'Memory' As it Tends to Operate in Piano Study

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'MEMORY' AS IT TENDS
TO OPERATE IN PIANO STUDY
MEMORY' AS IT TENDS
TO OPERATE IN PIANO STUDY

by
ESTHER SCHINBECKLER

A Thesis Submitted in Partial Fulfillment
on the
Requirements for the Degree
of
Master of Music In Piano
at
Jordan Conservatory of Music

Indianapolis, Indiana
1949
I wish to express my sincere thanks and appreciation to all those who have contributed in any way to the present study.

Many thanks are due and heartily extended to Gene Chenoweth for his interest and valuable advice in the preparation of this thesis.

E. S.

Indianapolis, Indiana
1949
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This study has been motivated by the fact that the necessity of memorizing repertory material has proved a serious obstacle even to gifted music students. The most talented seek a course of their own, accomplishing 'success' by methods which they themselves are unable to analyze. The less gifted, with no procedure to guide them, either give up memorizing altogether or by force of the most exhaustive labor produce a result whose undependability makes public performance a task to be feared. Of course under such circumstances, it is difficult to achieve an 'adequate' interpretation.

It might be remembered that not until the middle of the 19th century did playing from memory apparently come into fashion. Franz Liszt, composer and sensational pianist, created a new vogue, when in a moment of interpretative fervor, he cast the music score from the rack and continued his recital from memory. This start-
ling innovation has long since become traditional in solo recital and threatens soon to include orchestral conducting and chamber music as well.

Because the number of music students is constantly increasing, it seems clear that specific aid is needed in the memorization of piano music. Some individual teachers of piano have effectively solved this problem for their own students; but no fundamental principles seem to have been established under laboratory conditions.

The Problem

Are there basic techniques of memorizing that can be applied in piano instruction which may serve to make the learning process more efficient, pleasant and clear to the pupil and to the teacher?

The Source of the Data

The data was secured from books, periodicals, and the writer's own teaching experience.

The Method of Study

This is a descriptive study.
The Treatment of the Data

The data was used with 'adequate' interpretation.

Limitation of the Problem

The problem was limited to the questions concerning memory as used by the pianist.
CHAPTER II

Review Of Similar Study

THE INFLUENCE OF ANALYTICAL PRE-STUDY
IN MEMORIZING PIANO MUSIC

The Influence of Analytical Pre-Study In Memorizing Piano Music by Grace Rubin-Rabson was undertaken to explore one aspect of the problem. This study was an attempt to discover whether extra stress on the cognitive and 'intellectual' factors in memorizing would prove of greater efficiency than allowing this factor to be haphazard and incidental, as it seems to be with most students.

Four methods of memorizing piano music were compared for their relative 'efficiency.' The methods were selected to compare the value of a pre-study of 'logical' formulations concerning the structure and details of piano music before approaching the keyboard with a method which consisted only of keyboard learning. The methods are as follows:

A. Study of the score with the aid of a given outline. Time allowed, twenty minutes.
B. Study of the score with the production of the subject's
own outline. Time allowed, twenty minutes.

C. Learning at the keyboard with no preliminary study period.

D. A phonograph hearing of four repetitions of the composition while reading the score, preceding each of the three methods above.

To compare these four methods, four different experimental compositions were used, both methods and compositions being presented in different order to form groups of experimental subjects, each group containing an equal number of subjects. The following experimental design shows how the methods and compositions were learned in all possible combinations and in all possible orders.

Design of the Experiment in which the sequence of days represents the order of the experiment; A, B, C, and Da, Db, Dc represent the Methods used; and Groups I, II, III, IV are the four groups of experimental subjects, comprising six subjects each.

<table>
<thead>
<tr>
<th>1st Day</th>
<th>2nd Day</th>
<th>3rd Day</th>
<th>4th Day</th>
</tr>
</thead>
<tbody>
<tr>
<td>Group I</td>
<td>A-1</td>
<td>B-2</td>
<td>C-3</td>
</tr>
<tr>
<td>Group II</td>
<td>Db-3</td>
<td>C-4</td>
<td>B-1</td>
</tr>
<tr>
<td>Group III</td>
<td>B-4</td>
<td>A-3</td>
<td>Do-2</td>
</tr>
<tr>
<td>Group IV</td>
<td>C-2</td>
<td>Da-1</td>
<td>A-4</td>
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</table>

Since method D is a combination of hearing the composition plus one of three other attacks A, B, or C,
two subjects in Group IV learned Composition 1 by each one of the methods A, B, or C. Thus eight subjects in the entire experimental group used each of the combination method Da, Db, Dc.

