

TRANSPOSITION: NOT A FOUR-LETTER WORD

Kenneth Grinnell, FAGO

Why learn this advanced technique in this day and age of transposer dials on so many instruments? No less a composer than Irving Berlin had a movable piano keyboard that could mechanically shift from side to side in order to move the key up and down. It was an analog version of today's digital devices. This is not to say that these technological aids have no value for us or for the composer, but that they are not a replacement for our own skill.

Four of the five Guild Examinations include a transposition requirement at the keyboard: Service Playing, Colleague, Associate, and Fellow levels. Here is a table illustrating how the challenge increases with each level of examination:

Our need to transpose is not just for the purpose of satisfying a requirement on a Guild examination. Indeed, it is not just a stunt for purposes of display. Transposition, like other techniques, should be part of our total musicianship. It says something that the Guild exams require the acquisition of this skill to some degree depending on the level of difficulty of the test. It is important that the examinations reinforce the need for this important skill in order that we may add beauty to our service playing.

Here are a few ideas suggesting why the technique of transposition is important for us:

1. When altering the key of a hymn to make the hymn more comfortable for our congregation to sing. Usually this means moving it down a half step or a whole step.
2. When changing keys from one hymn verse to another (modulation). The hymn needs to be reproduced in the new key.
3. When working with choirs, moving the pitch of a piece to change the vocal color of the music. Moving up from G major to A-flat or A, for example, can make a lively piece have a special "ring" to it. Likewise, a move down to G-flat or F may render a quiet or reflective piece yet more somber. Even if the piece is to be sung a cappella, the rehearsal pianist or organist (you) will need to play the correct pitches at some stage in teaching the piece to the choir.
4. When times arise where the tenor or soprano section in the choir has suffered loss of personnel or the whole group is a bit on the tired side and needs a break. Dropping the pitch of the anthem may give the singers the help they need on that particular day.
5. Transposition during improvisation. In this case transposition may not only mean changing the melodies and harmonies to another key, but making a mode shift from major to minor or vice versa.

Playing the organ literature requires a particular discipline. Other advanced techniques require regular and disciplined practice in order for them to become part of your "tool kit" and help make your musicianship complete. Let's take a look at some ways to approach this musical challenge and try to demystify the technique of transposition.

Exam	Requirement	Preparation	Interval
S2	Your choice of any one hymn from the Examination Hymn Booklet. May not play in the original key for test. Pedal not required. Two of four possible intervals chosen by proctor.	In advance, up to nine months; possible to begin practice in July and take the exam the following April.	Up/Down M2nd, m2nd
C7	One original example given. May not play in the original key for test. Pedal not required. Two of four possible intervals specified.	During 20-minute preparation time at the piano.	Up/Down M2nd, m2nd
A3	One original example given. May play in original key first. Pedal optional. Two of four possible intervals specified.	One minute scan.	Up/Down M2nd, m2nd
F5	One original example given. May not play in original key first. Pedal optional. Two of eight possible intervals specified.	One minute scan.	Up/Down as far as M3rd, m3rd

Methods of Transposition

I. Reading note-for-note: The simplest kind of transposition involves imagining a new key signature to move the passage up or down a half or whole step.

Let's consider the key of C. Going up a half step may mean thinking the passage in C-sharp or D-flat. Going down a half step may mean thinking the passage in C-flat or B-natural. The note-for-note method would call for C-sharp going up and C-flat going down. You need to choose which of the two enharmonic keys to use. This example is a tough one, as we don't use those keys very often. Developing some degree of fluency in these odd keys, though, may not be a bad thing!

Let's choose a key that's a little more "user-friendly," such as A major. Moving up a half step will mean a choice of either B-flat or A-sharp. Moving down will mean either A-flat or G-sharp. A-flat will be your easier, note-for-note choice when going down a half step.

Try experimenting with all twelve major keys and discover the useful note-for-note possibilities. This technique can quickly become a useful part of your arsenal.

