

THE PIANIST'S APPROACH  
TO  
SIGHT-READING  
AND  
MEMORIZING

*A manual*

- A) For sight-reading, comprising a series of explanations and analyses designed to aid pianists in developing fluency in sight-reading.
- B) For memorizing, comprising a series of observations and analyses pertaining to the problems of memorizing and to the physical and mental processes whereby proficiency in memorizing may be developed.

by

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THE PIANIST'S APPROACH  
TO  
SIGHT-READING

The value of fluency in sight-reading and an analysis of its component parts.

Analyses and examples of musical factors necessary to proficient sight-reading.

Analyses and explanations of the physical problems connected with sight-reading.

# THE PIANIST'S APPROACH TO SIGHT-READING

## *The Value of Fluency in Sight-Reading and an Analysis of Its Component Parts*

The purposes of this manual are to emphasize to the averagely gifted student the very great importance of fluency in sight-reading, and to provide him with a systematic series of explanations, analyses and examples which will assist him in cultivating that fluency if he does not already possess it.

The importance to a pianist of being able to read music at sight readily is comparable to the importance to a student of literature of being able to read words at sight easily. Ease in reading, whether words or music, is a result less of familiarity with single words or notes than with word groups or note groups, the members of which are used so consistently in the same order that they form easily recognizable relationships to each other. The relationship of member words or notes to each other is known as idiom. Knowledge and familiarity with idiom smooth the path of the sight-reader, and help him to proceed unhesitatingly and without vacillation.

Were it necessary for a word reader consciously to relate each word of a sentence to the other in every sentence he read, and were he never to progress to automatic or subconscious recognition of word relationships, not only would his reading never attain fluency but, because of his preoccupation with the actual deed of deciphering, he would extract only a part of the meaning of what he read, and his progress toward greater knowledge of literature would automatically be limited. It follows, therefore, that if a person is to acquire facility in reading words or music he must gain command of two things--knowledge of idiom, which is knowledge of customary word or note sequence, and the mechanics of ocular recognition of those sequences in such a manner as to convey meaning. The mechanics of word reading are less complicated than those of note reading because achievement of a final result in the former necessitates a use only of the eyes and brain, whereas in the latter, if performance is to follow, the eyes and brain serve only to create an impulse the result of which must be realized through muscular action by arms, wrists, and fingers. Therefore, a higher degree of mental and physical coordination is required to read music fluently.

Many persons are endowed by nature with a highly efficient physical response to mental and sensory stimuli. Their muscular reactions to thought impulses seem to take place automatically and without conscious effort. It is possible for such people to excel in sports. In tennis their racquets hit

the ball at the right time and at the right angle; in baseball they run at the right speed in the right direction in order to field a ball which will be at a certain place at a certain time; in ice hockey they skate in such a manner as to maintain balance and to attain their objectives with the least possible interference, etc. They do these things as though the thought itself were the action. What happens actually is that thought directs action so harmoniously that the rhythm of each and the rhythmical relationship of one to the other proceed without break or hindrance. The process of reading music at sight requires the same sort of coordination as that which is employed in tennis, baseball or hockey, only in higher degree, for the first is more particular and complex, and demands a more refined mental impulse and a more rapid and detailed muscular reaction.

Those to whom sight-reading is easy and natural are fortunate. That does not mean, however, that proficiency in sight-reading is necessarily limited to those who have a natural aptitude for it. Intelligence and education can often accomplish as much as talent. Indeed, an exact knowledge of the details which lead to accomplishment is often a more effective tool than accomplishment which is achieved without thought and analysis. Intelligent and sufficient practice should result in a person with less ability acquiring as great a facility in sight-reading as that possessed by pianists who have a native gift for it.

Sight-reading, a highly complex process, can be broken down into component parts which can be reassembled in such a manner that the intelligent person, even though without special talent, can consciously fit the parts together, and by so doing achieve the desired result.

Whether playing a piece that has been practiced and learned, or reading at sight a piece that has never been played before, there is one particular and fundamental idea that must be applied--it must be played from beginning to end without break in the rhythmic line. If errors are made in the sight-reading of a piece, they are made and cannot be unmade. Nothing is achieved, and only harm is done by a retracing of steps to correct a wrong note or other mistake; the thread must not be broken even though it becomes snarled here and there; the motion of thought, eyes, ears, and fingers must be consistently forward. The inexperienced sight-reader is often thrown into such a state of confusion by a mistake of some kind that he cannot decide whether to pursue his course, or to turn back in an effort to correct the error. When that happens he is at odds with himself, and makes a despairing and hopeless attempt to go both forward and backward; notes dart at him from all directions, and his bewilderment results in partial or complete chaos.

An analysis of the mental and physical steps which take place in the process of proficient sight-reading reveals the following:

1. perception and recognition by the eyes of what is printed on the page;
2. communication to the brain of what has been perceived and recognized;
3. understanding by the brain which vitalizes and makes clear
4. the impulse that is sent to the nerves;
5. muscular reaction which the nerves set up, and consequent translation into action by the fingers.

The five steps of the process happen in such rapid succession that one is not aware of them while they are taking place. Correctness in the first step is indispensable to correct result in the last. One of the prime purposes of this manual is to explain the functions of recognition, and to analyze these functions in such ways as will develop increased fluency in sight-reading.

One of the cardinal principles of efficiency in any physical action is that it should be calm and deliberate. Every physical action is first imagined in the brain. The physical fulfillment which results from the mental image should be unhurried. In order to attain a particular objective in a particular time it is necessary that the movement toward it be begun sufficiently in advance of its attainment that the act of attaining will be accomplished without haste, without anxiety, and with a minimum of effort.

In reading music at sight there are five factors which it is essential to take into account and to keep ever-present in the mind:

1. the key in which a piece is written--this must be so firmly fixed in the mind that there can be no doubt as to its tonality, and as to which white and black keys are native to it;
2. the time (or meter) in which a piece is written--so important is this that if one must choose between perfection of notes and perfection of rhythm, there can be no doubt that the latter should receive preference;
3. the tempo (or speed) in which the piece is indicated to be played--real understanding of the meaning of a piece, and communication of its emotional values are impossible to achieve without approximately correct tempo;
4. obedience without prejudice or predisposition to what the eyes perceive and recognize--the tendency of many students is to read music partly on the basis of assumption as to what they believe the sound should be, rather than entirely on a basis of actuality as offered to the eye;
5. forward motion irrespective of any errors that may be made.

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Sight-reading is not supposed nor expected to offer a performance finished in all details; therefore, a finished performance should not be the objective of the sight-reader. In fact, one may reasonably believe that an attempt at perfection of detail which is expected when a piece has been practiced would defeat the purpose of sight-reading, and would result in less fluency than that of which the performer were actually capable. The objective of the sight-reader should be to give a general idea of the piece that is being read. While attention to musical details is of utmost desirability in sight-reading, such details should not be paid for by the sacrifice of general outline. It must be reiterated that the attainment of the primary objective requires an ability to go forward and to remain unconfused by errors that are made on the way. It is not possible to play a piece as well when sight-reading it as after having practiced it many hours. An attempt to do so would prove vain and ineffectual.

What may seem a paradox is that the act of reading at sight is not the act of playing what is seen, but of playing what has been seen, for one does not play the notes at the same moment that the eyes see them. In a sense, proficient sight-reading is playing from memory. The eyes perceive and recognize, then the fingers carry into action the impressions that have been the result of perception and recognition. While the fingers play what has been seen, the eyes are looking at what must be played next. If a graph of the pace-relationship between eyes and fingers could be drawn, it would be approximately like this:

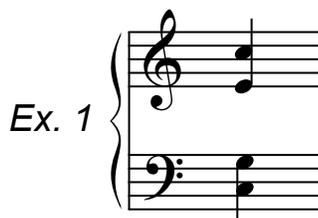
eyes 1----2----3----4----1----2----3----4----  
fingers 1----2----3----4----1----2----3----4----

It must be understood that the pace-relationship changes with the necessary speed of performance. In slow speeds the eyes need be only a little in advance of the fingers, there being no necessity for rapidity of recognition in order to direct the fingers to the right keys. Faster speeds naturally require that the eyes be farther ahead of the fingers. If the fingers are to move forward smoothly and with rhythmic regularity, the eyes must move forward equally smoothly and regularly, always maintaining enough of a lead to insure that the fingers will be directed to the right keys without haste or anxiety, and with due regard to musical values.

*Analyses and Examples of Musical Factors  
Necessary to Proficient Sight-Reading*

The following series of examples and analyses is designed to aid in clarifying the problems of sight-reading from the basic fundamentals to a grade of difficulty corresponding to material that is learned in the fifth or sixth year of piano study.

The most easily solved problem is that which has the smallest number of component parts. Example 1 presents an easy problem in sight-reading:



Analysis of example 1 discloses three things, each to be recognized and acted upon one after the other--first the clefs; then the key; and then the notes themselves. The ability to read example 1 merely indicates recognition of a fixed image. The action of the fingers resulting in sound need be taken only after as much deliberation as physical necessity may dictate. Difficulty is reduced to a minimum because the prime essential of sight-reading--forward motion of the eyes and fingers--is absent. It is an example of simplicity reduced to absurdity. Its value lies only in illustrating what is *not* the process of sight-reading, the essence of which is consistently progressive motion.

The complete process of sight-reading involves eight elements. Seven of them relate to musical knowledge. They are the means whereby enlightened results in the eighth, which is the practical realization of the first seven, is attained. Some of the elements have already been mentioned, but for purposes of clarification and amplification they are repeated as follows:

1. clefs
2. key signature
3. time signature
4. tempo
5. note recognition
6. phrasing
7. shading
8. forward motion

Ex. 2

Andante

*p*

Before beginning to play, one fixes in one's mind the clefs, the key (or tonality, whether major or minor), the time (or meter), and the tempo (or speed), in that order. Intelligent application of the fifth and eighth elements--note recognition and forward motion--is based on understanding of the first four. The essential physical procedures of sight-reading as applied to example 2 are as follows: the eyes recognize the notes of the first chord--with their time values and their rate of speed to the next chord--, and while they are being played the eyes go forward in constant and easy motion to the next notes that are to be played, then the next, and still again the next until the final chord. Phrasing and shading are mentioned last not because they are least important but because a certain amount of flexibility may be allowed in their application to a piece never seen before. As a matter of fact, phrasing and shading are indispensable elements of musicianly sight-reading because in their absence music has no real meaning. The flexibility alluded to is a pardonable compromise of which advantage may be taken only by those whose lack of proficiency makes it necessary.

One cannot hope to be an expert sight-reader without being a well-grounded musician, and certainly one of the attributes of a well-grounded musician is his regard and respect for musical elements, the two most basic of which are notes and their time values. Either of these without the other is meaningless. It is essential to know the time relationship of a quarter to an eighth, or any other value to a different value, as it is to know the names of the notes on the lines and spaces of the staves, and which keys on the piano correspond to them. Time values are the outer garments of rhythm in the sense that bark is the outer garment of a tree. The garment must be kept whole and intact if the body beneath is not to be destroyed. Rhythm is the indispensable soul of music. As such, it is of the utmost importance in performance, whether sight-reading or otherwise.



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Those unarticulated beats are as important rhythmically as those that are punctuated by notes. Rhythm (ordered pulsation) is emotional, and it can and must be felt as vividly when there is silence as when there is sound because one is as important as the other. When there is uncertainty as to the time values of rests, or dotted notes, or when physical response to them is tentative, negative or incorrect, the all-important thread of rhythm is broken, and continuity, which is essential to logical performance, is consequently destroyed.

