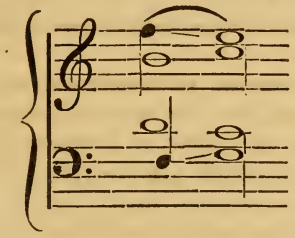
being, in this case, correctly described as suspended. In the following example, F, the dissonant note, is suspended in the second chord, and resolved in the third.

The following is an example of *interrupted resolution*, or resolution by retardation. The F, which should descend one degree, is first interrupted by D; but finally it descends upon E.



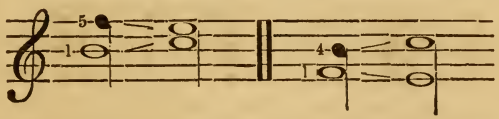
The peculiar effect of resolutions by retardation may be best studied in the works of Sebastian Bach.

When the diminished fifth or the dominant seventh occurs in two parts of the same chord, one may *ascend*, provided the other resolves by *descending*.



Discords arising out of what are called *augmented intervals* are an exception to the general rule. Instead of resolving by *descending* one degree on the staff, they resolve generally by *ascending* one degree. In Major keys the only augmented interval that can arise (without accidentals are introduced) is that of *the augmented fourth*, on *the fourth* of the scale. It is, as before stated, an inversion of the diminished fifth.

A diminished Fifth with its resolution. An augmented Fourth with its resolution.



The note forming the augmented fourth, it will be observed, is the seventh of the scale, or leading note, which is the reason it must, as a general rule, resolve by *ascending*.

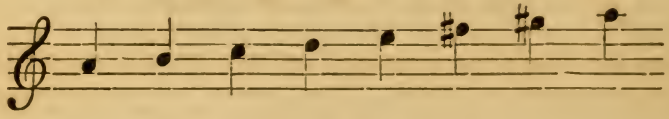
In Minor keys there are other augmented intervals, but before we notice them it will be necessary to speak of

THE HARMONY OF MINOR KEYS.

German writers usually make a distinction between the *melodic minor scale*, and the *harmonic minor scale*.

The *Melodic* minor scale is that in which the progression of the notes produces the most pleasing effect, ascending from the first to the eighth. The *harmonic* minor scale is that in which the notes are considered solely in reference to the chords belonging to them.

The Melodic Minor Scale.

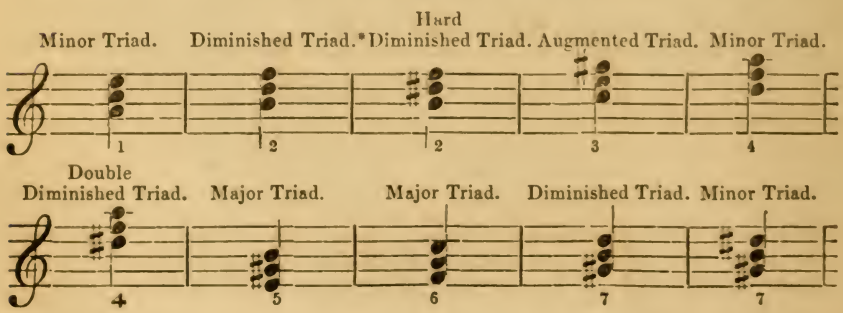


The Harmonic Minor Scale.

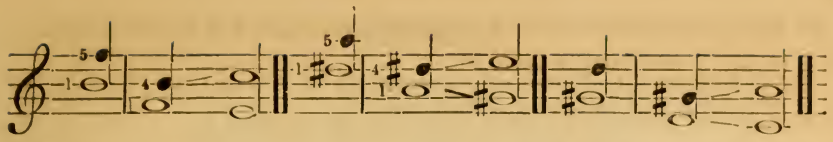
For the various reasons assigned for introducing D ♯ in the harmonic minor scale, and for not sharpening the F, we must refer the student to the works of the most learned writer on the subject of harmony—the Abbé Vogler. His system, although not generally known in this country, in Germany, the classic land of music, has a higher reputation than any other.

The harmonic scale, as above written, comprises the following chords :—

Triads of the Harmonic Minor Scale.

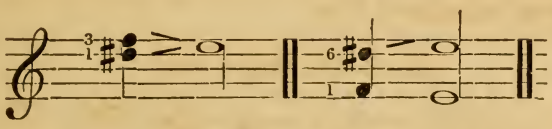


It will be seen that the above triads contain three diminished fifths, namely, one on the *second*, one on the *raised fourth*, and one on the *seventh* of the scale. These diminished fifths become, by inversion, augmented fourths, in which case they resolve by ascending, as in preceding instances.



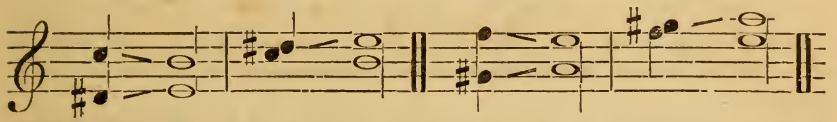
The minor harmonic scale contains *a diminished third* upon D ♯, or the raised fourth of the scale. The diminished third becomes by inversion *an augmented sixth.* One resolves by ascending, the other by descending.*

Diminished Third resolved. Augmented Sixth resolved.



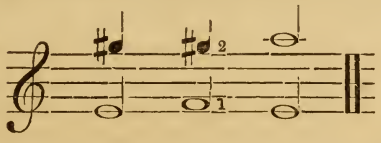
Minor keys also contain two *diminished sevenths*, one on the raised fourth, the other on the seventh of the scale. These become, by inversion, augmented seconds.