Thus Group I learned the first composition by the A method on the first day, the second composition by the B method on the second day, the third composition by the C method on the third day, and the fourth composition by the Da method on the fourth day. (Here the D method added preliminary hearing to the study by the A method). Group II may be similarly interpreted.

Group III learned the fourth composition by the B method on the first day, the third composition by the A method on the second day, the second composition by the Dc method. (Here the D method added preliminary hearing to the study by the C method). The first composition was learned by the C method on the fourth day. Group IV may be similarly interpreted with the exception of the learning of the first composition on the second day.

The purpose of the experiment was to allow equal allotments of time to learning of the musical compositions by any of the four methods. This is a measure of the 'efficiency' of the methods. Both methods employing analytical study periods before keyboard practice showed

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marked superiority over the method in which the analytical study period is omitted. These differences, furthermore, are so large that it may be inferred that, within limits, analytic methods may have some degree of value not only for the group tested but to other groups of piano students as well.

It was noted as a matter of observation, that the students appeared to evidence annoyance and irritation under the method of learning without preliminary study. It was also observed that after studying the analysis, the keyboard rendition seemed to be firmer and less subject to error than when the composition was practiced immediately at the keyboard.

Four compositions were used. They were complete musical forms ranging from 16 to 26 measures in length. The compositions are:

2. Jig by Henry Purcell (English, 1658-1695) (16 measures. Playing time about 40 seconds).
4. La Lutine by Johann Kirnberger (German, 1721-1783) (24 measures. Playing time about 54 seconds).

Since all the experimental compositions were of
first grade difficulty it might have been assumed that experienced pianists would not need to make analyses of the compositions preliminary to playing, but would have been able to appreciate the details of form and structure while engaged in playing. This did not seem to be true. The data tended to show that analysis proves markedly superior in the learning of even such simple material. It may be inferred that this procedure would prove of great aid in increasing the efficiency of memorizing more difficult music. It is not to be assumed that the methods found superior here are the best of all possible methods, but rather that they are evidently superior to the immediate keyboard practice commonly used by piano students.

Though none of the experimental subjects had previously either silently studied a piano composition or written an analysis of it previous to playing it at the keyboard, the method which included the formulation of an analysis by the subject proved 'superior' to the method without such analysis. Even inexpert and inexperienced analysis produced 'better' results than none at all.
CHAPTER III

THE DEVELOPMENT OF MUSICAL MEMORY

The term "memory" denotes the mental processes whereby past experience is recalled to present consciousness.

The bodily structures involved in the memory process and the common order of events are as follows: (1) A stimulus affects a sense organ. (2) Nervous impulses pass from this structure to the centres in the brain. (3) Nervous connections are made by the association neurones in the brain. The function of the association neurones is similar to the connecting process in the central office of an automatic telephone system. (4) Nervous impulses pass outward from the brain and (5) cause a response in a muscle or gland. Learning or association consists in the formation of a functional connection in the central nervous system between a stimulus and a response. The important phase of memory called retention is the passive condition of the central nervous system in which this connection between a stimulus and a response persists for a period of time. The memory process is known as recall when the stimulus is given and the learned response occurs. Memory is never entirely conscious because we are never completely aware of the physiological activities in our own nervous systems. We learn and remember affective and motor activities, as well as 'intellectual' material.1

Being accustomed nowadays to see a concert soloist perform 'without the notes', we have to remind ourselves that not until the time of Liszt did playing from memory come into fashion. That musicians were capable of prodigious feats of memory had been proved by the case of Mozart, who wrote down Allegri's Miserere at first hearing; but that any one could perform a written

work with accuracy and safety 'without book' was at
one time considered hardly credible. Indeed, teachers
of the past not only discouraged memory-playing, but
sternly forbade it; and if a pupil allowed his eyes
to stray from the printed page, he was brought back
to self-consciousness by the familiar reprimand,
'Look at your music'.

First Use In Public Performance

The practice of public performance without the
aid of the printed page came into vogue toward the
close of the nineteenth century. After the piano
had reached a high state of perfection about the
middle of the century, and the work of the great
masters had been completed, pianists cast about
for various means by which they might astound and
amaze. The possibilities of pyrotechnical display
were fully investigated and exhausted by such
consummate virtuosi as Liszt, Thalberg and Herz,
and the possession of astonishing technical facility
became commonplace. It was presupposed as part of
the equipment of every aspiring young artist, and
was no longer looked upon as the special prerogative
of genius or as a quality that bordered on the
'supernatural'. . . . There followed many public
performers who superimposed upon prodigious manual
dexterity an ability in interpretation that was
hardly less amazing. . . . It was only a short
step to the introduction of memorizing as a part
of the pianist's stock in trade.