Whole, half, quarter, and eight-note time values are the ones most frequently encountered in elementary music literature. Consequently they are the ones with which the student is most comfortable. As he progresses he becomes acquainted with sixteenth-note time values, usually in the form of accompanying figures or as running (not necessarily rapid) passages. Such figures or passages (in elementary and early intermediate literature) of sixteenth notes are seldom interrupted by other time values, so that when they are set in motion it is necessary only to keep the motion constant in order to play them correctly in time. However, even though a variety of other time values is not injected into a passage where sixteenth notes predominate, it is long before the student takes the latter as easily in his stride as he does the earlier learned time values. It is when the student finds himself gazing on the unfamiliar and must act on it without hesitation that he becomes confused, and thereby loses fluency of thought and motion. The obvious remedy is to do away with the unfamiliar by dealing with it so frequently that it becomes familiar and thereby no longer produces fear. Many students acquire the idea during their early years of study that sixteenth notes must be played rapidly, and are, therefore, more difficult than eighth, quarter, half, or whole notes. Actually, eighth notes in one piece are often played as rapidly as sixteenth notes are played in another piece, and sixteenth notes in one piece are often played as slowly as eighth notes are played in another piece. As for thirty-second and sixty-fourth notes, the student is convinced that the playing of them requires a virtuosity he does not, and probably never will possess. This idea is so palpably incorrect that it seems to need no contradiction. (It seems appropriate to repeat here the story of the newly-rich and not-yet-cultivated gentleman who was a guest at a private musicale. The program was given by a string quartet, and was of unusually brilliant character. After the last movement of the final quartet, which was particularly rapid and spirited, and after applause had expressed the appreciation of the audience, the gentleman went up to the first violinist, and asked permission to look at his score. Permission granted, the gentleman gazed fascinated and awed on a page that was a dark jungle of notes. He pointed to them and asked, "what are those?", and was told

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that they were thirty-second notes. "Are they difficult?" he asked, and the answer was non-committal. His final question was, "would you mind playing one of them for me?", but the answer is not recorded.) It would be highly advisable for the teacher and the student, working together, to allay once and for all the fear of sixteenth, thirty-second, and sixty-fourth notes. This can be done by simple and logical arithmetical explanations, and by having the student familiarize himself through contact as early as possible and as frequently as practical with those time values that might confuse and intimidate him.

In example 7 we have a formidably varied assortment of time values:

Ex. 7 Haydn



Analysis of example 7 discloses eleven different time values: quarter, dotted quarter, dotted eighth, sixteenth, eighth, half, quarter tied to a sixteenth, half tied to a sixteenth, thirty-second in a triplet, dotted sixteenth, thirty-second. It is seldom that the student is able to untangle a passage of such complexity without aid from the teacher. Yet, if the time values were more familiar to him he would find the difficulty of deciphering considerably lessened. If the notes were played at the same rate of speed and in the same time-proportions to each other, but translated into a more familiar appearance as in example 8, he would find the problem much less troublesome to solve:

Ex. 8



Because of the enlargement of time values and fewer notes in a measure owing to the expansion of beat indication, and because these time values, through frequent previous contact, are more readily recognized, the time problem, so perplexing and disturbing in example 7, becomes comparatively clear and easy of solution in example 8.

Fear, which is a thorny barrier in the path of accomplishment, is largely the result of strangeness. The difficulties which it engenders are in large measure illusory. The conquering of fear is the outcome of the conquering of strangeness: the latter can be achieved only by frequent contact and the easy understanding which frequent contact produces.

Music as an emanation is inspirational. In its composition it is architectural and formal, therefore, in a certain sense, mathematical. The latter being so, the element of formula figures largely in its construction. It is through recognition of formulas that ease in sight-reading is developed and enhanced. Grove defines form as a series of systematic and intelligently planned repetitions and contrasts. That definition is practical and illuminating. The music of the classic and romantic composers, from Bach to Brahms, is constructed symmetrically: that is, it consists of occurrence and recurrence of certain material at more or less regular and pre-designed intervals. These occurrences and recurrences are inherent in the forms widely used by the aforesaid composers. Most of our accepted forms, such as the two and three-part song forms, rondo, minuet, sonata-allegro, etc., are built along such well-defined and pre-conceived lines that the knowledge of a few examples of any one of them should facilitate recognition of other examples of them. As recognition becomes easier, sight-reading obviously becomes easier also.

The classic and romantic composers are not only reasonably similar in their treatment of forms: they are also fundamentally alike in their use of harmonic and, therefore, of melodic idiom. Sight-reading in its purest sense means to read material that is unfamiliar, which is productive of sounds that have not been heard previously. Therefore, because of the many similarities in the pieces of any classic or romantic composer, and because the musical idiom of one classic or romantic composer is very similar to and in many cases almost identical with that of another, the reading at sight of a piece by Bach, Mozart, Beethoven, Schubert, Chopin, etc., cannot be regarded as pure sight-reading. The very thought of any one of those composers conjures up particular sequences of sounds which are peculiar to and inevitably identified with that composer through previous hearing of other pieces by him. Therefore, music by them which is being read has, with variation, been heard, played, and read previously.

Conventional musical idiom as employed by the classic and romantic composers is built on sequences of tones known as major and minor scales, and on the chords and chord progressions that derive from them. Of utmost ocular, aural, and tactile importance is key recognition and the recognition of tone sequence or scale which results in that key. It is important for the sight-reader to know in which tonality he is going to read because the tonality sets the pattern of piano keys which are to be struck. He must be as prepared for a minor (the harmonic minor mode is the most usual, the other being termed melodic) as for a major pattern of tones and piano keys. A student may have a predisposition to believe that a piece which he is to read is in a major key. It is not necessary to say that this assumption, usually based on nothing except more frequent contact with major than with minor keys, is false. Knowledge, not assumption, must tell the sight-reader whether the piece is in a major or minor key. There are several ways for the sight-reader to ascertain whether the key of a piece of music is major or minor, one of the most decisive in the latter being whether the seventh degree of the scale is raised. Thus, if a piece has no sharps or flats in the signature, the discovery of a sharp before G in the first two or three measures indicates that it is probably in A minor rather than C major, which is also without sharps or flats in the signature. G sharp is not a fundamental member of the C major tonal pattern, and is not apt to occur in a piece predominantly in that key until modulation brings about a different tonality. In the key of A minor, however, the raised seventh tone, which is G sharp, is the most distinctive tone of the scale, and is usually encountered very early in any piece in A minor. In example 9

Ex. 9 

the first measure gives no definite indication as to whether the piece is in F major or D minor, and although the first note is D, there is no conclusive proof of tonality. It is not until the C sharp is seen in the second measure that reasonable doubt as to its being in D minor is removed. In example 10

Ex. 10 

the E natural establishes the key as being F minor; and in example 11

Ex. 11 

the A natural indicates the key as being B flat minor. The raised seventh

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tone does not always occur as near the beginning of a piece as is shown in examples 9, 10, and 11, but it will seldom be so deep into the piece that one need search very far for it.

Conventional or orthodox harmonic progression (referring to procedure from one chord to another within the same key) is on much the same level as scale patterns because the tones of the scale determine the tones which form the chords, and determine the chord sequence. An example of basic relationship between scale tones and harmonic progression is given in example 12:

Ex. 12

C major

The musical notation for Example 12 shows a C major scale in the treble clef and its harmonic progression in the bass clef. The scale is: C4, D4, E4, F4, G4, A4, B4, C5. The harmonic progression in the bass clef consists of chords: C major (C-E-G), F major (F-A-C), C major (C-E-G), F major (F-A-C), C major (C-E-G), F major (F-A-C), C major (C-E-G), F major (F-A-C). The chords are placed under the notes of the scale: C under C, F under D, C under E, F under F, C under G, F under A, C under B, and C under C.

It will be observed that three chords (the most basic) are used in example 12--the one (the tonic) that harmonizes the first, third and fifth degrees of the scale--the one (the dominant) that harmonizes the second, fourth and seventh degrees; and the one (the sub-dominant) that harmonizes the sixth degree. (The eighth or octave degree duplicates the first).

Chromaticism is often observed in the harmonization of the scale pattern, thus:

Ex. 13

C major

The musical notation for Example 13 shows a C major scale in the treble clef and its harmonic progression in the bass clef. The scale is: C4, D4, E4, F4, G4, A4, B4, C5. The harmonic progression in the bass clef consists of chords: C major (C-E-G), F major (F-A-C), C major (C-E-G), F major (F-A-C), C major (C-E-G), F major (F-A-C), C major (C-E-G), F major (F-A-C). The chords are placed under the notes of the scale: C under C, F under D, C under E, F under F, C under G, F under A, C under B, and C under C.

Still other customary chord formations which vary, but do not lose their relationship to the scale patterns, are shown in examples 14 and 15:

Ex. 14

C major

The musical notation for Example 14 shows a C major scale in the treble clef and its harmonic progression in the bass clef. The scale is: C4, D4, E4, F4, G4, A4, B4, C5. The harmonic progression in the bass clef consists of chords: C major (C-E-G), F major (F-A-C), C major (C-E-G), F major (F-A-C), C major (C-E-G), F major (F-A-C), C major (C-E-G), F major (F-A-C). The chords are placed under the notes of the scale: C under C, F under D, C under E, F under F, C under G, F under A, C under B, and C under C.

Ex. 15

C major

The musical notation for Example 15 shows a C major scale in the treble clef and its harmonic progression in the bass clef. The scale is: C4, D4, E4, F4, G4, A4, B4, C5. The harmonic progression in the bass clef consists of chords: C major (C-E-G), F major (F-A-C), C major (C-E-G), F major (F-A-C), C major (C-E-G), F major (F-A-C), C major (C-E-G), F major (F-A-C). The chords are placed under the notes of the scale: C under C, F under D, C under E, F under F, C under G, F under A, C under B, and C under C.

Examples 12, 13, 14, and 15 show some of the more usual chord progressions which the sight-reader may expect to find in the key of C major. Upon them are built the fabric of melody, accompaniment, embellishment, and counterpoint which are the flower of inspiration growing from the composer's imagination. Expectation being in one's mind, the discovery of those chords should not only be surprising--they should be expected by the eye and ear as a matter of course. It is understood, certainly, that in other major keys the chord procedure is the same, even though the pitch is different and the piano keys that express it are different. The minor key chord procedure is much the same as the major: its progressions are formed of equally consistent patterns, and it is equally easy to learn. Chord progression does not always follow literally the sequence that is given in these examples. The order of the chords may be changed to suit the individuality of the composer and the meaning he that wishes to express. Then, too, their number may be amplified in many different ways, usually chromatic, in accordance with the habit of the composer's musical thought. There is no reason, however, why such variation in progression or such increase in variety need throw the sight-reader off his stride or cause him to be confused, because, in most pieces, nothing really strange and unrelated is likely to be introduced, and because any deviations that occur will probably retain the essential characteristics of the basic progression.

Just as the student becomes accustomed to thinking of the whole and half-note time values as being easy, so he thinks of easy keys as being those which have relatively few accidentals in the signature. The tendency of the teacher is to confine the student to those keys that contain only a small number of sharps or flats, at least in the early years of study. There is justification up to a point for this tendency, but in many cases it is carried far beyond the bounds of necessity and is more the dictate of dogma than of wisdom. This somewhat pedantic attitude, which derives partly from pre-conceived pedagogic theory and partly from timidity, often results in a feeling of strangeness and fear when the student is finally introduced to the keys involving larger numbers of sharps and flats--a feeling which sometimes takes years to overcome.

As a matter of practical common sense, a key involving six sharps or flats is no more difficult than one involving none, the basis of facility in all of them consisting of a sense of tonality and a recognition of key. Key recognition and a sense of tonality derive from aural expectation of tone sequence resulting in scale pattern, either major or minor. Aural expectation

of tone sequences in the scales of C major or A minor is exactly the same--in their respective modes--as those of F sharp major, or E flat minor, or of any of the supposedly difficult keys. The ocular and tactile complications of the latter keys may be somewhat greater, but certainly these will not be alleviated by staying away from them, and one may be reasonably assured that custom and habit will round the edges of difficulty which lack of frequent contact and of familiarity keep sharpened. Recognition of key and its tone sequence, and the feeling of being at home in *all* major and minor keys, is of indispensable importance in sight-reading because they induce a natural and spontaneous adjustment to harmonic progression and modulation. (The latter will be discussed in the next paragraph.) Without ocular, aural, and tactile ease in recognizing harmonic progression and modulation, sight-reading cannot proceed except falteringly and uncertainly. With practice one may learn to play a piece in any key, but fluent sight-reading implies a mental comfort with regard to the aural, the ocular, and the tactile in going from one chord to another, and from one tonality to another; it implies action taken correctly without conscious effort, without ponderous calculation, and without hesitancy.