Diminished Seventh resolved. Augmented Second resolved. Diminished Seventh resolved. Augmented Second resolved.

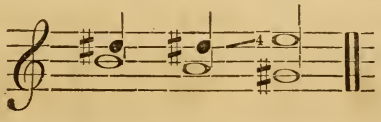


No *diminished* interval requires preparation, but all *augmented* intervals must be prepared by the dissonant note being heard as a consonant in the preceding chord, and the preparation and resolution must be in the same scale and in *the same part:* the preparation must not be given to one voice, the dissonance to another, and the resolution to a third.

An augmented Second prepared and resolved..



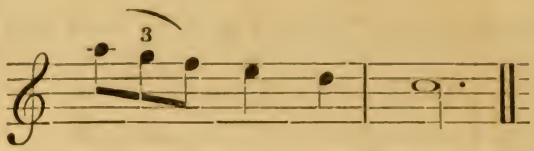
An augmented Fourth prepared and resolved.



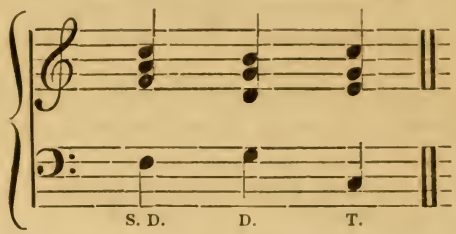
* This triad is termed by Callcott *the diatonic dissonant triad*, out of which, he says, arise *two altered triads*, one with the third flattened, the other with the third sharpened. These are here termed the *Hard diminished triad*, and the *Double diminished triad.*

CADENCES.

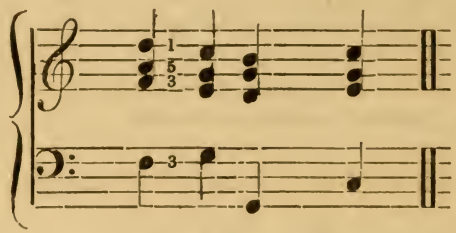
By *a cadence* is understood the preparation of a close; thus the last two bars of the National Anthem form a cadence:—



The harmony upon which *a simple cadence* is founded is that of the sub-dominant, dominant, and tonic, thus:—

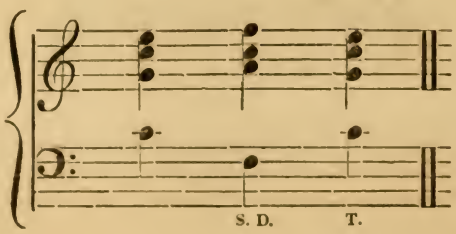


A better effect is, in most cases, produced by introducing the harmony of the second of the scale in the place of the sub-dominant, as in the following instance:—

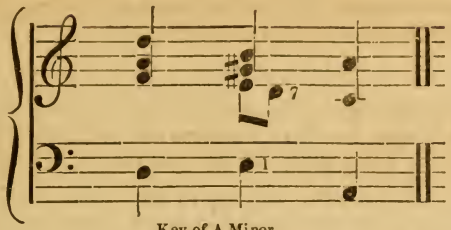


The above are called *authentic cadences*, by which term is meant, cadences in which the chord of the dominant immediately *precedes* that of the tonic.

The plagal cadence is that in which the tonic harmony is preceded by the chord of the sub-dominant.



An excellent effect is generally produced in a cadence by the introduction of the dominant seventh.

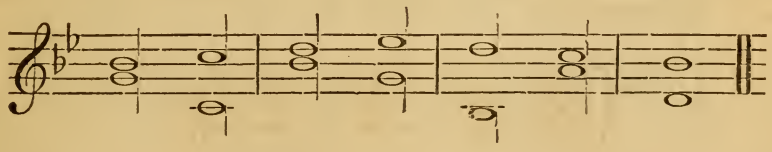


Key of A Minor.

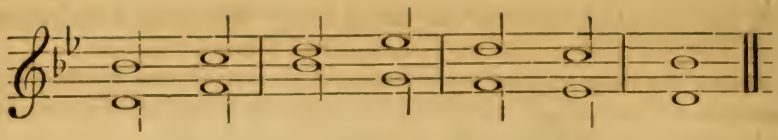
A half cadence is when the cadence ends upon the chord of the dominant, instead of upon that of the tonic. A half cadence may occur at the termination of *a phrase*, or a passage in the music; but at the final termination of the composition the last chord should be always the tonic, and so contrived, if possible, that it should end with the full chord of three, five, eight, in its first form. When the third and fifth cannot both be introduced, the third should always be preferred to the fifth. There are many ways of varying a cadence, but to judge of these it is necessary to study the works of the best composers.

PROGRESSION OF HARMONIES.

In harmonising it is not sufficient that every note in the second, or in the base, should be in accordance with the note above it in the air, but the *progression* of the parts must be considered. Not only the air, but every part, whether a second, third, or fourth, should have a melody of its own; the voice proceeding not by sudden skips, and abrupt transitions, but by easy intervals. In vocal music this is of the greatest importance—much more so indeed than in instrumental. The same progression of harmonies that may be easily performed upon the organ or piano, and which may seem satisfactory, will often appear forced and unnatural when sung by voices. Hence it has often happened that clever writers of organ and piano-forte music have utterly failed, when writing glee and choral music. The following is an instance (an extreme one) of a false progression in the second part.