Use As A Drawing Power

To this day, playing from memory is esteemed
by a great many for its drawing power as exemplified in
the public performance of the complete works of Bach.

1 Lilias Mackinnon, Music By Heart, (London:

2 Albert E. Wier, The Piano, Its History, Makers,
Beethoven, Chopin and other composers. From the adoption of memory-playing as a presumptive condition of public concerts, resulted its introduction as a requirement for nearly every music student. The assumption was that no matter how well a 'student' might play, he would be incapable in concert performance unless the faculty of memory were fully developed, and young children were taught the habit from their earliest lessons.

Memorizing Of Practical Value

The custom of memorizing piano music might be said to be based on a most 'practical' requirement. While it seems clear that memorizing brings with it a better conception of the structure and inner meaning of a piece of music, it also appears that 'intellectual' and artistic considerations are not, primarily, at the root of its general adoption. Memorizing is of value in public performance for a reason no more romantic than the difficulty of turning pages while playing.

Devices For Page Turning

Many devices for the mechanical turning of pages have been attempted from time to time, but none have proved sufficiently practical for general adoption, and the universal cultivation of memory-playing has discouraged further investigation of the subject.
variation in the dimensions of the pages, the varying
degrees of wear on the sheets, and the different
lengths of time required for the performance of
successive pages are some of the circumstances that
make the perfection of such a contrivance extremely
difficult. Most of the devices that have been ex-
perimented with have involved the use of a foot-treadle,
which interferes with the equilibrium of the body in
intricate passages and interrupts the correct use of
the musical pedals.

When the piano is used as a solo instrument,
the presence of an additional person on the stage to
turn the pages is awkward and disconcerting to the
performer and to the audience. This individual must
sit or stand so near the player as to interfere more
or less with his free movement, and there is always
the possibility of fumbling with the pages, turning
one page too many, turning too soon, or too late or
dropping the entire piece in the player's lap or on
the floor. These, plus other circumstances, are
sufficient to discourage anyone from attempting
public performance with the music; and the wonder is
not that so many artists play from memory, but that
anyone should ever use music.
**Difficulty In Page Turning**

In the printing of music the lay-out of the measures is seldom made with a view to convenience in turning. The nature of the style of most musical instruments is such that both hands are more or less occupied at all times; and where passages for one hand do occur, they seldom coincide with that position on the page where a turn can be provided for conveniently. And even at points where one hand is free, its use for turning the page is almost impossible by the necessities of modern technique, which require that perfect bodily balance must be maintained at all times. Thus we find that memorizing is the best answer to this problem.

It should be realized that any strain on the part of a performer will perhaps communicate itself to an audience; therefore, if the soloist is 'interfered with' by the written notes, the listener is likely to be robbed of his fullest enjoyment of the music. With the vast repertory now available, it is difficult if not impossible for all musicians to find time to commit to memory every work played. Yet, there is no doubt that the public prefers a soloist who plays from memory.

To perform from memory at home is one thing; to do so in public is quite another: the player may
well be able to execute a piece alone or before friends, but frequently in the public eye 'something goes wrong'; discouraged, he deplores his 'bad memory.'

If printed music is actually an interference, why should so many, including experienced artists, be afraid of appearing on the platform without it? If the player, to interpret a work to the best of his ability, must possess his music, in the sense of knowing it thoroughly, why should he dread memory failure? Let Busoni answer. 'Stage-fright affects the reliability of memory. When it comes, your head gets confused, and your memory insecure.' Busoni speaks from experience, and he speaks truly: fear of forgetting is due to nervousness, which may interfere with memory, bring possible disaster even to the well-prepared. But does the presence of the score necessarily prevent nervousness? According to Busoni 'No.' If you have the notes to help you, then this stage-fright will take another form. Your touch gets uncertain; your rhythm is upset, and your tempo becomes hurried.' Even if printed notes prevent a break-down, it is evident that they cannot prevent the worst fault of all—unmusical playing, which, rather than performance from memory, may be described as 'playing without the music.'