The process of performance entails the progress from the basic key in which a piece is written, and which may be regarded as the main highway of tonal travel, to other keys related to it by musical logic and law. The procedure is analogous to that of sentence construction, whereby noun creates impulsion to verb, to adverb, to preposition in systematic order, and is called modulation. The key signature of a piece determines its basic tonality, whether major or minor. The most usual modulation is that which proceeds from the basic tonality to that of the fifth above. The next most usual is that which proceeds to the fifth below. Both procedures are so fundamental in classic and romantic (therefore conventional) literature as to justify expectation of their inevitable occurrence. Warning of progress from one tonality to tonalities a fifth above or below is given by raising or lowering (by means of accidentals) the tone upon which the procedure depends. A progression to the tonality a fifth above (whether major or minor) necessitates raising the fourth degree of the original scale pattern to which a modulation is made. (A modulation from minor to minor is usually accomplished by raising also the sixth degree for the same reason that causes the raising of the fourth degree.) Thus, in examples 16 and 17:

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Ex. 16

C major.....G major

This example shows a modulation from C major to G major. The key signature changes from no sharps or flats to one sharp (F#). The music is in common time (C). The treble clef part shows a sequence of chords: C major (C-E-G), F major (F-A-C), C major (C-E-G), and G major (G-B-D). The bass clef part shows a sequence of chords: C major (C-E-G), F major (F-A-C), C major (C-E-G), and G major (G-B-D). A downward arrow points to the G major chord in the treble clef.

Ex. 17

C minor.....G minor

This example shows a modulation from C minor to G minor. The key signature changes from two flats (Bb, Eb) to three flats (Bb, Eb, Ab). The music is in common time (C). The treble clef part shows a sequence of chords: C minor (C-Eb-G), F major (F-A-C), C minor (C-Eb-G), and G minor (G-Bb-D). The bass clef part shows a sequence of chords: C minor (C-Eb-G), F major (F-A-C), C minor (C-Eb-G), and G minor (G-Bb-D). A downward arrow points to the G minor chord in the treble clef.

Also by reason of conformance to succeeding scale pattern the modulation from a major key to the tonality a fifth below necessitates lowering the seventh degree, and in minor keys raising the third degree of the original scale pattern, as in examples 18 and 19:

Ex. 18

C major.....F major

This example shows a modulation from C major to F major. The key signature changes from no sharps or flats to one flat (Bb). The music is in 3/4 time. The treble clef part shows a sequence of chords: C major (C-E-G), F major (F-A-C), C major (C-E-G), and F major (F-A-C). The bass clef part shows a sequence of chords: C major (C-E-G), F major (F-A-C), C major (C-E-G), and F major (F-A-C). A downward arrow points to the F major chord in the treble clef.

Ex. 19

C minor.....F minor

This example shows a modulation from C minor to F minor. The key signature changes from two flats (Bb, Eb) to three flats (Bb, Eb, Ab). The music is in 3/4 time. The treble clef part shows a sequence of chords: C minor (C-Eb-G), F major (F-A-C), C minor (C-Eb-G), and F minor (F-Ab-C). The bass clef part shows a sequence of chords: C minor (C-Eb-G), F major (F-A-C), C minor (C-Eb-G), and F minor (F-Ab-C). A downward arrow points to the F minor chord in the treble clef.

Modulation from major to minor and vice versa, and less fundamental progressions than those to keys a fifth above or below are based on the same principle as that illustrated in examples 16, 17, 18, and 19, i.e., raising or lowering of specific tones to conform to specific succeeding scale patterns. Additional illustrations are given in examples 20 and 21:

The Pianist's Approach to Sight-Reading

Ex. 20

Mozart

E flat major..... B flat major..... F minor.....

E flat major

\*) Melodic minor

\*\*\*) D already natural because of preceding F melodic minor

Ex. 21

Chopin

C minor..... A flat major.....

..... C minor..... F minor..... G major

\*) C minor expected but not realized

As has been intimated previously, chromaticism figures more and more importantly as musical idiom extends its diatonic contours. Certain chords, such as those of the diminished seventh, (second, third, and sixth chords in example 14) do not necessarily modulate to different keys even though

their accidentals seem to say so. Even when modulation occurs, one cannot be infallible in determining in advance to which key those chords will modulate. The sight-reader may be reassured, however, by the knowledge that limitations of chord progressions and modulation do exist and that alert observation of those limitations will bring about flexibility of expectation such as will prepare him for most of the musical exigencies that will arise in the normal course or sight-reading.

A chord is a group of notes played simultaneously to create a euphonious whole. However, a chord may be implied when the notes, instead of being heard simultaneously, are heard one after the other. This device is termed arpeggio, or broken chord, and is commonly used in accompaniment figures to overcome the lack of tone sustainment which is a musical imperfection of the piano. To the sight-reader a chord implication should be translated mentally into a chord, which should re-translated literally for performance as the page indicates, the steps being perception and recognition as in example 22:

Ex. 22  
perception  
and  
recognition

Mozart



translation into chords, as in example 23:

Ex. 23  
mental  
translation  
into chords



then re-translation into the original version for performance as is shown in example 22. Another instance is shown in examples 24 and 25:

Beethoven

Ex. 24  
perception  
and  
recognition

Example 24 consists of two systems of piano music. The first system features a treble clef staff with a triplet of eighth notes (C4, D4, E4) and a bass clef staff with a simple harmonic accompaniment. The second system shows a more complex melodic line in the treble clef and a corresponding bass line.

Ex. 25  
mental  
translation  
into chords

Example 25 consists of two systems of piano music. The first system features a treble clef staff with chords and a bass clef staff. The second system shows a more complex chordal structure in the treble clef and a corresponding bass line.

then re-translation as shown in example 24. Chord implication must also be understood when melodic figuration or embellishment is used. The term "embellishment" is of seemingly superficial significance; yet, without embellishment, music would plod in a weary way. The sight-reader will find that understanding of the harmonic (or chordal) basis of melodic figuration will be of incalculable value to him. Upon perceiving and recognizing the notes:

Ex. 26

Example 26 is a single staff of music with a treble clef and a melodic line.

his performance and memory of them will be vastly facilitated by thinking of them in relationship to the basic chord:

Ex. 27

Example 27 is a single staff of music with a treble clef and a melodic line.

Other instances are given in example 28:

Ex. 28  J.S. Bach

to be understood harmonically as

Ex. 29 

and in example 30:

Ex. 30  Beethoven

to be understood harmonically as

Ex. 31 

It is seen, thus, that the intelligent eye is comparable to the stenographer who hears words, takes them down in shorthand, and finally types them as they were heard. The ability of the brain to understand the musical shorthand which is initiated by the eye determines in large measure the degree of fluency with which the fingers will be able to reproduce on the keyboard the sounds whose first impressions are ocular.

When Grove's Dictionary defines form as being a planned series of repetitions and contrasts, it refers to the use of material in such manner as to bring about coherence without monotony and variety without chaos. Repetition of material is inherent in all the conventional forms of music. Examination of the rondo, the minuet, the sonata-allegro, etc., reveals repetition in well defined and preconceived design. Recognition of repetition is an important factor in facilitating sight-reading. Repetition may follow different procedures; it may occur with rhythmical variation, with harmonic differences, in inversion, in different voices, in keys other than the original--this last, called transposition, is, because of the universality of its employment, the most important device with which to be familiar.

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The works of Bach are shinningly illustrative of different forms of repetition. An instance is that which is contained in example 32, wherein the entire right-hand part of the first TWO-PART INVENTION is shown with analytical notation:

- OSM--original subject matter
- SOSM--sequential treatment of original subject matter
- SOSMI--sequential treatment of original subject matter inverted
- OSMTI--original subject matter transposed and inverted
- CM--contrasting matter
- FSMPI--fragmentary subject matter progressing in inversion
- OSMT--original subject matter transposed
- FSMTA--fragmentary subject matter transposed and augmented
- OSMTMM--original subject matter transposed in minor mode

J.S. Bach

The musical score is annotated with the following analytical notations:

- Staff 1: OSM, SOSM, SOSMI, SOSMI
- Staff 2: SOSMI, OSMTI, CM, OSMTI, FSMPI, CM
- Staff 3: OSMT, OSMT, SOSMI
- Staff 4: OSMTI, FSMTA, FSMTA, FSMTA, OSMTMM, CM
- Staff 5: OSMTI, OSMT
- Staff 6: OSMTI, OSMT, SOSM, SOSM
- Staff 7: SOSM, CM, OSMTI, CM

Transposition and sequence are the most usual devices of repetition; therefore, it is important to cultivate proficiency in transposing. To that end, familiarity with chord progressions and modulation *in all keys* is essential. It is essential in recognizing what is presented to the eye; it is essential in facilitating aural expectation; and is essential in tactile performance of what is imaged by the first two.

Knowledge of intervals is of great value in developing facility in transposing, and sight-reading generally. However, its value is real and practical only when its three component parts--ocular, that which is seen on the page, aural, that which is heard through being seen, and tactile, that which is the physical result of the first two--are coordinated into complete integration. The lead in sight-reading generally should be taken by the eye, since the whole train of succeeding action has its origin in sight. The lead in transposing material which is to be seen and heard in some key other than the original key should be shared more or less equally by sight and hearing. The lead in transposing a passage or piece that is to be played in another key than that which appears on the page, but which is already familiar to the ear, should be taken by the ear, since the notes that are to be played are not those that are seen. In such cases preconceived tonal impressions are the original source from which action by the fingers springs. Transposing by eye only, through ocular knowledge of intervals, will prove complicated, cumbersome, and mentally fatiguing.

To attain perfection in any skill it is necessary to practice, and intelligent practice is the only means of perfecting those phases of the skill in which weakness is manifested. Piano playing is a skill, and sight-reading is a broad phase of this skill. Transposition is a particular but highly important phase of the broad phase. It is urged that special attention be given to sight-reading in the practice period by devoting a small portion of the practice time to it. It is further urged that special attention be given to transposing; the most practical and result-rewarding way of so doing is to transpose material that has already been learned.

*Analyses and Explanations of the  
Physical Problems Connected with Sight-Reading*

Proficiency in sight-reading at the piano implies an overall fluency in translating ocular and aural impressions into tactile realization; it signifies a general command of the keyboard in such a way that the fingers, stimulated by the eye and ear, proceed easily and correctly to their appointed tasks. The ability to play a few pieces well does not of itself indicate an equally general command of the keyboard. Too many students learn to play pieces on the piano without actually learning the instrument itself. By dint of endless and laborious repetition they teach their fingers certain patterns of motion, just as one may learn, parrot-like, by repeating them over and over again, a few sentences in a foreign language without really knowing the language generally. In the latter case the words mean nothing, and only mechanical memory--upon which one cannot place much reliance--prevents errors. The comparison is apt in that the philosophy of intelligent physical result, whether in speech or in piano playing, is that it must be preceded by intelligent mental cause. When result is isolated from cause--or only nebulously connected with it--, when the former is not commanded by the latter, it is rudderless and without direction or meaning. Knowledge that relates only to the particular and is not broad enough to include generality is of negative value. Lack of general musical and pianistic knowledge means that the piano must be re-learned with every piece that is grooved into the fingers. The process is time-consuming beyond necessity, and there is no justification for it except in the case of students whose interest in performance is only slight and superficial.

Of particular value in acquiring tactile ease at the keyboard is a practical knowledge of basic piano technic. That knowledge consists of realization of the physical distances between tones, whether in close formation, as in scales, or in wide formation, as in arpeggios, or in groups the members of which are to be played simultaneously, as in chords. Facility in playing notes in close formation requires an intimate knowledge of scales; facility in playing notes in wide formation requires an intimate knowledge of the triad, dominant seventh, diminished seventh and other seventh chords in root positions and inversions. Such facility is the result not only of tonal knowledge, but also of its essential physical counterpart, fingerings. Without correct and automatic finger reaction, tonal command is left hanging in the air by a tenuous thread. Tonal intervals and key distances are connected by a relationship which makes one an indispensable part of the other. Musical knowledge without pianistic knowledge is valueless as

far as the piano is concerned. Pianistic knowledge can be acquired only by learning which fingers belong on certain keys in certain tonalities, and by being consistent in applying that knowledge.

The eyes, in looking at an object, perceive not only that which is in direct line of vision, but also a certain portion of the surrounding area and, consequently, the objects within the area. Perception of the object directly in line of vision is primary, and perception of the objects in the surrounding area is secondary. The chemistry of will is such that it can move concentration in one direction or another. In sight-reading, will can cause concentration to give more attention through sight direction to succeeding than preceding objects--to recognize more clearly that which is about to sound than that which has already sounded and passed by. While the eyes are fully recognizing a note or group of notes, they are at the same time partially recognizing the notes that are to be played next. Thus, full recognition is only the completion of an action already begun and, therefore, the element of surprise in the succeeding notes is removed.