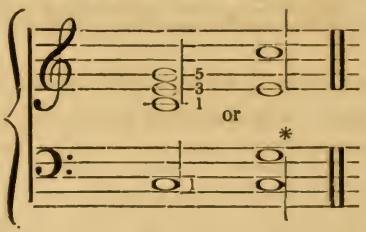


Although, in this example, there is not a note given to the second part which does not accord with the note above in the air, the effect produced by the sudden skips up and down to extreme parts of the staff, is as disagreeable as if every note were a dissonance. The second should be written after this manner:



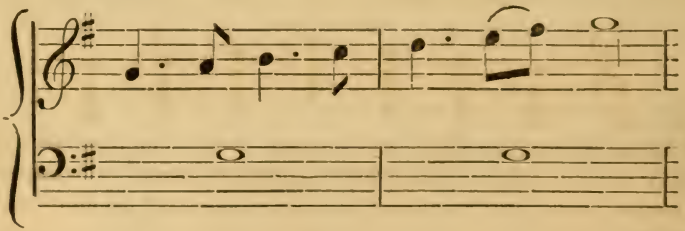
It is of so much importance that each part of the harmony should be written flowingly, that it is often better to sacrifice one or more of the intervals of the perfect chord, and to have the harmony less full than it might otherwise be, than to let the melody of each part be, in the slightest degree, broken or interrupted. The superiority of Mozart over all other composers consisted not so much in the richness of his harmonies as in the beauty of the melodies which were breathed into every part of his score, whether written for a second soprano or for a tenor violin.

Another rule to be observed is, that the *accented* parts of a composition, or the notes most dwelt upon, are the parts where the harmony should be the most perfect. The full chord is in its most perfect state in its first form, with the root in the base.



When the third is used as the lowest note, or the fifth, the effect is less perfect, and should be confined as much as possible to rapid movements, and not to what may be called the *resting places* of a composition.

There are some notes, especially in quick melodies, which do not require to be harmonised at all: these are the notes merely used for connecting the more important intervals together. They are termed *passing notes*—for instance,

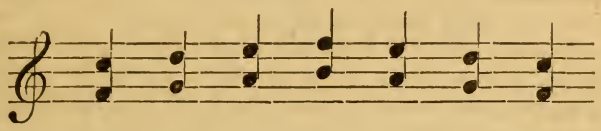


* If we follow nature closely, we should put the fifth next the root, as in the order of the self-generated sounds called *harmonics*. The fifth, however, without the third will be found to produce a less perfect harmony than the third without the fifth; but, when possible, both should be heard in the last chord.

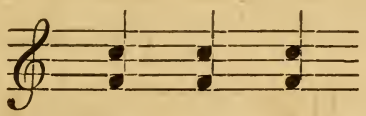
In this example the quavers are passing notes. Were they notes requiring to be dwelt upon, they could not be harmonised with G in the base.

Among the false progressions in harmony, or progressions condemned by musicians as producing a bad effect, are what are termed *consecutive fifths and octaves*. By these are to be understood fifths and octaves, ascending or descending in the scale consecutively.

Consecutive Fifths.

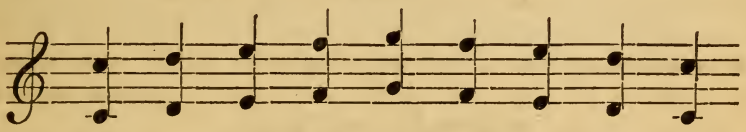


Consecutive thirds, fourths, sixths, and sevenths, are allowed, and often produce a very agreeable effect; but not consecutive fifths. The following are not considered consecutive fifths, but merely repetitions of the same chord.



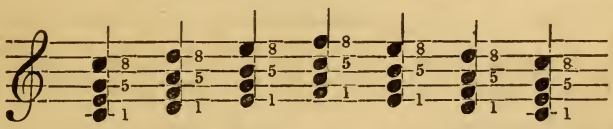
Consecutive octaves are only disallowed when the intermediate intervals of the chord are employed. The following would not be considered, in the objectionable sense, as consecutive octaves, but as an example of

Unisons.



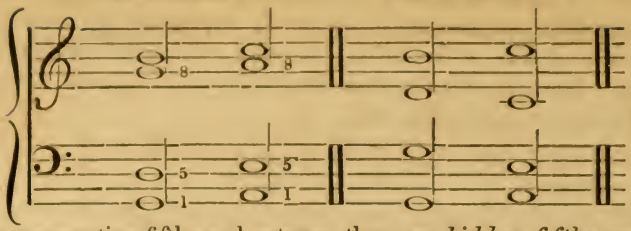
But if the intermediate parts of the chord were introduced, the octaves would be disallowed, as producing, with the consecutive fifths, bad harmony.

Consecutive Fifths and Octaves.



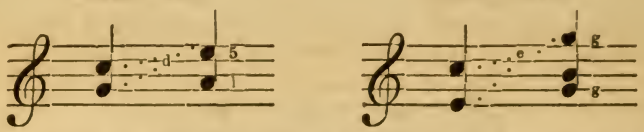
To avoid consecutive fifths and octaves, which the student will at first find very troublesome (and which give much more offence to some critics than more serious faults), the parts may be made to proceed by *contrary motion*. And indeed, without reference to consecutive fifths and octaves, when music is written in two, three, or more parts, they should not, as a general rule, move much together. If one or two of the parts ascend, a third should descend; and when one or more of the parts have a rapid flowing passage, a third should rest upon one long note.

Consecutive Fifths and Octaves. The same avoided by contrary motion.