A helpful hint: Scan the example you're transposing for accidentals that need to be accounted for in the new key. Let's say, for example, that your original passage is in A

major. A cadence on the dominant (V, or an E-major chord) will mean seeing a D-sharp appear as an accidental (V/V, or a B-major chord). Now, let's say you're transposing down to A-flat major. Be prepared to translate the old D-sharp into a new D-natural. The new V/V, or B-flat chord, contains that D-natural, which moves the harmony to V, an E-flat chord. (See also Section VI. Harmonic Analysis, Hint #2.)

II. Using G, F, and C clefs to move the pitches up or down: This is probably the least useful method for most of us in most cases. Symphony conductors need to be fluent in all clefs in order to accurately read the notes for all of the instruments in the orchestra. Most of us only work in the G treble and F bass clefs. Some of us might have a useful knowledge of the alto and tenor C clefs if we are also violists, cellists, or trombonists. Few of us would have any need for a fluency in the soprano or mezzo-soprano C clefs or the baritone F clef. It is possible, though, to let substitutions of the different clefs transpose our music. For the sake of information and understanding, let's see how transposition with clefs works. Perhaps this knowledge can become a component in your acquisition of skill in transposition.

The seven clefs that concern us are:

Ex. 1



The seven clefs will change the line or space on which a note appears. For our purposes here, we won't be concerned with the octave position of the notes, just the location

on the line or space on the staff and the note name. Using C as an example, let's see where it would fall in each of these seven cases.

Ex. 2



Notice that C now has a position on each line or space of the staff, as dictated by the clef. The next musical example shows how

Ex. 3

Unison

These clef substitutions will work beginning on any tonic note and moving up or down the desired interval. Now, without fluency in all the clefs it may seem that this information may be interesting but not practical. But wait! Let's make a case for the soprano and baritone clefs when transposing up or down major or minor thirds. To be sure, this is a sort of halfway approach. In each case, one hand is easier since it is in a familiar clef. The other hand will be more difficult, since it's in a less familiar clef. So the level of clef reading difficulty "averages out" between the hands. Perhaps with a bit of practice, shifting clefs could become useful for you, if only in this case. The FAGO is the only examination requiring transposition up or down in thirds. This technique may be just what you need to get you through!

III. Reading up and down the lines: This method is related to the technique described in Part II, except without the clefs. It requires imagining the notes as appearing up or down a line or space, or imagining a line subtracted from the top and added to the bottom of a staff (or the reverse). Success in this method will depend on the neurological wiring of the player in visualizing the change.

IV. Auditory input: We are, after all, dealing with sound. In performing, we are taking the notes off the page and converting them to

Ex. 4

Hint #1: when analyzing the music, be most aware of the beginnings of phrases and the cadences at the ends. Doing this gives a framework that you can use to keep you on track should you get confused for a moment.

Hint #2: a visual aid: notice where accidentals occur in the original key. These often signal a cadence in the dominant key. An ex-

ample: let's say you're in the key of G major and see a C-sharp at a cadence. This means you're moving to a D-major chord, the dominant (V). Notice how this becomes helpful when you transpose the music into A major, for example, and see that same cadence coming. The old C-sharp is now a D-sharp to move you to an E-major chord, the dominant in the new key.

sound. The reverse process is dictation: we take the sounds we hear and convert them to notes on the page. If our ears are aware of the pitches in the old key, it will help us convert them to the new key. Once again, success in this method will depend on the neurological wiring of the player in hearing the change. Caution: this method may be difficult for those with perfect pitch!

V. Tactile input: In practicing our instrument, we train our brains and muscles to move our fingers in patterns on the keys to produce particular melodies, harmonies, and rhythms. Feeling the old patterns can help us translate them to a new, yet familiar, pattern. The study of keyboard harmony and figured bass is the way to improve this method of transposition. Practicing a repertoire of chord progressions in all keys helps build this technique and supports the Harmonic analysis method suggested in Part VI. below.

VI. Harmonic analysis: With this method, we take the vertical chord patterns in the old key and reproduce them in the new key. For some hymns, those that are less contrapuntal, this is probably the most useful method for us to use. The following example, with harmonic analysis included, should illustrate:

ample: let's say you're in the key of G major and see a C-sharp at a cadence. This means you're moving to a D-major chord, the dominant (V). Notice how this becomes helpful when you transpose the music into A major, for example, and see that same cadence coming. The old C-sharp is now a D-sharp to move you to an E-major chord, the dominant in the new key.