It is essential in sight-reading that the eyes should perceive and recognize not only the notes that succeed each other in a horizontal direction, but that they should be cognizant at the same time of the perpendicular line of notes that are to be played simultaneously by both hands. That, too, can be accomplished by willed concentration when necessary. One of the advantages of experience and habit in sight-reading should be to give secondary recognition as nearly as possible as much positivity as that which is more naturally accorded primary recognition. Example 33 illustrates primary and secondary recognition, the size of the notes indicating the degree of recognition of the entire sequence when the eyes are resting on the first four notes:



A casual glance informs the sight-reader that forward motion of both voices is ascending and parallel: more purposeful attention will give him a precise image of the notes as he reads them. Primary recognition is necessary only to one voice, secondary recognition informing the brain that the second voice proceeds with the first like a shadow.

In like instances the same principle is involved when more notes are to be played, as in example 34:

Ex. 34 Beethoven



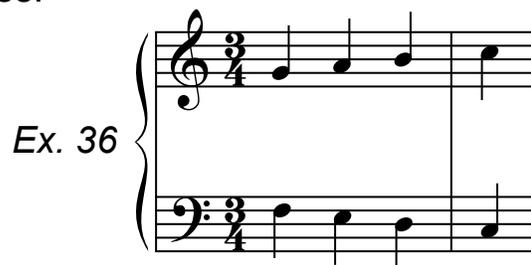
and, with slight variation, in example 35:

Ex. 35 Schumann



Even when the voices proceed in opposite directions the task of perception is no greater so long as motion in either direction is consistent. Example 36 offers no greater complication than examples 33, 34, and 35 because the direction of forward motion is equally consistent, though different, in both voices:

Ex. 36



and in examples 37 and 38:

Ex. 37 Mozart



Ex. 38 Beethoven



Independence of voice motion becomes apparent in example 39:

Ex. 39



however, this independence is only superficial, because there is consistency in the very oppositeness of voice motion. More truly illustrative of irregularity and independence of voice motion is example 40:

Ex. 40



In example 40 the voices move irregularly and independently of each other, combining parallel and contrary motion without consistency of intervals, thus necessitating a greater awareness of perception. However, notwithstanding irregularities and inconsistencies of voice motion, the notes on a staff are so close to each other, and the upper staff is in such close proximity to the other staff that the mere fact of ocular perception should present no difficulty; and when ocular perception is supported and given meaning by musical knowledge, the obstacles to sight-reading should be much less troublesome. The problem rather is to keep the mind free to receive ocular impressions without predisposition, and to act on them without fear and without hesitation.

It will be recalled that memory plays a large part in sight-reading in the sense that what is played is not that which is seen but that which *has* been seen. This idea is valid also in the case of remembering from one staff to the other. Thus, a glance at one staff tells the fingers what is to be played on that staff, and the eye becomes free to glance at the other staff. The notes on the first staff are being played while those on the second staff are being recognized preparatory to action. The idea is not entirely applicable when the hands must play sequences of rapid notes at the same time, but it is definitely so when such sequences alternate from one staff to the other, and from one hand to the other. Diagrammatic instances are shown in examples 41 and 42:

(R=Recognition: P=Play: R following P refers to the succeeding P)

Ex. 41

Schubert

The image shows two systems of musical notation for piano, labeled 'Ex. 41' and 'Schubert'. Each system consists of a grand staff with a treble clef on top and a bass clef on the bottom. The key signature is three sharps (F#, C#, G#) and the time signature is 6/8. The first system has four measures. Annotations include 'RPR' in the first measure of the bass staff, and 'PR' in the second measure of both the treble and bass staves. The second system has three measures. Annotations include 'PR' in the first measure of both staves, and 'R' in the final measure of the treble staff. Arrows point from the text labels to the specific notes or measures they refer to.

Ex. 42

The image shows a musical score for a piano piece by Brahms, labeled 'Ex. 42'. The score is in 2/4 time and consists of two staves, treble and bass clef. The key signature has one flat (B-flat). The music is written in a style typical of Brahms, with complex rhythmic patterns and chordal textures. Several annotations are present: 'RPR' (Right-Hand Part) is written above the first measure of the treble staff. 'PR' (Piano Reading) is written below the first measure of the bass staff. Arrows point from these labels to specific notes in the score. The name 'Brahms' is written in the top right corner of the score area.

Proficiency in sight-reading is a result of facility in relating its component parts both mental and physical. The steps from perception to comprehension to manifestation must be so intimately related that they become integrated into a single action. Experience indicates that the step from perception to comprehension is more easily encompassed than the one from comprehension to manifestation. The usually wider separation in the latter step often shows itself in a lack of ease in attaining the final result. The mental attitude of the average student toward the keyboard in sight-reading is often tentative and hesitant, the basis of this hesitancy being to regard the page and the keyboard as separate and distinct entities. If the keyboard is regarded as a series of keys unrelated to tones until they are actually struck, one remains unrelated to the other: it is as though a blind man were trying to find an object, the precise location of which he did not definitely know. If the player is not aware in advance what the tonal result of key manipulation will be without pondering upon the matter, he will not be sure of it until it is actually heard, and that may be too late. A comparison of the relationship of a singer to his voice may prove helpful, if only because it will illustrate the necessity of a similar relationship between the pianist and his keyboard. Both use an instrument to produce the desired sounds. The difference between the two lies in the difference in degree and in kind of intimacy between the performer and his physical means. When wrong notes come from the singer's throat it is probably because he has read the notes incorrectly. When the pianist is guilty of wrong notes there are two reasons, either one or both of which may account for his mistake: the first, that he reads the notes incorrectly, and the second, that having read them correctly he cannot find the keys to which they correspond. The singer (unless he suffers from some physical defect) possesses the tremendous advantage of an automatic physical response to mental stimuli, whereas the pianist not only must be receptive to mental stimuli, but must also more or less consciously translate them into physical response. The pianist should try to cultivate the same relationship between cause and result as that which is the fortunate possession of the singer.

Toward that end it is necessary to conceive of the keyboard not as a series of white and black objects dissociated from sound until sound is produced, but as a series of objects indistinguishably identical with tones. It is from tone to tone, and not from key to key, that the mind should conceive the fingers as proceeding. Through habit, cultivated by practice, the physical aspect of the keyboard should have lost its identity as an entity distinct and apart from tonal patterns, or it should have so merged itself into tonal patterns that the thought of one is accompanied involuntarily by the thought of the other.

Many students have the destructive habit, in sight-reading, of constantly looking from the page to the keyboard and back again. This habit is not unnatural with students whose hands are uncertain on the keyboard, but it can be overcome by analysis and exertion of will power. Anyone who wishes to read at sight fluently must develop in the fingers a sense of distance from one key or group of keys to another key or group of keys. To do so is not so difficult as may first appear. Contact between the hands and the keyboard is seldom so completely lost that visual aid is required to reestablish it. Were a pianist to play slowly enough he should be able, through his sense of touch, to play any piece in its entirety without so much as a single glance at the keyboard. As a matter of fact, very few pieces need to be played so rapidly, and very few pieces are written with notes at such wide physical distance from each other that the eyes need play a major role as assistant to the fingers in finding the keys.

Cardinal points to be considered in the development of proficiency in sight-reading are, that

physical facility in sight-reading is a result of proper functioning of the eyes, ears, and fingers;

physical facility without basic musicianship and musical knowledge is incomplete and ineffective;

the ear must hear what is seen by the eye before the fingers strike the keys which produce the sounds: to that end music must be heard simply by being seen.

It will have been observed that the majority of words in this manual have been devoted to the consideration of the musical factors involved in sight-reading rather than to an attempt to delineate mechanically, through physical means only, the avenues along which proficiency in sight-reading should proceed. Each has been given what in this writer's opinion is its due importance. Experience has proved that musical knowledge is the

*The Pianist's Approach to Sight-Reading*

prime essential in discovering the musical import of a page never seen before. Musical knowledge plus keyboard knowledge create fluency in producing on the keyboard the musical import to which the symbols on the page must be translated. It may be said that the interpretative side in sight-reading has not been sufficiently stressed. The answer is that it would not seem wise to overburden the student who is yet in the elementary or intermediate stages of the subject. It is assumed that, given mastery of those earlier stages, the more advanced aspects--those that deal with the inner significance of music--will receive the attention which must be accorded them.

It is possible that many technical terms have been used for which no explanation has been given. It must be remembered that this is not an encyclopedia of musical information, but an effort, undertaken in all humility, to explain the mechanics of a very important phase of pianistic performance. If the use of those terms will have the effect of stimulating the reader who does not understand them to more thorough study and investigation of their meaning, then an important purpose of this manual will have been fulfilled.

Allied or kindred subjects which will be of value and assistance in understanding more completely the ideas contained in this manual are solfege (sight-singing), keyboard harmony, form and analysis, and history of music.

THE PIANIST'S APPROACH  
TO  
SIGHT-READING  
AND  
MEMORIZING

*A manual*

- A) For sight-reading, comprising a series of explanations and analyses designed to aid pianists in developing fluency in sight-reading.
- B) For memorizing, comprising a series of observations and analyses pertaining to the problems of memorizing and to the physical and mental processes whereby proficiency in memorizing may be developed.

by

Beryl Rubinstein

THE PIANIST'S APPROACH  
TO  
MEMORIZING

The value of memorizing and an analysis of its component parts.

# THE PIANIST'S APPROACH TO MEMORIZING

## *The Value of of Memorizing and an Analysis of its Component Parts*

The first basic question to ask when discussing problems of memorizing is "why memorize?" If memorizing is so difficult, and if the hazards of playing without notes are so great, why go through the tedious process of trying to memorize, and why endure the possible tribulations of playing without notes if performance is so greatly eased by not doing so? A quick answer, given without much consideration, would be "indeed, there seems to be no good reason why one should memorize except to avoid the inconvenience of carrying music around when one wishes to play." Another answer would be that it is distracting to the auditor to see the performer turning pages, or to see someone else doing it for him. Both answers are shallow and unsatisfactory because their validity deals only with external condition, whereas artistic criteria demand more profound justification. To the first answer the rejoinder may be given that someone other than the performer may be delegated to carry the music. To the second, one may argue that the distraction caused by sight would not obtain with an audience of blind people, or an audience that did not look at the performer. On the other hand if the act of playing without notes is regarded merely as a feat of mental acrobatics then its value as a real musical factor is rendered null and void. The object of musical performance should be the expressing of beauty and meaning through musical sounds. Anything that interferes with the meaning that the performer wishes to convey should be eradicated. Everything that contributes to the completeness of projection should be perfected.

There can be no interpretation without technical facility. It is of utmost importance that the mechanics of performance be concealed as completely as possible. The auditor should be so impressed with the emotional impact of a musical performance that there remains no place in his consciousness for any thought of the instrument, or of technical means, or even of musical devices such as phrasing, dynamics, etc. So to impress the auditor is to indicate that physical and mental technics have been mastered and perfected to a high degree.

The satisfactory performance of a composition on the piano entails two factors--physical command of the instrument, and knowledge of the musical elements which make up the composition. It is the latter factor which is under discussion when the question of "why memorize?" is put to us. It may be inconvenient to carry around music, and it may be distracting to see

pages turned. However, if musical performance could attain as high objectives with those obstacles as without, there could be none but the most superficial objections to them: there are valid reasons, however, why it cannot. These reasons are based on the premise that the more attention the performer must give to the physical means of performance, the less absorbed can he be in the emotional and interpretative values of the piece that he performs. The less sure he is of the notes he is to play, the less able he is to lose himself in their musical import. The satisfaction of the auditor and of the performer is greater in proportion to the degree of naturalness and sense of spontaneity that is felt by both.

One may aptly compare the performance of a musical composition with the performance of a play. Were the actors to read their lines from pages instead of speaking them from memory, much of their potency would be lost: the audience would lose the feeling of reality; its attention could be held only if the lines themselves were great and powerful enough to force listening. Even then, and even with the plays of the great dramatists, it is extremely doubtful that an audience would tolerate the reading of lines from the page, no matter how beautifully they were read, and the reasons therefor seem obvious. For no matter how perfect the diction, and no matter how eloquent the inflection, the maximum capacity of the actor for expression could not be attained as long as he had to bind his inspiration to the earth with the mechanics of reading and keeping his place on the page. An objection to this comparison between actors and musicians may be raised by saying that the complications and difficulties of learning music from memory are much greater than those of learning words from memory; that it is more natural to learn words than notes. Such an objection would be valid, and would justify the mentally lazy, but it would evade the main issue, which is not that of difficulty, but of desirability. Musical performance should be as personal to the individual as speech. Anything that impersonalizes music detracts from its potency. Music becomes impersonalized in proportion to the awareness of externals that is felt by the performer, and consequently by the listener. It is inevitable that the intrusion of a musical score and the attention that must be paid to it would force a partial surrender of objective to means.