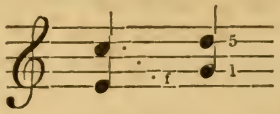


Besides consecutive fifths and octaves, there are *hidden fifths and octaves*, which are equally to be avoided. They are called *hidden* because one of the parts, in its progress from one note to another, is felt to sing *through* the note which, if expressed, would form a consecutive fifth or octave.

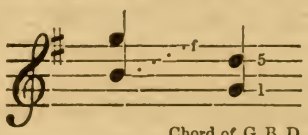
Hidden Fifth. Hidden Octave.



When the upper part does not move by skips, but from one degree to another, hidden fifths and octaves are allowed, as in the following instance:—



And even when the upper part does move by skips, hidden fifths are allowed, when the chord or triad employed in the harmony is not changed, but the notes merely move from one part of the chord to another.*

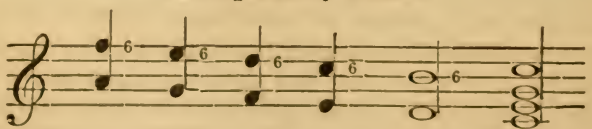


Chord of G B D

SEQUENCES.

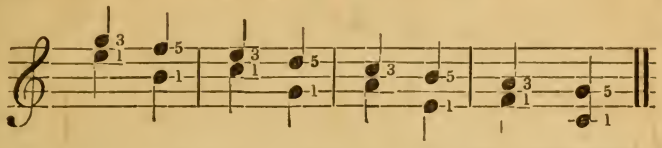
This term is another name for consecutive chords, but chords which are allowed to succeed each other ascending or descending, and which often produce a rich effect.

A Sequence of Sixths.

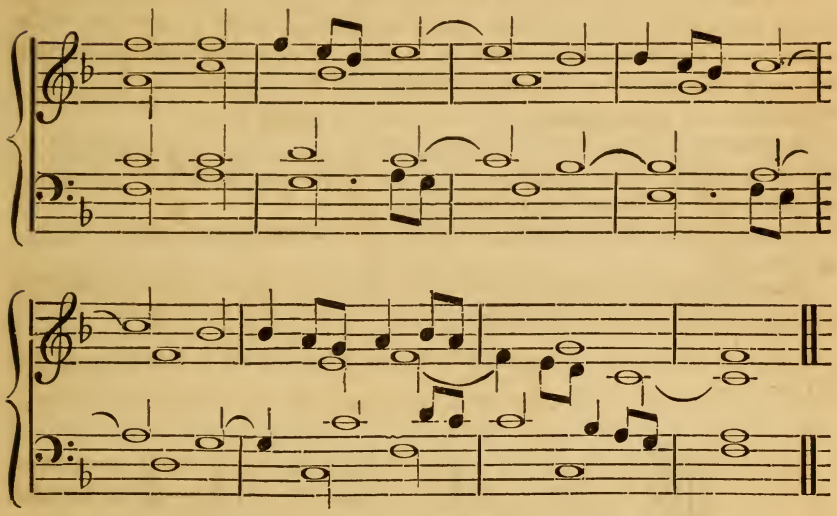


* Hidden fifths are generally allowed when the last fifth belongs to a *major* triad, but never when the harmony moves from a major to a *minor* triad.

It is a rule in sequences that they must preserve throughout the same intervals with which they commence. For example, if they commence with a third and a fifth, thirds and fifths must be continued throughout.



A Sequence of Sevenths in four parts.



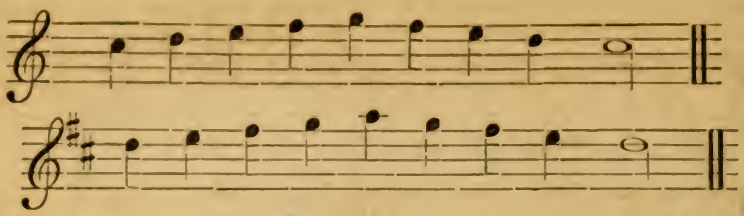
MODULATION.

When music is removed from the key in which it may be written to another, and the whole of the notes are played or sung one or more degrees higher or lower than before, the change is called *a transposition.*

When a piece of music is played partly in one key, and we pass suddenly and abruptly to another, the change is called *a transition.*

When the music, beginning in one key, glides gracefully and insensibly into another, the change is called *a modulation.*

The art of modulating into different keys is very important, for the richest and most varied effects in harmony are produced by a change of keys. To pass suddenly from one key into another, without preparation, is only allowed when the object is to startle or to express the effect of surprise,—for, in ordinary cases, the abrupt transition is painful to the ear,—but a change of keys, produced by means of modulation, is extremely pleasing; it enables the composer to give all the effect of novelty, even to the repetition of the same movement. The following is an example of *transposition.*

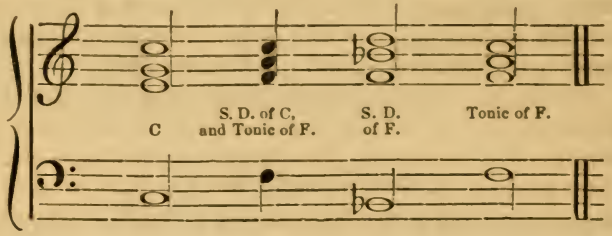


We have here a movement written first in the key of C, and the same movement afterwards *transposed*, and written in the key of D. The difference of the two movements is merely a difference of pitch—one being a little higher than the other. If in the middle of the movement, as written in C, we were to pass suddenly into the key of D, and finish in that key, the change would be *a transition*, and a most disagreeable transition it would be.