VII. Following the voice leading: This technique is useful in our practice of contrapuntal literature in any case, whether or not we wish to transpose. Listen to the horizontal movement of each voice. Imagine that you are a soprano, alto, tenor, or bass, each in turn, and sing along with each line to put it into your aural memory. Refer back to Ex. 4 and notice how the alto line in the last two measures makes a descending scale pattern. Transposing each note in turn may not be necessary as following the voice leading makes the notes evident in the new key.

Hint: hear the soprano and bass lines together. You will then have another type of framework available on the upper and lower edges. Filling in the voices/harmonies in between them then becomes easier.

VIII. Suggestions for practice:

- Set aside some time in each practice session for work on the technique of transposition. Do it early in the time you have available as your concentration will be sharpest then. Make it as important as learning literature, hymns, and choir accompaniments.
- Work slowly and accurately, as you would when learning a piece from the repertoire.
- Find the *combination* of the methods described above that works best for you. There may be danger in relying on any one of them alone and safety in using two or three together!
- Begin with rather chordal hymns such as "O for a thousand tongues to sing" ("Azmon") or "What a friend we have in Jesus" ("What a Friend"). Since these hymns have a limited harmonic vocabulary (essentially I, IV, and V chords), they will quickly lend themselves to the harmonic analysis method.
- You may find it helpful to work on one interval at a time. Spend a week or more doing just half steps up, for example.
- Later on, as your transposition technique improves, move to more contrapuntal music (Bach chorales, etc.).
- Transpose everything you can: hymns, preludes and fugues, chorale preludes, toccatas, etc. No, you won't need to do this for a service or in recital. You will find, though, that stretching your abilities with a difficult prelude or fugue will make moving the key of a simple passage easy by comparison.
- Write out passages in a new key. This is another avenue to help reinforce some of the visual techniques described above.

Conclusion

Studying the skill of transposition can illustrate how all of the elements of music need to interplay to complete our musicianship. Transposition can involve harmonic analysis, contrapuntal analysis, aural memory, form, and visual and tactile memory. Whether or not you plan to pursue Guild certification, acquiring the skill of transposition will expand your ability as a musician and bring a great sense of accomplishment.

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From J. S. Bach, *371 vierstimmige Choräle*

21. *Herzlich thut mich verlangen* —

This musical score is for chorale 21, 'Herzlich thut mich verlangen'. It is written in C major and common time (C). The score consists of two systems of two staves each. The first system includes a treble clef and a common time signature. The music features a simple harmonic structure with a steady bass line and a more active treble line. The piece concludes with a double bar line and repeat dots.

This system continues the musical score for chorale 21. It maintains the same key signature and time signature as the previous system. The texture remains consistent, with a clear distinction between the upper and lower voices. The piece ends with a final cadence.

74. *O Haupt voll Blut und Wunden* —

This musical score is for chorale 74, 'O Haupt voll Blut und Wunden'. It is written in D minor and common time (C). The score consists of two systems of two staves each. The first system includes a treble clef and a common time signature. The music is characterized by a more complex harmonic texture, with frequent chromaticism and a more active bass line. The piece concludes with a double bar line and repeat dots.

This system continues the musical score for chorale 74. It maintains the same key signature and time signature. The texture remains consistent, with a clear distinction between the upper and lower voices. The piece ends with a final cadence.

80. *O Haupt voll Blut und Wunden* —

This musical score is for chorale 80, 'O Haupt voll Blut und Wunden'. It is written in D major and common time (C). The score consists of two systems of two staves each. The first system includes a treble clef and a common time signature. The music features a simple harmonic structure with a steady bass line and a more active treble line. The piece concludes with a double bar line and repeat dots.

This system continues the musical score for chorale 80. It maintains the same key signature and time signature. The texture remains consistent, with a clear distinction between the upper and lower voices. The piece ends with a final cadence.

O Haupt voll Blut und Wunden -

89.