It may be argued that ensemble players rarely play without notes. However, the fact that they do not play without notes is not the criterion by which one would judge that it would not be desirable to do so. One could also answer that an ensemble performance usually seems less personal than a solo performance, not because in the former the reason for loss of personalization is numbers, but because of conscious attention of the

players to the printed page. One may logically speculate whether a greater feeling of spontaneity would not result were ensemble compositions played without notes. The same thought is applicable to a symphony orchestra. It may be that the amount of time necessary for orchestra music to be learned by heart would be prohibitive and not justified by sufficiently greater expressive result, but we do indeed witness more and more conducting without score. Those conductors who lead without score will deprecate any suggestion that they do so to impress the audience, and themselves will condemn an audience reaction which diverts thought and attention from their proper objective. We must grant that most of them are sincere when they say that their reason for conducting without score is a musical one, and that by doing so they feel freer in giving themselves over to the musical values whose sum total equals the emotional message.

A summation of the ideas thus far propounded leads to the conclusions that memorizing for its own sake, or for the sake of avoiding some slight physical inconvenience, is not worth the labor through which alone it can be accomplished: that its value lies in the physical and mental releases which it is designed to bring about in order that the scope of musical expression may be made greater.

Let us assume that the arguments in favor of playing without notes are sound. The problem then to be solved is how the pianist should go about the process of memorizing in order that the playing of a piece by heart will actually enhance the musical value of his performance rather than diminish it by reason of fear and worry. The pianist who does not memorize easily does not memorize correctly. Faulty memorizing is a liability rather than an asset. The pianist who finds playing by heart hazardous will do better to use his notes. The aims of this writer are to demonstrate that memorizing when gone about logically and reasonably is not difficult, and to prove that when music is correctly memorized the hazards of playing without notes becomes negligible.

The functioning of the mind, of which memory is such an important part, has claimed the absorbed interest of philosophers and other thoughtful human beings since time immemorial. Speculation on mental processes is a study the fascination of which never lessens, perhaps because nothing conclusive is ever proved, perhaps because the more the subject is delved into, the more there is to learn. It is not the intention of this writer to discuss general theories of mental activity other than as they may relate to the specific matters which form the subject material of these pages.

Memory is the bringing to mind of a thing through its association with

something else. It is a train of sequential thought whereby one object or idea is replaced in the mind by another, and then another, and then another, etc. These objects or ideas are related to each other by a degree of similarity, such as different types of the same things, or by a type of contrast which habit of thought accustoms the mind to regard as related. It is inconceivable that an object or idea can come into the mind as an isolated fact, completely removed from and unrelated to what has been in the mind immediately previously. So saying, the writer is not taking into account the element of fortuity, which has nothing to do with sequential thought processes, and the results of which, by means of an external happening, may cause a train of thought totally different from that which was in the mind previous to the event.

Memory sequence is well illustrated by the game of "Going Abroad." The first player will take a raincoat with him, the second will take a pair of rubbers, the next a bottle of aspirin, the next a thermometer, the next a physician's satchel, the next a knapsack, etc., until the last object is far removed in nature from the first, yet the train of thought which led from the first object to the last reveals a natural relationship from one to the next. Because of that relationship, the player who must start at the beginning and name each object in order encounters no insuperable difficulty in doing so.

Not only is it easy to remember related objects or ideas, but it is almost impossible not to do so. We relate most easily to a main object or idea those secondary objects or ideas which awareness brought to mind earliest, or to which greatest attention was given over the entire period of experience with the main object or idea. Taking a particular piece of music as an example of main idea or object, one pianist may relate it immediately to its tonality, another may relate it to its form, another may relate it to a passage which he found particularly difficult and which required an unusual amount of repetition in order to master, still another may relate it to a particular vivid experience which he may have had at one time or another. It is possible to carry the thought further and say that, if the mind dwells long enough on a main object or idea, all the related objects or ideas which awareness brought to mind will sooner or later come into the thought stream.

The average mentality is lazy. It will not bother to register vividly that which it regards as usual. It will become aware of things which by virtue of peculiarity or other extraordinary feature force themselves into the consciousness. It is only that mind which is trained to the task that will recognize saliences which the untrained mind would relegate to the limbo of the usual, and therefore the limbo of the unobserved. The unthinking pianist

seems to find it easier to memorize a Debussy *Prelude* than a Mozart *Sonata*. The reason therefore is plain: tonic, subdominant, dominant, tonic, is a formula so ingrained in his aural consciousness that one tonic, subdominant, dominant, tonic, is well-nigh indistinguishable from another, and therefore is difficult to particularize. It is accepted by the ear so without question that the factor of trained thought is not even introduced, and selectivity of impression is, therefore, lacking. On the other hand, the less usual progressions which are idiomatic of Debussy force themselves into his consciousness, and it is not easy for him to forget them. Had his musical experiences been preponderantly composed of contact with musical externals of the Debussy school, he would be equally vague in recognizing one example of it from the other; the situation would be reversed, and his consciousness would be correspondingly startled by unwonted contact with the tonic, subdominant, dominant, tonic sequence.

Whereas the average student considers notes of primary importance, the more discerning and sensitive recognize that they are merely a vehicle in which are carried meaning and emotion. To the latter a passage that expresses tranquility is totally different from one that expresses dramatic fervor, even though there is no great dissimilarity in the notes themselves. Distinguishability is discovered as much through import as through the notes which import is clothed. It is very much the same with words. One may take two stanzas of poetry, each by a different poet, and find in them considerable similarity of verbiage, even of word sequence. Such similarity, however, will not prevent recognition of differences in them and, although the ability to distinguish cannot be exercised unless there exist physical differences in detail of arrangement, it is, essentially, differences in meaning resulting therefrom which permit particularizing.

Lest the casual reader be mistakenly persuaded that without recognition of imponderables and intangibles distinguishability is impossible, we hasten to assure him that there can be no emotional differences in things that are physically completely similar; that any difference in import must be accompanied by a difference in physical manifestation. Recognition of such differences and manifestations differs in degree according to sensitivity, perception, and education. (The word "education" is used here to imply not only those things that have been told by a teacher in the classroom, but, equally if not more important, those things that have been perceived and discovered by oneself.)

It may be reasoned that there are three stages or degrees of recognition and perception. The first deals only with the impact of the unfamiliar on the

senses. The mind, as a result of strangeness, is shocked into awareness without aid of cerebration. Thus, in this first stage, the mind, by virtue of sharp contrast, takes involuntary cognizance of a single rose in a bed of violets. When impact is created involuntarily, it is dulled by frequent contact. Frequent contact brings about the second stage--that of generic recognition without particularization. Therein, several roses are seen in a bed of violets. After attention has been arrested by the appearance of the first two or three, the eye accepts the remainder casually. Mental impact having spent itself because of recurrence, the roses are grouped together by general impression, and description is unable to individualize any one of them. The third and desired stage--that of recognition and perception of the particular--is achieved by means of training. Therein, though the roses be many, the mind is able to distinguish and individualize the characteristics of each. To arrive at this last stage one must have developed an appreciation of the value of detail, and an understanding of the importance of modification; for it is only a cultivated awareness of detail and modification that enables one to select the specific out of the generic.

Let us take three structures: first, Catholic cathedrals; second, paintings of the Madonna and Child; third; the sequence of tonal combinations from tonic to subdominant to dominant to tonic. One cathedral is very like another. If the average eye were as untutored as the average ear, it might be found difficult to distinguish one cathedral from another, or to bring to mind any particular one. Yet to the architect, with his trained eye and cultivated observation, it is as easy to describe the distinguishing features of one cathedral as differentiated from another as it would be for him to describe the differences between a Cape Cod cottage and a skyscraper. Countless canvasses of the Madonna and Child were painted during the Renaissance. The uninitiate might experience difficulty to the point of being unable to recall this or that picture of the subject, whereas the connoisseur would easily be able to go into considerable detail in describing one by Fra Angelico, or one by Bellini, or any one of many others. Whereas the uneducated retain only a vague impression of many paintings of the Madonna and Child, to the artist or art critic who has learned to recognize differences of style, use of color, and other characteristics of the great painters, one Madonna and Child is as different from another as a cartoon is different from an industrial mural. The architect and the connoisseur of painting could describe from memory a formidable number of examples to illustrate trained observation and sensitive awareness. The usual does not exist for them except in a broad sense. In the seeming usual they perceive unusual or distinguishing features which cause individuality to emerge

clearly and definitely from generality, and which bring to consciousness the salencies which create sufficient impact to cause ideas or objects to be remembered. One could wish that the average pianist were equally conversant with his one-four-five-one structure--a tonal progression that is recurrent in one form or another in all the music written during a period of two hundred years. It is modification and treatment which distinguish one example from another. Those modifications have to do with treatment of tonality, meter, harmony, register, and voice leading. Each of them when combined differently with one or more of the others creates an individualizing factor; and each factor presents the possibility of many variations each of which possesses identifying features of unmistakable salience. Trained recognition of them erases their apparent usualness, and effectively sharpens the impact of impression which causes them to be remembered.

One is at a loss to explain the lack of enlightened observation which is the rule rather than the exception on the part of the average student. The suspicion cannot be avoided that the average teacher's interest is centered more on digital skill and superficial effect than on intelligent understanding of music. Ignoring of musical elements, unconscious or otherwise, cannot be justified from any point of view; too often, however, the student is allowed or allows himself to pass over them without effective mental awareness. When he practices he is prone to remain unaware of logic in the sounds that his fingers evoke from the keyboard. When he listens to the performance of others he hears only sequences of pleasant sounds. Seldom does he purposely make himself conscious of musical procedures, of processes whereby one thing results logically in another. When one considers the opportunities which are under the very noses of students; when one reflects that those opportunities have been patiently and unsuccessfully awaiting realization, sometimes over a period of years, then one is amazed by the power of resistance to learning that is exhibited. Many students cannot so much as tell the basic tonality of a piece that has had weeks, and sometimes months, of practice. In the majority of cases the student's fault is only secondary. The primary responsibility for ignorance or knowledge rests squarely with the teacher. At the same time one finds it difficult to condone the student's lack of curiosity concerning the stuff of which music is made, and the lack of enterprise which prevents his finding out things for himself.

The impact of the unusual seldom passes unnoticed and, therefore, is easy to retain in the memory. Unusual features exist in every phrase of music ever written. Recognition of the unusual features which abound in the seemingly usual is an essential for the pianist who would intelligently

learn music from memory.

If a person were asked to read the following words, "Thou art like a flower, so chaste, so beautiful, so pure," and were then asked to repeat them by heart, in all probability he would be able to do so verbatim. If the same person, not knowing German, were to read "Du bist wie eine blume, so hold, so schon, so rein," it is doubtful that he would, without many repetitions, be able to say the words correctly when they were taken away from him. What is it, then, that is so easily remembered in the first instance, and is so difficult to fix in the memory in the second? The fact that one set of sounds is remembered without trouble, and the other is not, must mean that memory is not supported alone by impression of sound. What other factor exists which causes words to be remembered in one instance, and, in its absence, makes remembering faltering and uncertain? The answer is not difficult to find. In the first instance the words are understood, and in the second they are not. Understanding signifies comprehension of meaning or idea. From idea-comprehension to word-expression is but a short step. It may be said that remembrance is a result primarily of understanding. It may be said with equal truth that remembrance without understanding is untrustworthy and subject to error.

The language of words--the means of conveying ideas to others and of identifying and clarifying them to ourselves--is the first step taken in our educative process. Parents begin the teaching of words to children even before the latter can pronounce the words properly. The words are not taught as sounds merely, but are always made the means of identifying objects or ideas. The process is continued to the point where word-identification of object or idea is to all intents and purposes simultaneous with perception and recognition. Indeed, the relationship between object or idea and expression of them through words is so close, one has become so much a part of the other, that thought itself does not exist except clothed in the garment of words. Therein lies the great flaw in the teaching of music as it obtains generally. Music is too often taught or learned, not as a language, but as a series of agreeable sounds. To regard music simply as a series of agreeable sounds is to relegate it to superficiality, and to place it in the category of perfume--pleasant to the senses but wholly without value so far as our deeper spiritual selves are concerned. Too often the student is taught or learns to play the instrument without being taught or learning the object of playing it, which is the unfolding of beauty and significance by means of tones. The true conception of performance on an instrument should be, not the playing of an instrument, but the playing of a piece of music on an instrument. The distinction may seem vague and ambiguous

to him who has not given the subject much thought, but to him who wishes to go beyond the limits of sensory satisfaction in music, it will be found sharp and definite.