What is the soloist to do? Is he to be interfered with by the written music, or is he to go on the platform without it, feeling as if his last hour had come? The possibility of a third course has not been considered except by a few artists who have found out for themselves a recipe for confidence. Although stage-fright with all its misery is usually taken for granted as a necessary price to pay for the privilege of self-expression, there are a few soloists who enjoy public appearance, in the sense of being stimulated by it; who, when warmed by excitement, find faith in memory amply justified. Like good actors who possess their part, they find memory, when trusted, an unfailing prompter.¹

CHAPTER IV

ESSENTIAL ELEMENTS IN MEMORIZING

Many music educators consider themselves "practical psychologists" and pride themselves on conducting their teaching on sound "pedagogical and psychological principles." Most of these "principles" are, however, vague and unformulated, as indeed they must remain until subjected to systematic research in the laboratory. The more realistic among them speak only of industry, perseverance, and concentration--these being well-tried and indisputable roads to success. One known pedagogue admits his inability to penetrate the elaborate psychology of musical learning when he says, "I do not teach my students to memorize. I require it!" Such an attitude is reminiscent of the pedagogy behind the "whipping cure" once employed to stimulate the learning process. The onus and the responsibility lay on the child; the teacher's inability rarely received consideration. The bright child managed fairly well despite professional incompetence; the duller one fell by the wayside.

The lack of a well-grounded music psychology would not have such dire results were the cultivation of executant proficiency reserved for the most talented. For the very gifted find their way often as much in spite of, as because of, the guidance given them.

But at least one of the rigid imperatives applicable to the most fitted descends to his less fortunate brother: material for public performance must be memorized. It is here that even the very capable often stop in consternation. And it is here, also, that the student receives almost no help. For lack of guidance and understanding, he substitutes the drudgery of hours of unproductive practice. Fortunately or unfortunately, tradition sustains him in these hours of drudgery: only through many hours of work each day have the masters arrived at their pre-eminence. The student experiences, therefore, a feeling of moral satisfaction--little realizing that the master has accomplished prodigious tasks of learning during his working hours and that he himself has learned almost nothing. It is impossible
to imagine a student in any other field of human endeavor cheerfully investing so much time and cheerfully accepting such insignificant results.

If music pedagogues would acquire some idea of the exorbitant amount of labor wasted in the name of art, they might, as did the writer, watch advanced piano students—who, by their own admission, had no problem in memorizing music—consume seventy and minutes, and as many repetitions, in the learning and memorizing of a twenty-four-measure, first-grade piano composition! From this they could make some deductions as to the degree of slavery involved in the preparation for performance of the student's own repertory. Should the same students take an equal amount of time for a comparable learning task in another field, we might have the right to assume mental incompetence. But since, in most cases, these students measured up to given criteria of ability, the answer must be sought elsewhere. Is memorizing music, then, such a very elaborate and intricate combination of processes that it will yield only to the unusually gifted, or at the price of overwhelmingly hard work? Or, is the learning itself blind and groping and without plan? What musical capacities must the student possess, and to what extent must he possess them in order to memorize with reasonable proficiency? Is a high degree of intelligence necessary?

Certainly, memorizing music is an intricate and elaborate combination of processes—perhaps as complicated as any other thing people are asked to do. The kinaesthetic factors entering into it are tactile, spatial, and interdependent, insofar as one movement acts as a link in a chain of movements; the sensory factors are both visual and auditory, and the conceptual factor, little or much as it may be employed, is occupied with analyzing and re-synthesizing the musical organization in logical and continuous patterns.

It may be taken for granted that, in a measure, the relative importance of each of these factors in the learning differs among individuals. Attempts to discover the dependence of various successful students on each of the several factors are revealing of omissions and commissions—yielding an important clue to the student's vagueness in his working habits: "I simply worked on it until I
knew it," or "I practiced it so much that, when I attempted to play it from memory, it simply played by itself," or "I close the music and see how much of I know, and often it seems to keep on going by itself as though I had nothing to do with it. Then, suddenly, it stops, and if I go over it, often it doesn't go at all."1

There is no one royal road to the process of memorizing music efficiently. There are many avenues through which results may be attained. It is for this reason that methods in memorizing are subject to much variation and adjustment to individual needs and differences. This is possibly more true than in any of the 'technical' aspects of piano playing, such as: fingering, phrasing, dynamics, etc. Frequently a given passage admits of only one disposition of the fingers, one grouping of musical ideas, or one quality of tone. But the methods of memorizing will vary over the range of the three departments of pianistic memorizing about to be enumerated.

Perhaps to use the phrase "memorizing method" is to assume too much. "Method" implies the organization and incorporation of known principles to construct an efficient procedure. But relatively little is known of the principles underlying musical learning. Although much pedagogical and musicological speculation has appeared, it has been largely arm-chair theorizing. It seems nearly incredible, when one considers the number of

persons the world over engaged in the making and studying of music both as an art and as an industry, that so little critical and scientific attention has been directed to the analysis of the processes of music hearing, thinking, learning, and the like.¹

The three elements of memorizing that concern the piano student are as follows: (1) visual memory, (2) aural memory, (3) kinaesthetic memory. These elements are so interrelated as to be inseparable in fact, but in an effort to clarify an analysis of the process of memory in particular, it will be advantageous to consider several of the conspicuous features of each.