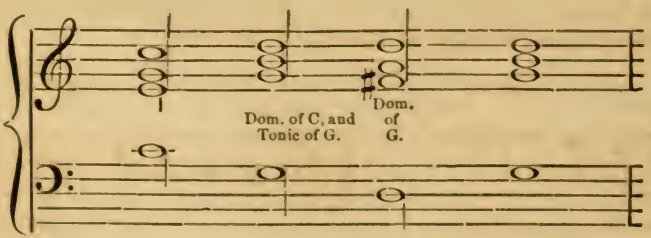
In order to glide gradually and insensibly from one key to another, without any interruption of the music, or, in other words, to *modulate*, it is necessary to understand and remember the following rule:—

In modulation we must pass into a new key, through a chord common to both keys.

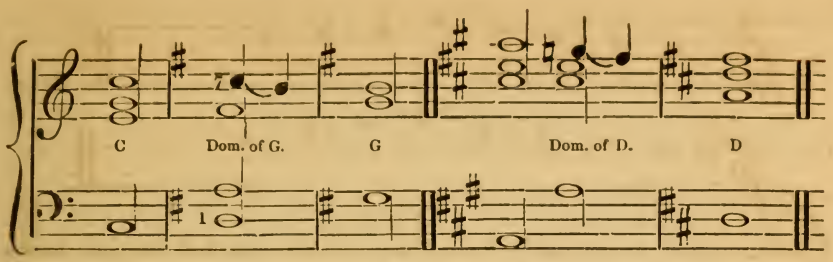
For example, the subdominant of C is the tonic of F; when, therefore, we are playing the chord of the subdominant of C, we may, if we please, consider ourselves in the key of F, and treat the succeeding chords as belonging to that key:—



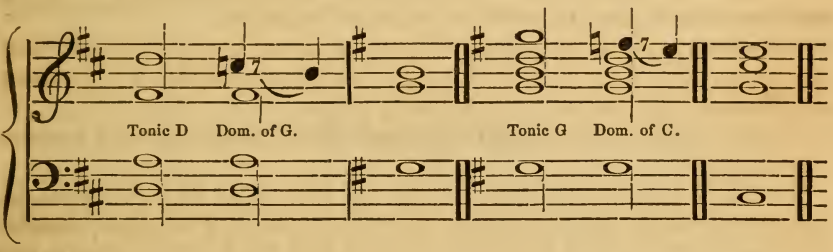
The dominant of C is also the tonic of G, and therefore, when we are in the chord of the dominant, we may treat all the succeeding chords as belonging to the key of G.



Another rule for modulation is, that *we may pass into a new key, through the dominant chord belonging to it*, generally with the dominant seventh.



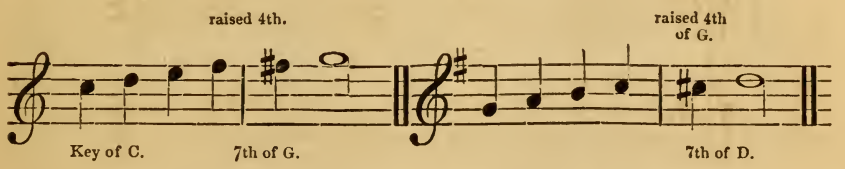
In modulating back again from the key of D to C the same principle may be followed, but the process is shorter. The tonic D may be treated as the dominant of G, and the tonic G as the dominant of C.



In modulating in this manner, by means of the dominant, into different keys above or below, it is necessary to pass through all the intermediate keys. Thus to get from C with no sharp, into E with four sharps, we must pass through G with one sharp, D with two sharps, and A with three sharps.

There is no difficulty in finding out the dominant of the next key *above*, because *the dominant root of the next key is always the next note, ascending, to the tonic of the key we are in.* For instance, in the first of the two modulations we have given, D, *the dominant of* G, which is the next key to C upwards, *is the next note to* C; and A, *the dominant of* D, which is the next key to G, *is the next note to* G.

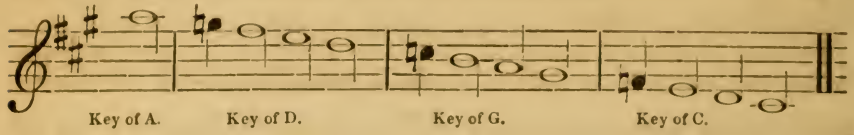
When we are not harmonising, but require *the melody* to modulate from one key to another, it is done, with respect to the keys above, by raising the fourth of the key a semitone, which then becomes *a leading note* to the tonic of the next key; the tonic being the next note. The raised fourth of every major key is to be regarded as the major seventh of the next key.



This corresponds with the rule that in modulation we pass through the dominant of the next key. For the F ♯ in the first instance, if harmonised, would

be the third of the dominant D, and the c ♯ in the second instance would be the third of the dominant A.

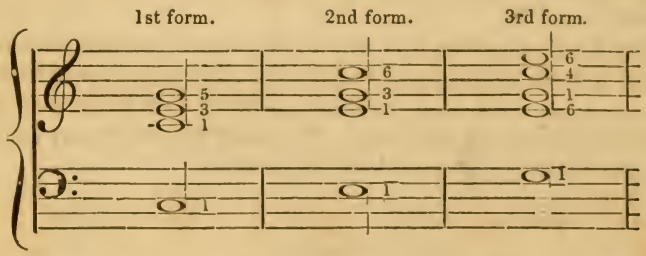
To modulate back in the melody to the key *below*, it is necessary to flatten or lower a semitone the major seventh, or leading note of the key we are in. For instance, we may modulate thus from A major to C.