The language of words is a movement of sounds in orderly and purposeful sequence. Each sound derives significance because of association with and compulsion toward the next. Sequence is made from one to the other with the basic idea of providing meaning. One particular sound must follow another particular sound, otherwise particular meaning does not result. The sentence "the tree is large," conveys a particular meaning not because of the words which compose the sentence but because of the order of their sequence. The same words arranged in this order, "the is tree large," leaves us confused and groping toward comprehension. This leads to the conclusion that only through orderly and preconceived sequence is the conveying of idea through words possible. The conclusion thus reached is equally and completely valid in the language of music. The language of words is composed of parts of speech, of nouns, verbs, articles, prepositions, etc. The language of music is also composed of parts of speech. Its idiom may be peculiar to it, but it is as highly organized and systematized as any speech to which we give utterance with our tongues.

The proposition is made here that an instrument cannot be taught or learned intelligently without the teaching and learning of what must be the objective of instrumental skill, and that is, the teaching and learning of music.

The basis of musical grammar is inherent in the feeling of compulsion from one sound or group of sounds to the next. Feeling of compulsion and knowledge of procedure merge into unity by means of education: together they result in enlightened understanding.

Harmonic sequence is the basis upon which motion in music rests. It is constructed along well defined lines. Progress from one harmonic entity to another does not happen through accident, nor is it the result of whim or caprice. It is the outcome of logic and reason. The system is necessarily flexible; procedures are not rigidly the same, but they bear marked general relationships to each other. Once they are understood, any variation from them is not likely to cause confusion. Memorizing is aided enormously by a recognition and understanding of customary harmonic procedures. Without such recognition and understanding, intelligent memorizing is not possible.

Two factors are involved in the successful functioning of organized action, whether the action requires mental organization or physical organization, or a combination of both. One is the efficiency of each of its component parts: the other is the efficiency of coordination among them.

The learning of a piece of music by heart entails the employment of four component parts of memory, each one dealing with a particular phase of the general process. The first is the aural memory, the second is the visual memory, the third is the tactile memory, and the fourth is the analytical or intellectual memory. An analysis of this idea persuades us that while it is desirable and necessary for each of the four parts of memory to be complete within itself, it is only when they are all fused into one as a completely interrelated and integrated whole that attainment of final objective can be achieved. In the initial steps toward learning a piece one should be able to employ each part of memory singly for purposes of analysis and study. That this can be done after a piece has been thoroughly learned is open to question, for the consistent relating of one memory to the others, which happens naturally and inevitably, makes it almost impossible, in the later stages of learning, to deal with any one of them entirely separately. Nor is it highly desirable to do so except rarely, and except for such purposes of specific analysis as may be found necessary to through accomplishment. For successful procedure in memorizing is to so weld the component parts together that the strength and efficiency of one of them makes more reliable the strength and efficiency of the others. Therefore, the more natural and consistent the coordinating of the parts, the more complete the achievement. This statement is made conditionally on the high degree of awareness of the student that the component parts do exist as semi-separate entities, and that they can and, on occasion, must be treated as such.

It will be found interesting to examine separately the four memories or component parts of memory, and to discuss their successful application. To speculate on the relative importance of each in the general operation would be to speculate on the relative importance of the carburetor or the wheels of the automobile--in the absence of either one the automobile could not function.

#### AURAL MEMORY:

Music is sound. Therefore, the ear is the only agent through which perception of music is possible. The gift of remembering a melody and of being able to reproduce it through natural means, such as singing or whistling, is one with which the majority of human beings are endowed. There exist certain individuals who are tone deaf, and who, therefore, are unable to receive or project impressions of higher or lower pitch. This does not signify inability to perceive and reproduce the other component part of melody, which is rhythm. It is conceivable that an individual who is unable to recognize the relative pitch of different tones might be able to learn to play music by heart on the piano, but he would have to rely completely on cerebral pro-

cesses, and it is doubtful, therefore, that his performance would sound anything but mechanical and unmusical.

We do not reproduce higher or lower sounds with our voices because of preconceived knowledge that we should do so. The natural phenomenon of correct sound reproduction with the voice admits of intellectual explanation no more than does the chemical property of a basic element. Human reason cannot always explain a natural fact. We may speak of impressions created by vibrations; we may say that the sense of hearing functions because it is vitalized by nerve impulses; we may go beyond that to say that the normal functioning of nerve impulses is conditioned by normal functioning of other parts of the body. But to essay an explanation of primary causes would be to essay the impossible. We must accept without reasons the fact that the normal sense of hearing enables us to receive and reproduce impressions of lower and higher sounds, as well as the distance in point of time between them.

Aural memory is basic in learning to play a piece of music from memory. It is the ear memory that controls the functioning of the other memories, even on an instrument as mechanically constructed as the piano. The mechanics of ear memorizing are the least possible to analyze, therefore, they are the least possible to control or direct by means of mental processes. That being the case, the ear memory is the one upon which least reliance can be placed. Even so, a piece of music cannot be played by heart unless the ear functions properly. Under circumstances wherein distraction does not exist as a result of nervous disturbance, a pianist may actually be able to negotiate performance successfully by means of ear memory only. Yet realizing that such circumstances are rare, the conclusion is inevitable that a more deeply based confidence than is afforded by ear memory alone is necessary to performance under ordinary conditions. Confidence of that kind cannot exist without mental security, and indispensable to mental security is the intelligent and effective employment of the visual, tactile, and analytical memories.

The ear takes natural and vivid cognizance of a melodic line. For that reason it is seldom that a melodic line is forgotten. The ear naturally receives a more distinct impression of what is played by the right hand than the left. Whether that is because the higher pitch which is played by the right hand is more discernable to the ear than the lower parts which fall to the left hand is a point upon which conclusion is not easy to reach. (In that connection it is interesting to speculate as to whether there is a stronger anatomical affinity between the sense of hearing and the right hand than the left; and as to whether persons who are left handed have greater aural aware-

ness of the left hand than the right.) In any case it seems clear that the ear seizes most easily upon that which is most obviously presented to it. It is in the ramifications of musical structure and procedure that reliance on ear memory alone is unwise. In dealing with these ramifications it is on the more cerebral processes that we must place major responsibility for reliable memorizing.

The term "playing by ear" is understood to mean performance without benefit of initial visual impression, this being within the power of an individual who has no knowledge of notation. It is actually accomplished by means only of aural impression plus a feeling of correct distances on the keyboard. Much, indeed most of the playing one hears ordinarily, even though it is supposedly based on study, is unwittingly playing by ear. So saying, the writer does not mean that the average student does not know how to read notes, but that in most cases memory of notes serves only as a blurred and indistinct map, the signs and symbols of which are only half observed and half understood, and whose usefulness, therefore, is only of superficial value. The printed page actually should serve the pianist as a blue print serves the architect, and its impact on the memory should be sharp, definite, and without ambiguity. The burden that is usually put on aural memory is out of all proportion to the task that should be required of it, and the performance that results is usually uncertain, tentative, and timid.

#### VISUAL MEMORY:

Visual memory is the agency by which notes are translated mentally into sound, and reproduced physically by the striking of those keys to which they correspond. The part played by the visual memory in the general memory scheme is less vital than the others because it serves more to introduce than to participate actively. To say that it is unimportant would be to say the absurd, for it is the avenue through which the other memories must travel in order to arrive at the point of efficient functioning. Intelligent visual perception implies not merely a sight-impression of notes, time values, dynamics, etc., but signifies an intelligent understanding of all that is meant by them. The sight of a known and understood object impresses the mind not only with its outward appearance, but with all the functions that it is known to serve. To look at an automobile is to perceive not merely that which is presented to the eye, but is at the same time to be aware of its uses, of the manner in which it works, and the component parts of which it is made. The same should be true of visual perception of a piece of music. Enlightened use of vision in transmitting the printed page to the ear, to the fingers, and to the intellect is possible only when visual perception goes beyond sight impression to an intelligent understanding of what is perceived.

Certain students have been heard to say that they learn from memory through visual memory only, that in so doing they rely solely on the mental conjuring up of the page-image. To believe such a statement is to believe what is almost beyond the bounds of credibility. Undoubtedly there do exist individuals whose visual memory is so photographic that little else is needed to retain an impression on the mind. At the same time the employment of the visual memory to the exclusion of the other memories is to throw into negativity the means by which music should most reasonably and logically be learned. It is also to attempt to give to visual memory certain functions which in the learning of music do not belong to it any more than sight impression merely of an object's exterior implies understanding of its nature and uses. This is not to say that visual memory does not function, nor that its functioning becomes valueless once a piece has been learned, for it is inconceivable that the eye would not trace the page while it is being played, even though involuntarily and without conscious effort. Its value in doing so lies in its faculty of tangibly orienting the ear, the fingers, and the intellect to the progress that is made on the page from the beginning to the end of a piece. Nonetheless, the primary function of visual memory, as before stated, is to serve as a guide to the other memories; it acts otherwise only in a subordinately necessary capacity.

#### TACTILE MEMORY:

The fingers are the direct agencies for the evoking of sound on the piano. It may be said that all other agencies bend themselves to the task of providing the support which enables the fingers to function properly. It does not require much thought to arrive at the conclusion that a considered choice of fingering is of primary importance as far as the actual mechanics of playing the piano correctly are concerned. As important as is this aspect of piano playing and of learning a piece of music, it is one which receives only minor consideration except from pianists whose high degree of perfection in performance makes major consideration of it an imperative necessity.

It is obvious that certain sequences of fingerings must be used in playing a piece on the piano. Even the most inexpert tyro cannot avoid striking certain keys with certain fingers. That does not mean that he is consistent in using the same fingers on the same keys every time he plays the same piece. Nor does it mean that he is conscious of which fingers he is employing in striking certain keys. More often than not, his choice of fingering is no choice at all, but haphazard fortuity; and as often as not he will use one fingering at one time, and another fingering at a different time. Or, if consistency does obtain, it will not be purposeful, but the result of habit uncon-

sciously formed, and therefore invalid as far as the tactile memory is concerned. It should be understood beyond a shadow of doubt, and it should be the profound conviction of every pianist, be amateur or professional, that consistency in using the same fingering every time a piece is practiced or played is essential to confident and fluent playing by memory. So far as memory alone is concerned, it is not important that the fingering being chosen be the best that can be found after only the most mature consideration. While a wise choice of fingering is essential to expert performance, it is conscious consistency which gives fingering its importance as an aid in memorizing.

It is important to clarify and analyze the significance of the tactile memory, and to discuss the method whereby fingering can become a major factor in the general process of memorizing piano music.

Memory is the faculty of retaining impressions and images which have been stamped on the consciousness by means of one or more of the five senses, and the ability to recreate those impressions and images as will demands and as need arises. The aural sense is the means by which sound-images of impressions are created and reproduced; the visual sense deals in the same way with sight impressions or images; the tactile sense--specifically in our case the feeling and use of the fingers on the keyboard--enables us to recreate a system of touch-contacts with which there has been previous experience. The reception of aural and visual impressions is involuntary. Reception of tactile impressions depends upon choice and desire. The first and the second are automatic; the third is the result of conscious effort and is the only one of the three which can be commanded and controlled. The performance of a piece of music by memory results primarily from a combination of sight and sound impressions, the two being closely interrelated, and in initial study one resulting from the other. The impressions, if definite and distinct enough, are unchangeable and immutable. The results themselves assume tangibility only through action by the fingers on the keyboard. Assuming, as one must, that aural and visual impressions must be particular and specific if they are to be of value in performance, one must assume also that the third and final element of performance, tactile impressions, must be equally particular and specific.

A piece of music cannot be efficiently learned by separating the component parts of performance, and studying them one after the other. Such a system of study would require a much longer time than necessary, and would make the integration of parts unnecessarily cumbersome and laborious. Aural, visual, and tactile impressions should be welded into one from the moment the study of a piece is begun. As remarked earlier, this

statement does not mean that for purposes of particular analysis one should not, as occasion demands, be able to isolate each impression from the others. Indeed, it is eminently desirable and reasonable that one be able to give primary attention to any one of the three when weakness of impression of any of them manifests itself. That is particularly true of tactile impressions because they are more subject to involuntary variations and, therefore, require greater conscious effort to the end that habitual and conscious consistency of fingering be instilled and retained.