System 89: A two-staff musical score in G major and common time. The upper staff features a vocal line with a melodic line and a lower staff provides a piano accompaniment with a steady eighth-note bass line. The system concludes with a double bar line and repeat dots.

System 90: Continuation of the two-staff musical score. The vocal line continues with a melodic line, and the piano accompaniment maintains its rhythmic pattern. The system ends with a double bar line and repeat dots.

O Haupt voll Blut u. Wunden -

98.

System 98: A two-staff musical score in G major and common time. The upper staff features a vocal line with a melodic line and a lower staff provides a piano accompaniment with a steady eighth-note bass line. The system concludes with a double bar line and repeat dots.

System 99: Continuation of the two-staff musical score. The vocal line continues with a melodic line, and the piano accompaniment maintains its rhythmic pattern. The system ends with a double bar line and repeat dots.

Transposition: The Organist's Secret Weapon

As an organist and a professional player of a transposing woodwind instrument, the writer finds it strange that there is such an inordinate fear of transposition. True, for organists who aspire to AGO certificates, transposition is a necessary part of the examination, and most do plenty of cramming in preparation for this. True also, many organists make simple transpositions of known hymns for congregational unison singing. These are usually done by simple "wood-shedding" or by ear-keyboard transposition or by a simple signature change, as when a hymn in sharps is read in flats, or vice versa. In such cases the accidentals must be accommodated. Many of our hymnbooks, including some of the best, have hymns pitched for four parts, resulting in a melody line too high for the comfort of the average congregation.

There is really no fault to be found with the above-mentioned simple transposition, except that the skill does not go far enough; it is not a thorough enough discipline to be used in the give-and-take nature of church music. How many church musicians, for instance, will drop the pitch in rehearsal to take the strain off the voices in an anthem with a high tessitura? How many Hallelujah Choruses, Handel's or Beethoven's, do we hear screeched out on Easter morning when a transposition down would render a far more acceptably pitched version! Transposition will, of course, bother choir members who have absolute pitch, but this problem will not come up often.

To transpose in a fluent way, the interval of transposition must be so thoroughly mastered that the reading proceeds almost as well as in the original key. The writer, as an orchestral clarinetist, knows that in order to be completely useful, transposition must be *fully automatic*. The successful musician *must* be able, at a minimum, to transpose at first sight one tone higher and one tone lower, and to be fully competent, a minor third higher and a minor second lower.

The clue to fluent transposing ability is found in the preceding paragraph. Transpositions, like clefs, are specific; one does not transpose in general. As with C clefs, one does not read them in general. A person may be a master of the alto clef, as viola players must be, and be utterly unable to read other C clefs. One may be a complete master of transposition at one given interval and be unable to perform any other *sight* transposition with anything approaching fluency. It is precisely here that many keyboard harmony teachers make a big mistake in teaching transposition. They try to teach all transpositions simultaneously. The student thus learns the assignment in the original key and transposes it by ear and keyboard sense to a number of different intervals. This can result in dire confusion when confronted by a first-sight-transposition demand and, in this writer's opinion, it is the chief reason that so many find the AGO tests a real ordeal.

Let us go to the orchestral wind section again. The complete clarinet player should master three or four sight transpositions but the French horn or trumpet player must master many more. Early horns and trumpets had no valves but were placed in various keys by the insertion of crooks; thus the fundamental harmonic series was available in various keys. Horns and trumpets in various keys persisted through the Classic and early Romantic periods, after valves had been introduced, even into the late nineteenth century, as in the works of Brahms and Dvořák. Today, most horn parts are played on the double F horn and most trumpet parts on the B-flat trumpet, the player transposing when other keys are specified,

although there is a trend toward the regular use of the C trumpet, and modern composers are increasingly writing for this instrument.

What implications does all this have for organist-choirmasters? They should select one transposition and stick to it until that process becomes as automatic as sight reading. The writer, who has taken a special interest in transposition felt that his transposition of a semitone higher was the weakest. Therefore, he devoted ten or fifteen minutes a day to transposing up a semitone, *every* hymn in the *Hymnal 1940*.