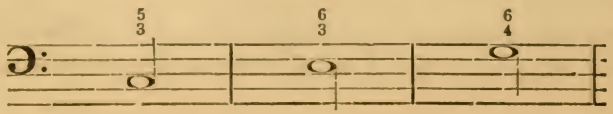
Here again the same rule applies, that it is necessary in modulating to pass through the chord of the dominant. For, in harmonising, the note lowered a semitone in the keys of D, G, and C, will be found to be the minor seventh of the dominant.

FIGURED BASSES.

The perfect chord, and all the discords we have described, are known to musicians not only by the names we have given, but by *figures*, which indicate the position in which the chord or discord may be used. Formerly it was customary not to treat a chord as derived from but one root, which might or might not be in the base, but to consider the base note always as the root, whatever that note might be. Thus, while the perfect Triad in its first form was called, rightly enough, the chord of $\frac{5}{3}$, in its second form, although essentially the same chord, it was called the chord of the sixth or $\frac{6}{3}$, and in its third form the chord of the $\frac{6}{4}$; the intervals being, in these cases, always counted from the base note.

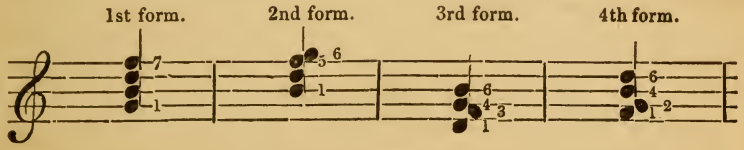


In old music it will be observed that the composers, to save themselves trouble, often inserted over the base the figures of the chord intended to be played, instead of inserting the notes themselves. Thus:—

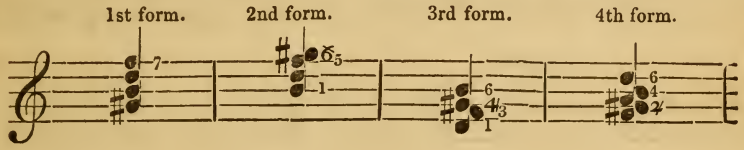


These figures mean that the chords to be played are those given in the preceding example, and which may be played either by the left hand, or right hand, or both; but this practice of writing is now very properly discontinued, and the notes of the full chord designed to be played are always inserted upon the staff. As, however, the different chords and discords are still known by names derived from the old figured basses, it is necessary that the student should make himself familiar with them.

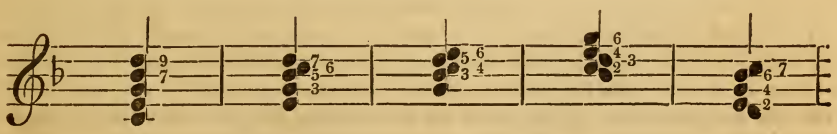
The discord of the dominant seventh in its first form is called generally by the same name, and in figured basses is marked simply by a 7. In its second form it is called the chord of $\frac{6}{5}$; in its third the chord of $\frac{6}{4}{}_{3}$ in its fourth the chord of the $\frac{6}{4}{}_{2}$



When in figured basses it was necessary to indicate that one of the notes should be raised a semitone, it was done by drawing a line through the figure referring to that note, thus—6. In other cases, when the same note was to be depressed, a flat, or a natural, was placed against the figure. The four forms of the diminished seventh are written thus:— $\frac{7}{\sharp 5}$ $\frac{6}{\sharp 3}$ $\frac{6}{\sharp 4}$ $\frac{6}{4}{}_{\natural 2}$.



The discord of the added ninth is called, in its different forms, $\begin{matrix} 7 & 6 & 6 & 7 \\ 9 & 6 & 5 & 4 & 6 \\ 7, & 5, & 4, & 3, & 4 \\ & 3 & 3 & 2 & 2 \end{matrix}$



Other discords, of which we have not thought it necessary to give examples, are known in the same manner, by names derived from their figured basses.

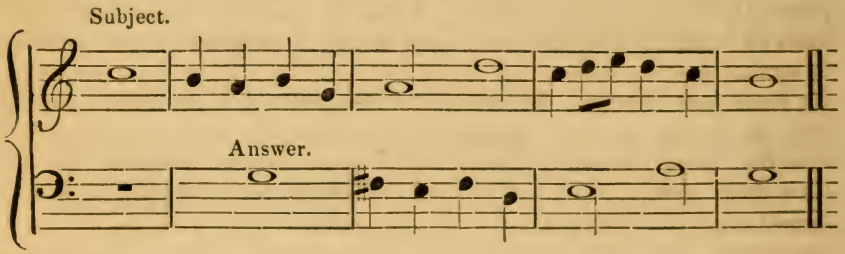
DOUBLE COUNTERPOINT.

In harmonising an air it is usual to treat it as the principal melody of the composition; and, to keep it higher than the rest. The highest part will always predominate over every other, and, therefore, none of the notes given to the second, third, or fourth voices, should rise above the first, unless it be intended that the melody of their part should, for the time, take the lead. In most collections of psalm tunes harmonised for four voices, the parts are so written that the tenor and counter *appear* above the air; but the air in these collections is intended to be sung by *treble* voices, and the other parts by the voices of men, in which case the air would still be the uppermost part.*

By *double counterpoint* musicans mean harmonising an air in such a manner that it may sometimes be given to the base, and sometimes to the tenor, and yet produce an equally good effect.