Consistent awareness and conscious consistency of fingering when studying a piece of music are trustworthy insurance against memory slips during performance. A particularly strong aural memory may or may not tide the performer over places that are made rough by weakness in other aspects of memorizing. On the other hand, a reliable tactile memory makes a lapse in aural memory almost impossible.

Indications for fingering are found on every well edited page of music. Acceptance of them without consideration lessens the impact which they have on memory. Impact of impression is essential to memory. Impact is possible only when the peculiarity or other salient feature of an object or idea forces it into the consciousness involuntarily, or when consciousness voluntarily reaches out to take cognizance of it. Recognition of fingering does not of itself cause primary awareness of it. Such awareness comes into being only in the course of analytical examination and concentrated study. Unthinking acceptance of an existing condition is apt to impress the mind less sharply than the intelligent altering of it for specific and reasonable purposes. The first and most unproductive attitude toward fingering is to give it no attention, not even as much as is called for by blind obedience to the page; the second and more fruitful approach is to recognize and obey without question the fingering indicated; the third and most intelligent approach toward mental retention of fingering is to consider that which is printed on the page, to weigh its merits and to use it as indicated or to alter it, the choice being made in accordance with conclusions which are reached by serious calculation and reflection. Because of the thorough mental digestion of an idea, which is inevitable in the last approach, it is the one toward which the pianist should strive most earnestly. Its quality of creativeness will tend to make the result peculiarly his own and, therefore, less apt to be forgotten because of extraneousness, as could so easily happen in the case of the first two avenues of approach.

It cannot be denied that effective use of tactile memory implies an effort the nature of which may prove dull and burdensome to the pianist who is content to allow chance to play a part in performance, or who is too lazy

mentally to whip his reflective powers into keener calculation. But to the pianist who wishes to approach performance with confidence and ease, who is interested in all the means that result in good performance, and who is willing to use a little mental energy, the nature of the effort is not only not boring, but is highly interesting; is not only not burdensome, but is actually enjoyable. To him the idea of being able to recite from memory the fingering he uses in any given passage (and the ability to do so is valuable to the point of necessity as far as memorizing is concerned) is a challenge the acceptance of which stimulates him agreeably and gives him satisfaction because of his confidence in meeting it.

#### ANALYTICAL MEMORY:

The term "analytical" is used here to denote the faculty of understanding through reason the structure and chain of events which cause a piece of music to be not only an orderly sequence of sounds, but an edifice of tonal philosophy. Understanding comes only through education which in turn results in a highly intellectual perception of tonal relationships. Such an explanation of intellectual analysis when applied to memorizing may appear tinged with profundity, whereas what is actually signified by it is really not profound at all.

Music is a procession of sounds in accordance with a preconceived design. It is composed of intervals of time and pitch, and of tonal combinations which progress from one to another not by accident or chance, but through logical reason. The tonal sequences that are encountered most frequently have in them a large element of formula. Inherent in the meaning of the word formula is the repetition of elements brought about by their frequent employment in more or less similar ways. Thus, major and minor scales are tonal formulas. All the music written during a period of than two hundred years is based on those fundamental formulas, and on other formulas that derive from them.

Knowledge is the essence of achievement in memorizing as it is in the achievement of anything else. Absence of it throws the entire burden on sensory impressions. Sensory impressions alone are so subject to uncertainties as to make reliance on them foolhardy. Knowledge of musical structure comes about through awareness and observation of its constituent elements, and those are in plain view of anyone who wishes and who will take the trouble to see. The playing from memory of a piece of music implies the employment of ear, fingers, and thought (eye only secondarily) to reproduce what has been previously practiced and studied.

What is meant by the word "study"? By it is meant contemplation, reflection, and analysis. It is a word that is seldom used by the majority of piano students in connection with the learning of a composition. The average conscientious student spends much time in practicing. Practicing is understood by him to mean repetition in one form or another. The fact that repetition in and of itself does not signify learning, and that hours may be spent on it with unnecessarily meager results is one with which he seldom confronts himself. It should be understood that study, which is mental activity, is the element that gives value to practicing, and that without study, practicing, which is only the physical aspect of learning, is in a large degree a waste of time. It may be said with truth, therefore, that fewer hours would be required to learn a piece if the mind were made to work as intensively as the muscles.

It is possible for the person who is mentally alert and who possesses knowledge of musical structure to learn a piece of music and to play it by heart without having ever heard it except in his mind, and without having ever, previous to playing it, placed his fingers on the keys which are the physical counterpart of the notes. To go a step further, it may be said, with the conviction born of experience, that he would be able to do so with less expenditure of time than would be involved in the many hours of practice which are found necessary to the student who sees and hears without intelligent looking and listening. This does not signify that performance would possess the degree of technical finish which can be arrived at only through the coordinated use of mind and fingers, for the latter can be achieved only through hours of intelligent practice. Fine performance does indeed require that the answering reaction of muscles to mind be as delicately attuned as coordinated effort can make it. To achieve such reaction of muscles to mind, no amount or quality of thought can substitute for sheer physical labor. However, and notwithstanding, the premise holds good that muscles without mind yield results which are without musical or artistic validity, and that the quality of mental labor decides the quality of physical result.

The meaning of knowledge as applied to the memorizing of piano music signifies a train of sound and tactile impressions which exist by virtue of preconceived impressions. Those impressions and expectations can be so definitely stamped on the mind that not only need one not be in fear of forgetting, but forgetting may be regarded as well-nigh impossible. That statement is made in the conviction that complete knowledge of a piece of music can exist and is attainable. By complete knowledge is meant a distinct impression in the mind of every factor and of every element of every factor of sound and movement which constitute the performance of a piece of music.

Partial knowledge implies hidden shallows of ignorance which may turn performance away from its true and predestined course, and cause it to founder amidst confusion. A piece of music thoroughly studied and learned, its constituent elements completely assimilated and digested by the mind both separately and in combination as a unit, cannot be forgotten except when it is laid aside for a long period of time and crowded out of the consciousness by other impressions of other pieces.

The word "forgotten" is used very loosely by many students. The pianist who finds himself floundering because of a lack of precise knowledge of a modulation is apt to say later that he forgot it. More often than not that statement is made without a true understanding of what is meant by it. There is the case of the young man who played a certain Brahms *Capriccio*. The trio is written in the key of the dominant degree of the basic key. In two sections, the first modulates to the key of the trio's dominant; the second modulates to the dominant of the basic key and comes to a temporary close. In his progress to the end of the first section he inadvertently took the modulation which led to the end of the second section, thus leaving out the major portion of the trio. He seemed non-plused and dissatisfied with the result, and started the first section over again, unfortunately with the same result as rewarded his first attempt. He began over again, with again the same result. After the fifth attempt he gave it up as a bad job, and settled for the modulation which led to the temporary close. In commenting about it later he expressed surprise that he should have forgotten in a place with which he had never previously had memory trouble, and which he had always hitherto negotiated successfully. He was surprised and not altogether believing when he was told that he had not forgotten the modulation, but that he had never really known it, and that what was really known could not be forgotten. It was not within his scope of thought to understand that it may be possible to carry through an action solely by sensory means under circumstances wherein semi-consciousness suffers no rude interference from awareness; but that it is essential to successful accomplishment under conditions which may render semi-consciousness uncertain to have the support of knowledge and preconceived expectation.

Another illustration of the disastrous results of rote rather than reasoned learning is that of the young violinist who essayed a performance of the first movement of the Bach *E Major Concerto*. The movement is in several definite sections, each one beginning with the same subject matter, and each one coming to a different close by means of different treatment. The young man had the subject matter well in hand, but was a little hazy as to

the order in which the sections came. After much backing and filling, and after certain sections were given repetitions not indicated by the composer, the performance came to an end not with the final but with one of the intermediate sections, not in the basic but in a relative tonality. The performer was made aware, during the performance, of his ignorance of many things in the piece; things which all his hours of practice did not discover for him. More extreme cases of lack of knowledge are those in which the performer is unable to so much as begin the piece, or in which the piece is begun in the wrong key. Knowledge and understanding of harmonic and intervallic terminology is an indispensable adjunct of intellectual understanding. Effective thought processes are not amorphous clouds of mental vapor, but are definite shapes which are formed by the use of appropriate words. We think in words just as we speak in words. To think of a thing is to give it a name. Tonal sequences and combinations are not merely sounds without verbal identification. Each one is describable by a term, and the ability to describe it is of much greater value than is superficially apparent. Recognition by term of what one learns and preconception by term of what is to happen in performance constitute the concrete means whereby awareness of what one is doing and is about to do goes beyond the realm of indefinite speculation into the ground of certain conviction. To know a piece of music is to be able to tell or think verbally what one knows about it. If knowledge cannot be expressed in words its existence is impotent. As much as one is able to tell or think verbally about a piece of music, that much and no more does one know.

Complete knowledge of a piece of music and complete knowledge of the physical means of performing it imply complete knowledge of component parts. A piece of music and the performance of it have their limitations of scope, dimension, element, and part. Complete knowledge within those limitations is possible and of the utmost desirability. Knowledge is created through conscious mental effort. It is usually in those details that are taken for granted, and upon which conscious mental effort has not been brought to bear, that grief to the performer may be expected. The tendency of the average student is to spend much time on those parts of a piece that he considers difficult, and to give comparatively little thought or time to those that he considers easy. He does not realize that whereas different degrees of difficulty may exist in the physical aspects of different parts of a piece, the difficulty of musical comprehension of it as a whole is on a fairly consistent level, and that, therefore, the need for study on any one part is as great as on any other. The statement that successful performance requires comprehension of musical structure in as great if not greater degree than

digital facility is one which should not require proof. If proof is required, one need only reflect on one's own past experiences, and on the observation of the experience of others.

Mental awareness is the means by which knowledge is acquired. In the study of piano music it implies a conscious realization of what is transpiring in all details of musical structure and performance. It means that in study, definite impressions of everything that the page indicates, and of every sequence by which one tone or group of tones progresses to another; together with the keys which are their physical counterpart, are stamped clearly on the mind. It means that in performance, the tonal images and fingering impressions that have been created and developed in the mind during the course of learning resolve themselves into expectations the fulfillment of which are inevitable within the limits of human capability.

Just as it is impossible for the eye to rest directly on more than one object, or for the ear to give primary attention to more than one sound, so it is impossible for the brain to take primary cognizance of more than one idea. Consciousness and awareness, when dealing with a multiple idea or an idea that is composed of many parts, create mental impressions in primary, secondary, and even more remote degrees. Thus recognition, which precedes impression, and expectation of physical manifestation, which succeeds impression, are registered on the brain with vividness which varies in degree according to necessity. In study we should accord primary awareness to that which requires it; every constituent element and every component part of musical structure and performance should in turn receive the light of primary awareness. Study deals with analysis, contemplation, and reflection. Performance deals with projection of emotional values; therefore, during performance, emotional values should be accorded primary awareness, and the physical means of emotional projection should have been so thoroughly studied and learned that they require awareness only in secondary degrees.

Difficulties of performance are many, and those which involve merely the physical act of performing are not the greatest. Tension, nervousness, and excitement are the most evil factors against which performance must contend. The most potent weapon which can be used against them is knowledge. While it is true that a piece of music should have been so thoroughly analyzed and studied during practice periods as to make intense attention to concrete details unnecessary in performance; and that the ideal performance is one in which the player can devote his whole being to the projection of the emotional message, still, as painstaking and as analytical as the performer may have been while practicing, unsuspected pitfalls may arise, and

the only insurance against them is knowledge and the ability to call upon it as needed. While it is true that inspirational quality in music performance cannot exist unless it receives attention in primary degree, that is not to imply that secondary and tertiary attention to concrete details of performance should be relegated to negativity. Indeed, the latter two should form a running and consistent support of the first. Absence of that support could so easily undermine the course of performance that the entire edifice of correct tone reproduction would be in constant if unseen and unfelt danger of disintegration.

One of the greatest dangers that confronts the inexperienced performer, the one to whom a piece of music is merely a conglomeration of assorted sounds, is that of beginning to think at a moment when thought is embarrassing and unwanted. The student who practices without studying, who plays by ear and fingers only, is apt to find that inopportune thinking can ruin the legitimate functions of hearing and touch. If it were possible for him to subdue consciousness and awareness, if he could make sure that they would not attend the feast unbidden, he might possibly pursue his path of ignorance without untoward stumbling and faltering. But alas! thought may rear its ugly head, may intrude itself completely unexpectedly at any moment, and then, like a wicked serpent that is aroused without intention, it will begin its evil explorations and wreak its anger with fangs of capricious curiosity. Curiosity is an invaluable attribute in the acquiring of knowledge, but its emergence at the wrong time is highly destructive. The performer who has not employed thought in practicing cannot invoke it in performance with anything but bad results because there is nothing upon which it can fasten itself securely. A somnambulist can pursue a dangerous course without mishap, yet if he awakens while on the course, disaster may occur. Mental ignorance is physical somnambulism, but its existence is more apt to be interrupted involuntarily than somnambulism. If interruptions occur in circumstances of study they are beneficial, but they are harmful in those of performance. The process of inadvertent discovery of memory weakness which many inexpert pianists involuntarily substitute for an accurate performance creates in the performer a feeling of embarrassment and discomfort similar to that which one exposing his person in public would experience.