In church work, transpositions up are generally not as useful as transpositions down. However, they may occasionally be used to render a difficult organ work simpler, if only because of an individual passage. The question of whether or not this is justifiable on musical grounds is, of course, a separate one.

Of the transpositions down, the semitone seems to be the easiest, since in sharp keys it can be effected merely by changing the signature from sharps to flats and accommodating the accidentals. However, practicality would say that the most useful transposition to be learned first is a whole tone down, since this would take an appreciable amount of strain off voices in works with a high tessitura.

In terms of educational psychology, a transposition is merely the process of attaching a new response to an old stimulus. Thus, *each* individual transposition must be worked upon until the new combination is secure. Anything less than this leads to uncertainty and fear of transposition in general. Trombone players, for instance, have no trouble in reading tenor and alto clefs, because they use these all the time.

Another important caution must be urged: in the cases of the most difficult music, containing many accidentals, double sharps or double flats, never write out a transposition. Time will be much better used in going over the piece and getting accustomed to the new values, "woodshedding," if you will. This makes one stronger and more confident in the skill; writing it out makes one more dependent, uncertain, and fearful in the future.

Organ transpositions may also be made by the use of clefs. Those who have studied conducting thoroughly would also be able to bring clef reading to their aid as a means of transposition. As study material, Morris and Ferguson's *Preparatory Exercises in Score Reading* (Oxford University Press) is a fine aid. Certainly, advanced organists and choral leaders will need to read soprano, alto, and tenor clefs fluently if they want to know what they are doing when confronted by the full score of an earlier choral work, where all parts but the bass are in C clefs. The great conservatories of Europe, especially in Latin countries, rely very heavily on clef reading, both for its own sake and as a means of transposition. Similarly to transpositions, clefs cannot all be studied at the same time, but must be mastered one by one if confusion is not to ensue. The writer suggests that the minimum time on each clef should be no less than half a year of fairly concentrated study.

Once mastered the clefs enable one to achieve certain transpositions which come up regularly in orchestral scores. Alto clef gives us D trumpet and D horn readings, most important in late Baroque music in which D major and minor are favorite keys; tenor clef gives B (mainly B-flat) readings, as for clarinets, trumpets and B-flat horns; soprano clef gives A readings as for A clarinets, A trumpets, A horns, and Bach's favorite oboe d'amore. Of these C clefs, the

alto, with middle C on the center line should be the first to be thoroughly learned, for without it one cannot even read a string quartet or the string choirs of orchestral scores.

For every transposition by interval or by clef, the accidentals must be accommodated. I prefer the expression, “factored.” Thus the factor will be different for a semi-tone than for a tone, different for a minor third than for a major third. *Intensive* practice will give not only the interval of the transposition but also the correct factoring of the accidentals.

Diatonic music, having fewer accidentals, will require less transposition effort than highly chromatic, late Romantic music. When the harmonic intent of the chords is quite obvious, the newly transposed values of the accidentals will be sensed quickly, heard in advance, as it were, by the inner ear. If the particular transposition is pursued *thoroughly enough*, the transposed accidentals will begin to take on *absolute values*, (the old story of attaching a new response to an old stimulus). If and when this complete new association occurs, a piece of highly chromatic music, or even one in twelve-tone style will be just as easy to read as in the original key. Fortunately, in church music organists do not often need to cope with this type of music; it is decidedly anti-vocal. However, orchestra musicians do, and the further advance in the general skill of transposition, the more easily they will cope with the simpler problems which come up in their regular work, and the more easily they will be able to pass the transposition task on the AGO examinations.

For congregational hymn singing, lowering the pitch a semi-tone or a full tone should be sufficient to take most of the vocal strain off many hymns, but should one come up which could profit by even a bit more lowering of pitch, try the following: read the left hand as treble clef and the right hand as soprano clef, factoring the accidentals. This will give intervals of either a minor third or a major third down, depending on the choice. A minor third will usually be indicated, since a major third is too great a transposition. For security reasons, a small amount of “woodshedding” will give greater assurance, but the central theme will remain the same: in general, transpositions must be so fully mastered that they will excite no fear, even at *first sight*.