FUGUES.

A fugue is that kind of composition in which the second or third part imitates the first, by following it at a certain distance, but *starting upon the dominant* or fifth of the scale, instead of the key note. The air which leads off is called *the subject;* that which follows in the base is called *the answer.*



The greatest fugue writer the world ever produced was Sebastian Bach, who was contemporary with Handel.

A canon is a species of fugue: the different parts follow and imitate each

---

* Ignorance of this rule is one of the reasons why congregational singing often produces an unpleasing effect, especially when there is not a majority of female singers in the Church or Chapel. A clerk leads the air while the tenor and counter-tenor voices sing their parts a third and fifth above him. Hence the air has the grumbling effect of a base, while the inversion of the chord, contrary to the design of the composer, sometimes produces consecutive fifths and octaves.

In Germany, *Chorales*, a word which answers very nearly to *psalm tunes harmonised*, instead of being written for one treble voice, with an alto for a second, and a tenor and base, are written for two treble voices, with a tenor and base. The four parts thus equally divided between male and female singers, produce a much better effect.

other, but the answer is not required to be founded on the dominant. *The endless canon* is one in which the same parts repeat *ad libitum*.

PEDAL HARMONIES.

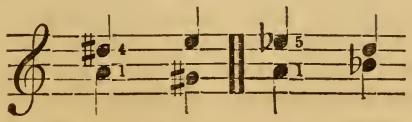
These are peculiar to organ music. *The pedal note* is a long note, generally, but not invariably, the dominant, which is sustained sometimes through a considerable number of bars, in which a variety of chords and discords are played, into each of which the pedal note enters as a component part.

THE ENHARMONIC SCALE.

According to the strict theory of musical progression A♯ is not always to be considered precisely the same note as B♭, although on the piano-forte there is no difference. In the progression of sounds, a delicate ear will detect, besides semi or half tones, quarter tones, and three-quarter tones. And hence arises what is called the *enharmonic scale*, or a scale including the minutest possible gradations of sound—gradations which may be expressed on the violin by a first-rate artist, but not on the piano-forte, and which cannot even be correctly written with the present system of musical notation. The enharmonic scale is therefore of little or no practical use.

Out of this fact, however,—that in a musical progression the ear requires to proceed (although generally without being conscious of it) sometimes by quarter tones (it is said by even smaller intervals), and three-quarter tones, instead of by semitones, arises the impossibility of tuning perfectly a keyed instrument like the piano-forte or organ. In tuning, it is found that when all the fifths are perfect, the thirds are not, which are of more consequence than the fifths. To tune the notes correctly it is necessary in some cases to flatten the fifths, or leave them comparatively out of tune; hence the organ and piano-forte are termed *imperfect instruments*. The imperfection is called *the woolf*, and its distribution among different notes little used, so that the defect may be the least observable, is called *the temperament*.

The enharmonic change is when, without altering the pitch of the key note, we change it from a key written with sharps to one written with flats, or *vice versâ*. It is, in fact, merely a different mode of writing the same sounds, the key of G♭ being for all practical purposes the same as that of F♯; but the rules of harmony require that when an interval is changed enharmonically it must frequently be followed by a different chord to that which would otherwise have been employed. Thus an augmented fourth changed enharmonically becomes a diminished fifth. The one would have ascended, the other must descend.

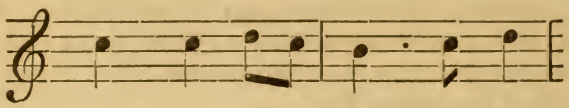


OF THE CONSTRUCTION OF MELODIES.

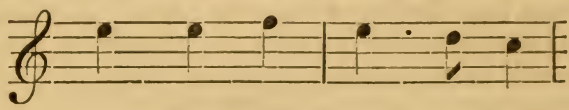
Melody ranks before harmony. A good melody will please whether harmonised or not; but a piece of harmony, however scientific, if the air be indifferent, is rarely listened to with much pleasure. A bad melody may be greatly improved by being harmonised, but the perfection of the art is when good melodies and good harmonies are blended together. A person who has no talent for writing original and beautiful melodies, can never make a great composer, however great may be his knowledge of the science of harmony. Hence every lover of music should study the construction of melodies—a branch of the subject generally too much neglected. Their construction is much more artificial than would at first be supposed. The principal features of a melody are, *the subject*, consisting of a number of short *phrases* and a *cadence*. *A phrase*, sometimes called a *Cæsure* and *Figure*, is a passage seldom extending through more than two or three bars, containing a musical thought or idea which may be imitated, varied, and changed at the will of the composer.

The National Anthem contains five phrases and two cadences; each phrase occupying but two bars.

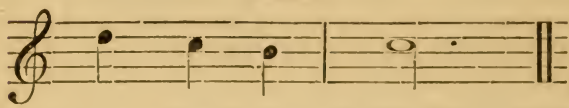
First phrase.



Second phrase, or variation of the first.



Cadence.



The same thought is again taken up and varied in three different ways, in the second part of the tune, concluding finally with another cadence. To compose good melodies, however, it is not sufficient to string musical phrases together, however scientifically. Good music must be written upon the same principle as good poetry. The heart must be made to speak. Poetry that consists of words or phrases, that appeals to no kindred feeling, or that awakens no strong emotion, is always of an inferior character; and so it is with music. A good composer will give himself up to the inspiration of his feelings. If writing music to words expressive of affliction, he will endeavour to feel like one afflicted. If the words be expressive of triumph, he will endeavour to call up in his mind the emotions of joy and exultation. According to his ability to do this (and it is an art to be acquired), will be his power of producing works such as are commonly ascribed to genius alone. The passions will always find utterance; but the passionless cannot express the language of the passions.