To many students the employment of mental energy in learning, as discussed in the foregoing lines, may seem complicated and laborious. It may seem hopelessly so to those who have been accustomed to relying wholly on passive sensory reactions as a means of musical assimilation and digestion. The process is actually not nearly so burdensome as it may appear. Without doubt it will not function properly merely through desire that it do so.

Its development to the point of effectiveness is a result of being educated and educating oneself to it. Just as in the first stages of learning one feels awkward in expressing oneself in a foreign language, and just as consciousness of its grammar and idiomatic peculiarities makes the free flow of words difficult, so will the piano student who is unaccustomed to thinking of music in terms of its grammar and idiom experience discouragement when first becoming aware of their existence. Just as the student of a foreign language acquires greater facility, and senses growing naturalness in proportion to the consistency of his use of it, so the piano student, through the development of habit, will acquire ease and freedom in dealing with musical grammar and idiom. When the habit is developed to the point where it operates without effort and almost unconsciously, then do its results become manifest and eminently worth the trouble that was taken in acquiring it; then may the pianist approach performance with confidence that the successful progress from the beginning to the end of a piece will be uninterrupted by hiatus in the train of aural, tactile, and ocular impression and image.

The greater the number of secondary indications by which one may identify an object, the greater the ease with which the object may be identified and remembered. If simultaneous with the coming of an object into the orbit of recognition its identifying marks are recognized also, the task of placing it in the memory is greatly facilitated. The habit which many students have of learning a composition piecemeal is one which is to be deplored on the grounds of inefficiency. By "piecemeal" is understood the absorbing into the mind of one constituent element after another as opposed to their synchronized emergence into consciousness as a unit composed of integrated parts. Thus, the average student sees a sequence of notes on the page, and to him it is a sequence of notes with its physical counterpart on the keyboard and nothing more, irrespective of what or how many identifying marks are associated with it. The process of absorbing a specific sequence of notes into the memory is greatly facilitated when conscious awareness takes into account and registers on the brain the facts that they are to be played *forte*, with a retard, in a series of short slurs, with accent on every third note, and with a specific sequence of fingering, or some other equally definite indications of manner of performance.

It is when the mind evokes clearly not only the notes, but equally clearly and at the same time, the attendant ways of playing them that memory can function with maximum effectiveness. Illustrative of this idea is the way in which a child can supply missing words to a sentence when it is read to him. The parent seldom reads the words lifelessly to the child, but brings

them into bold relief by means of onomatopoetic expressiveness; and it is largely by those means that the mental images and the words which fit them are retained in the memory. The parent will read, "gently swayed the graceful boughs of the tall tree" and the child will continue "in the murmuring wind": or, "gently swayed," and the child will supply "the graceful boughs," and the parent will continue to the end: or the parent will ask, "what swayed gently?" and the child will answer with verbal correctness. Through repetition the child learns the sentence more and more completely until he requires only a single expressive indication in order to identify it with a word, and to associate that word with all others in the sentence. The process is that of taking one facet or fragment of a multiple impression or idea and recreating the whole from it. Far from being a difficult process, it is one of the most natural to which the mind lends itself.

Every teacher and every student is aware that interpretative indications or manners in which notes are to be played exist. In a general way, the teacher tries to inculcate, and the student tries to instill within himself, the idea that they must be obeyed. As a rule, however, the idea is inculcated and instilled in such a way that their true relationship to the notes--which is that of integration to the point of oneness--does not fully or effectively penetrate the consciousness. Notes and the manner of playing them are too often thought of as separate entities. The result is that memory is made to deal not with one multiple idea, but with several different ideas whose relationship to each other seldom assumes a real unity--unity in the sense that thought of one inevitably and simultaneously provokes thought of the others.

The act of memorizing should be the result and not the aim of study. Thus, the student who has developed within himself a high degree of ocular, aural, and tactile observation and awareness, and who has educated his mind to an understanding of what has been observed, will find that he memorizes with very little conscious effort. Observation and understanding complement each other. Observation without understanding is fruitless; understanding cannot exist without observation because the former is the result of the latter, and requires something concrete upon which to be based.

The power of observation is a natural one--one which every human being possesses in greater or lesser degree. When it is applied to the study of a specific subject there is developed in it a faculty for particularizing which enables one to distinguish and catalogue variations in things which are fundamentally similar. When the power of observation is insufficiently developed, these variations are either indistinguishable from each other, or the distinguishing features of each are so vague and approximate as to be of negligible value.

When discussing the memorizing of music as distinguished from the performance of a piece that has been memorized, we discuss only those component memories which register musical impression and images on the mind. Those memories are ocular, aural, and analytical or intellectual. They deal with the problem of learning, just as the sense of touch deals with the problems of playing. Just as performance requires finger technique, so does learning require aural, ocular, and analytical technics. Technic cannot be developed without taking all the steps that lead to its attainment.

It seems to be the conviction of many students that the mere fact of repetition will so wear down the mind that it will consent to be impressed. They appear to believe that this method of learning takes less effort than that of reasoning analysis. In practicing they place the burden of learning on endless repetition of patterns of finger motions. They go directly from rote impression of ocular image to physical manifestation on the keyboard without going through the essential stages of aural and mental analyses which make a final result intelligible and secure. Endless finger repetition in learning music would be rendered unnecessary, or the amount of time which need be spent on it could be greatly lessened were due importance placed on the value of hearing and thinking. The person who seeks blindly to place his hand on a particular object in a dark room without precise description of it may search indefinitely and without success. By the very simple expedient of turning on a light or lifting a shade, he sees what and where the object is, and thus obtains it with less effort or loss of time. Aural and analytical technics in learning music constitute the illumination which makes music perceivable and recognizable, and facilitates the learning of it.

Aural and analytical technics are basic in learning and memorizing music. They imply processes whereby the ear and mind, working together, distinguish and give meaning to the unfolding of the scroll of sounds which is a musical composition. They enable the fingers, by leading them, to progress from one point of sound to the next in much the same manner that the eye enables one to progress from one geographical location to another, arriving at the final objective by means of recognition, understanding, and expectation of all the intervening steps which lead to it. Just as in the latter case ocular technic recognizes single objects, and gives significance to them by means of orderly and preconceived association, so do aural and analytical technics deal with sounds and sound sequences.

The technics of hearing and analyzing are developed through the study of what is called theory--theory being a general term the subdivision of which are ear training, harmony, counterpoint, form and analysis, etc.

The term "theory" is an unfortunate one, implying as it does, a subject that is akin, but not essential to practicalities of intelligent learning and performance. As the meaning of it is understood by a great many students, and as accordingly their attitude toward it is molded, it is not an integral part of the study of music, but an overlay--a superstructure of whose indispensability they are not completely convinced. Merely to deplore such a misconception will not alter it. We teachers must take more positive measures. Our own playing must emphasize musical enlightenment. In our conviction that musical learning and understanding are the only true bases for the projection of emotional values in musical performance, our explanations to and discussions with students must be consistent in their emphasis on the indispensability of knowledge of musical elements. Nothing on the page should be seen without being comprehended; from the title of a piece and the key in which it is written to the most involved harmonic progression; from the most obvious fingering direction to the most seldom used interpretative term or indication, everything should be considered, studied, analyzed to the end that understanding, and therefore accomplishment, be as complete as possible. Some teachers may reply to this that the lesson period does not allow sufficient time to discuss and explain such a variety of things; some students may reply that they would be confused by attempting to think of so many things at the same time. To the teachers the answer is that there is no time that they can afford *not* to discuss and explain matters which are fundamental to enlightenment; to the students the answer is that the consistent exercise of a little mental energy will soon enable them to make natural and orderly the process of combining into unity the essential factors of educated seeing, listening, thinking, and feeling without which intelligent and reliable memorizing can never be accomplished.

Nervousness is the plague of almost every inexperienced pianist--and indeed of many an experienced one--who attempts performance before an audience. It is a sensation of discomfort often magnified to the point of misery, and not seldom causes the performer to wonder why he ever thought of placing himself in such an unpleasant position.

Nervousness is a factor the destructive power of which can easily and often does spoil that which seemingly has been well prepared. There is every cause for despair when all the hours, days, and weeks that have been spent in preparation depend upon an imponderable for the result at which they have been pointed. What is this thing called nervousness? Is it really compounded of evil spirits that take a mischievous delight in torture? Does it appear unbidden, unwanted, and without cause from underneath

the chair, from behind the curtains, from inside the piano, from the floor or ceiling in a cloud of smoke? Such a conclusion would indeed be a desperate one, and, as a matter of fact, it would be one in which there was no truth. Any fear that supernatural elements conspire to destroy may comfortably be relegated to the realm of the purely imaginative. Equally to be disbelieved is the theory that nervousness functions like a gland, and nothing can be done about it. Nervousness is the tangible result of tangible causes. It is a condition whose basis of existence is lack of confidence. Lack of confidence in turn is based on preparation the quality of which is superficial, unthorough, and thoughtless. Nervousness, in its destructive aspect, does not result from the fear of striking a few wrong notes, nor of playing out of time, nor of not presenting the message of the music adequately; it results from the fear of forgetting. If that fear were removed, the evil power of nervousness would dissipate itself in ways which would yield only a harmless dividend of undesired result. Fear of forgetting can exist only when there is doubt as to knowledge, only when one questions oneself as to this or that detail without being able to give oneself a prompt and correct answer.

This writer is not of the opinion that a memory slip is a cardinal sin, or that the harm which results from it negates the value of other excellencies of performance. The chief though subconscious cause of embarrassment to the performer when he forgets is his fear of distressing the auditor. Actually the auditor remains quite calm and undisturbed by a performer's lapse of memory so long as he senses no distress on the latter's part. This is not to say that the performer may allow himself an unlimited number of memory slips, and that he may consider that no harm has been done so long as the auditor remains mentally comfortable, for that would be to place too great a premium on frame of mind, and not enough on intrinsic merit of performance. That such a state of affairs could exist is doubtful if we consider the average human being's natural instinct and desire to appear with credit to himself before his fellow man. Performance should be a source of joy and satisfaction to the performer as well as to the auditor. The full flowering of interpretation cannot come into being unless the foundation of ways and means that support it is strong and reliable.

It may be thought that the approach to memorizing as outlined in the foregoing pages, while suited to the aspiring professional, may be too strenuous a task for the student whose interest in playing the piano may be described as avocational. That would be true if the performance of music permitted of two standards, and if the task were arduous beyond the amateur's capabilities of talent and time. This writer sees no logic in

the assumption that excellence of performance is the prerogative of the professional, and that the amateur fulfills his musical destiny by attaining mediocrity only; he also disagrees with the belief that amateurs are possessed with a degree of talent necessarily inferior to that of professionals. As to the amount of time which is available to the professional and the amateur respectively for practice and study, the whole tenor of the ideas herein expressed has been that the quality of practice is more important than the quantity. The harvest of result of an hour's practice does not depend on the fact that a certain unit of time has been spent at the piano, but on whether it has been spent intelligently. One pianist may accomplish more in an hour than another may accomplish in four hours. It seems obvious, therefore, that time alone is not the decisive factor in achievement, and constitutes no insuperable barrier to excellence of performance by the amateur. It must be understood, of course, that a high degree of technical skill is requisite to the performance of physically difficult compositions, and that such skill cannot be attained without the expenditure of a great deal of time. However, difficult pieces are not necessarily more beautiful, nor do they necessarily give more pleasure than so called easy ones. Restriction of achievement for the amateur, therefore, may be placed upon extent of repertoire, but not upon beauty of artistic result, and there can be nothing but the strongest disagreement with anyone who contends that the former is more important than the latter. Furthermore, the piano literature is so vast that, even without including compositions that demand an extraordinary degree of virtuosity, there remains a residue which can satisfy the musical yearnings of even the most fastidious taste, whether it be professional or amateur.