In clef transpositions, all clefs may be used in all sorts of relationships, but register is ignored. It may be exact or many octaves out of its usual position. The name of the note is the important thing.

It would be practical, while on the general subject, to include words of specific advice to those contemplating AGO examinations in the foreseeable future. *Begin transposition discipline early*, at least several years before the contemplated date of taking the test, so that a minimum of six months may be devoted to each transposition called for. Two years would be a bare minimum. In the meantime, *use* the transposition being worked on whenever the smallest opportunity occurs in regular church work, and above all, *have courage*. *If properly prepared*, transposition is one of the tests the candidate may feel easy about, but it is the writer’s opinion that it is usually one of the tests which scares many away from taking the examination at all.

In preparation, choose a hymnal and transpose *at sight* every hymn at the interval being studied *and at no other interval at the time*. Any hymnal will do, but the *Hymnal 1940* is especially good, for it contains much plainsong, the tonality of which is more exotic and does not help the candidate as much as do the common major and minor. *The English Hymnal* is

even better in this regard; there is more plainsong in it, sometimes page after page. Also, many of its tunes are little known to Americans and possibly Canadians. In such cases, the candidate must rely on sight transposition; he cannot expect much help from his ear or memory. After completing a hymnal or two, it would be a good idea to pursue the exercise in Summison and Wilkinson's *Transposition Exercises at the Keyboard* (Novello) which gives experience in many fabrics, with plenty of accidentals and with some independent pedal parts as well. The candidate should send to the AGO national office for past examinations, always available while the supply lasts.

Finally, when sitting on the organ bench at the time of the examination, *be sure* to note the original key accurately, and make a very *definite* note of the key and signature being transposed into. Above all, be sure to note accurately whether the example is major or in minor. This seems very obvious, but under nervous conditions a mistake here can easily occur, and the result will be utter chaos.

Some people are naturally better sight readers than others; they will be able to transpose simpler tasks more quickly than will the slow sight reader. However, make no mistake about it; transposition is a discipline which must be planted on a very firm foundation. While some may think and read more quickly than others, quick thinking will never do more than make a favorable impression on a limited task. The AGO tests require *first sight* transposition, yet many applicants are trained for keyboard harmony-ear transposition. Were this the type of transposition called for, the examination would give an excerpt, ask that it be played in the original key and then in a number of adjacent keys.

In regard to the title of this article, it can easily be seen why fluent transposing ability will, indeed, be a "secret weapon." Smoother singing will ensure, and nobody—not the members of the congregation, not the minister—will know the reason why. The choir alone may be in on the secret, and perhaps the rare person having a degree of absolute pitch. Such a person will need to learn to transpose.

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On Transposition

It is often desirable to play hymns or chants in keys other than the written ones—to cater to the vocal capabilities of a particular congregation, to coordinate the key with those of surrounding liturgical items (i.e., if a choral Amen is in E major, it might be more graceful to follow it with a hymn in A rather than B-flat), and to engage in the popular game of rendering individual stanzas in progressively higher keys. But this application of transposition skills is only the most frequent, the most familiar of many possible uses. In so far as an organist-choirmaster has anything to do with transposing instruments—trumpets, horns, clarinets—(s)he at least has to understand the correspondence between written and concert pitch. (S)he may very well, at some time, have to study and/or direct from a score where the written pitches of transposing instruments are given.

Then there is the occasional need to alter the pitch level of solo vocal or choral music. Here especially, we are reminded that transposition is not a tool whose uses are to be found in sophisticated music-making situations only, for it is more likely, not less, that singers in comparatively humble quarters would have limitations of range and technique such as to make pitch adjustment highly desirable.

Systematic approaches to transposition generally presuppose one of our traditional seven-note scales. Key signatures are imagined to be other than the written ones; and if one transposes by substituting different clefs, one must add accidentals on certain scale steps. Shortcuts or elegant procedures are all but non-existent for the transposition of heavily chromatic or atonal music. Here a note-by-note process is usually the only answer. Luckily non-diatonic music is most often tackled in circumstances where human limitations necessitating transposition are not encountered.