Rhythm in music is the same thing as *metre* in poetry. In a poem one line contains a certain number of syllables or feet, and it is necessary the next line, or one not very far from it, should contain the same number of syllables or feet. So in music. One phrase containing a certain number of bars, requires to be answered by another containing the same number of bars; and, as in poetry, there are different kinds of metres—sometimes called long metre, short metre, common metre, &c., so in music there are different kinds of rhythms, to understand which it is necessary to study the works of different composers.

APPLICATION OF THE FOREGOING RULES.

The musical student who is able to afford the expense of private instruction, under an eminent master, will not require, in an elementary work, any practical directions how to proceed, for every master has a system of his own, which he will of course expect his pupils to follow; but to the humbler class among the lovers of music, and those who cannot afford to devote so much time to the study as is often spent over a tedious, progressive series of lessons (and for such especially we write), we would recommend the following course.

First, he should endeavour thoroughly to understand the principles we have attempted to explain, relative to the science; then let him take a simple air, like that of the National Anthem, and, with the assistance of a piano, endeavour to harmonise it for two equal voices. In so doing he will discover that the chief intervals to be employed are thirds and sixths, but he must find out by his ear alone, when a sixth will produce a better effect than a third, and when a third should be used as *a tenth*. The choice of a third, sixth, or tenth, or of any other consonant interval, must always depend upon the progression of the air: there is no rule that can be laid down on the subject. When he has written his second, he should look it carefully through to see that he has not introduced any consecutive fifths or octaves, and then get some person to sing it with him. If the effect be such as to please his unscientific friends, he has made one step, which will encourage him to persevere, and in subsequent efforts he will find himself rapidly improve. When he has learned to harmonise tolerably well for two voices, he should take the same airs and harmonise them for three, and afterwards for four and five voices; and not till he is somewhat expert in doing so should he attempt any original composition. With respect to them, he should commence in the same manner, first with trying to write simple airs, such as might give pleasure to childhood, then with simple duets; and never attempt, until he has gained considerable knowledge by practice, the higher order of compositions, lest he be discouraged by a failure, which, at the beginning of his career, would be inevitable. If he wish to write good vocal music, for three or four voices, without instrumental accompaniments, he should study the compositions of Webbe, who must be placed at the head of English glee* writers. Next to Webbe, Callcott. Both these writers were eminent for their skill in that peculiar description of music in which England has neither been excelled, nor equalled, by any nation in the world.

* The old madrigals also should be studied, many of which are very beautiful. A madrigal is a peculiar kind of chorus, written usually in six parts, without accompaniment. Glees are usually written for three or four voices only, the parts not intended to be doubled, or sung as choruses.

The professional musician will find it of great importance to learn to write music without the assistance of the piano—an art which most great composers have attained. This is not to be done by simply studying the rules of harmony, but by cultivating the memory of sounds, so that the effect of different intervals may be heard, *in the mind's ear*, the moment they are seen on paper. To acquire this power the young composer should begin by attempting to write down from memory different airs, and correcting them afterwards with the piano or some other instrument. He should then procure a person to play to him the seconds or basses of the same airs, and write them down also, depending only upon his ear; having no copy before him. Then the same airs played with their full chords. In this manner he will learn gradually to commit his musical ideas to paper as readily and as correctly as he would put thoughts into words; but the art is not to be attained without considerable practice. Beethoven wrote many of his later works after he had become wholly deaf; but he could not have done so, had he not first learned to retain the memory of the sounds he had once, and oftentimes heard.

We shall conclude this brief outline of the rudiments of harmony, by an extract from the ablest paper* that has yet appeared on the subject, written upon the article "Music" in the last edition (the edition of 1837), in the "Encyclopedia Britannica."

"To attempt to make any one a composer of music by means only of dry treatises upon intervals and chords, is just as absurd as to attempt to make a poet by means of Bysshe's 'Art of Poetry,' or other books of the kind. Genius, and observation, and a careful study of the best models, are really the only things which can ever make a good poet, or a good painter, or a good composer of music. The aid of a skilful master will be of great importance, if he be not wrapped up in a theory. And in the absence of a master, two or three of the best modern treatises on the subject, such as Reicha's and Cherubini's, may help the student to understand the construction of those models of composition which he ought to have constantly before him. But there is nothing so useless as spending whole years in the vain study of what is called thorough base, although it is still considered by too many persons as comprehending the whole art and science of music.

"In the works of the greatest composers are found many passages of excellent effect, though prohibited by the rules of the theorists. Such being the case, we would again earnestly urge the student to form an extensive acquaintance with the best models of the art, rather than to trust to any theories on the subject. He ought never to give up his reason and his judgment to any theoretical authorities. If he do, he will become timid and uncertain—whatever he meets with different from what his dry rules have taught him will perplex and terrify him. His energies will be paralyzed, and he will be incapable of producing any thing but cold, feeble, and formal music. He ought to keep in view that in music nothing is out of rule except what offends the ear, the taste, and the judgment, but that he must not attempt to imitate the freedom and bold effects of the greatest masters, until he has acquired great knowledge and command of his materials."

* Since writing the above, the article referred to, written by Mr. Graham, has been published in a separate form.