Transposition problems in tonal music may be divided into two basic categories. The first and easier category involves moving to a new key center with the same letter-name as the original one—e.g., A to A-flat, C to C-sharp, D-flat to D. In this case, notes would appear on the same lines and spaces (no matter what the clef) in the transposed version as in the original, and only two mental adjustments need to be made: 1. the key signature of the new key must be substituted for the old; and 2. all accidentals must be adjusted upward or downward (as the direction of the transposition dictates) by a half-step. To illustrate the second point: in a transposition from A-flat to A, any double-flat becomes a flat, any flat a natural, any natural a sharp, any sharp a double-sharp.

The second category, wherein the letter-names of the original and transposed keys differ from one another, poses considerably greater difficulties. One may proceed simply by imagining all notes to be moved up or down a certain distance on the staff. For example, in the case of upward transposition by a whole step, all notes on the line are transferred to the next-higher space, all notes in the spaces to the next-higher line. The simplicity of this approach is one of its main recommendations.

One may, on the other hand, imagine no change of position of the notes on the staff, but rather a change of clef. This method, popular in France and other European countries, requires knowledge of C clefs no longer in general use. The following table gives the clef to

apply, depending upon the letter-name associated with the bottom line of the staff in the transposed version.

Bottom line gives

Clef

C	Soprano (middle C on bottom line)
D	Tenor (middle C on second-highest line)
E	Treble
F	Alto (middle C on middle line)
G	Bass
A	Mezzo-soprano (middle C on 2 nd lowest line)
B	Baritone (middle C on highest-line)

In the case of transposition of clefs, an octave adjustment may have to be made for certain staves. For either method of transposition, the correct, key signature for the transposed version must be applied, according to the new clef.

Example of transposition by clefs: Suppose that a line of music in A major, appearing in the treble clef, is to be transposed a perfect fourth upwards.

Step 1: The bottom line in the treble clef is E. E transposed up a perfect fourth is A. Hence, according our table, the mezzo-soprano clef should be used.

Step 2: The key center of the transposed version is a fourth higher than A, i.e. D. Hence the key signature should be two sharps, put in the second-highest space (the F space) and on the second-lowest line (the C line) respectively. *Step 3:* The particular G represented by the treble clef is G above middle C. The particular C represented by the mezzo-soprano clef is middle C. For an upward transposition by a fourth (as opposed to a downward transposition by a fifth), the music must therefore be read an octave higher than the level suggested by the mezzo-soprano clef.

Regardless of which method of transposition is employed, accidentals will appear at the same moments in the transposed version as in the original one. Before starting to transpose, it is well to consider what sharp, flat, and natural mean in the original key, and what they will mean in the transposed key. Remember: the next-higher accidental than the prevailing one always signifies raising the pitch by a half-step, the next-lower one lowering it by a half-step. Naturals, in particular, can mean either cancellation, raising or lowering, depending upon the scale degree and the key signature. Example: Suppose that a transposition from A major to B-flat major must be made. 1. A natural before C in the original version means lowering the pitch by a half-step, since Cs are regularly sharped in A major. Therefore it must be translated as a flat before D in the new key. 2. A sharp before D in the old key means raising the pitch by a half-step. Therefore it must be translated as a natural before E in the new key, since Es are regularly flatted in B-flat major. 3. After a D-sharp in A major, an ensuing natural before D means cancellation of the sharp, i.e., a return to the normal kind of D in the key of A major. Hence the natural must be translated as the normal kind of E in the key of B-flat major, i.e., E-flat.

Whether or not clefs are used in transposition, it is helpful to keep certain considerations of harmonic theory in mind. One should be acutely conscious of what the tonic of the transposed version is, and try to cultivate a keen awareness of the correspondence between the original tonic and the transposed one. To a lesser extent one should try to foster a similar awareness regarding the dominant degrees, and perhaps the mediant. In music of the 18th and 19th centuries, phrases generally end with familiar cadential progressions. Recognizing these can help! Also, for pieces in minor, certain accidentals—particularly those for raised sixth and seventh degrees and their cancellations—are bound to occur copiously, so it helps to look out for them.

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