**Visual Memorizing.** -- The eye or the eye complex as a whole includes visual imagination and visual memory. Visual memory is concerned with the aspects of the printed page and of the piano keyboard. It is the agency by which notes are translated mentally into sound, and reproduced physically by the striking of those keys to which they correspond. We need the eye first to read our music. There are musicians who can sit comfortably in a chair or lie in bed and enjoy reading music as one enjoys reading a good book. Indeed it seems evident that training in writing and in reading music will probably result in the ability to visualize printed

text. That is what the psychologist calls verbal imagery. When you have read a piece of music very carefully over and over again and have learned to play it, then the result should be that you are able to write it, if you possess visual imagery to a high degree. If clear visual images of the music page could be reliably reconstructed after many manual repetitions, the problem of memorizing would automatically disappear.

... The number of repetitions would depend on the individual degree of "eye-mindedness," and patience would determine the rest. In most cases, this is not the happy result. Numerous repetitions often produce no visual images at all--the student is unable even to begin the composition. The well-worn concept of the retina acting as a photographic plate will not function here. "Looking" must be added to "seeing" before the image is produced.

Experiments in the psychological laboratory indicate conclusively that intensive "looking" is most beneficial when it is done before playing the composition on the piano. This is true even for advanced pianists—in the learning of the simplest of material. In a well-controlled experiment, it was found that when a short, simple composition had been intensively studied before it was played at the keyboard, so much was remembered that it took only twenty-five percent of the original time to rememorize it after a lapse of three weeks. In contrast to this, when all the memorizing had been done at the keyboard, forty-seven percent of the original time was needed to rememorize—or nearly twice as much. Furthermore, the time required for the original learning, whether with or without the preliminary study, was about the same.1

For good sight-reading, visual memory could well be considered as essential, but because a quick reader has no time to think 'consciously' about the music, he is usually unable to recall it, which proves that music photographed in the mind's eye is not necessarily retained for long. Moreover, as those blind from birth can both learn and recall music perfectly without being able to visualize it, so can those who possess sight, and who do not see the music or see it but vaguely in their mind. Many teachers stress the act of learning music by the look of it. If a pupil can 'hear with the eye,' all is well; but another, differently gifted, may be seriously hampered by such training. Many have worried unnecessarily through endeavouring to memorize music in a way unnatural to them. Believing they have a 'bad memory,' they have given up memory-playing altogether.

The individual will discover through experience whether visual memory is his best method of obtaining results. One who naturally sees music in his 'mind's' eye will be wise to use and to trust this form of memory; but those who prefer to rely on a keen aural and muscular sense appear to remember music equally well.

**Aural Memorizing.** -- The 'musical ear' is the most prominent, the oldest, and the most primitive source of
the 'memory for music'. We shall understand by the 'ear,' the whole complex: the receiving apparatus, the involved neural processes, and the recognizing and recreating in the 'mind.' When a young child picks up a melody and repeats it, we have some indication of the 'natural' gift, the natural memory by ear. Aural memory is playing 'by ear,' in the broad meaning of the phrase. Before one is able to reproduce a piece without the score, it appears that one must hear in imagination the melody and accompanying harmonies. The ear is the guide for the working and playing instrumentalist; it leads him from the rudiments to the pinnacle of 'perfection.'

If the beginner struggles to discover the wrong note which sounds bad to him, if a student is worried about a harsh sound and works to improve it, he does it because he is not satisfied with the sound he has produced. He has in his mind a more satisfying sound and he wants to bring it out. A teacher can make easy and quick progress with a pupil who 'knows' his own shortcomings to some degree because he hears them. It is more difficult for the teacher to teach a student who is satisfied with his playing and is incapable of self-criticism. Still worse is the pupil who plays palpably wrong and does not perceive it.

For the development of the ear much can be done.
Beginning with the very important ear training, it goes on with the progress and refinement of the technique. The teacher demonstrates a more advanced level of performance, a finer phrasing, and the pupil listens to it and learns. This shows the tremendous importance of the hearing of 'good' music well played.

We spoke of the ear complex as including the actual hearing together with the power of remembering and of recreating, and we shall think for a moment of the cruel fate which robbed our great Beethoven of his sense of hearing, or, more exactly, of his actual hearing. His violin and piano playing were hard on the listeners. His attempts to conduct the orchestra ended in disaster. But his inner ear worked, remembering and creating, and his early training enabled him to compose for our benefit the most wonderful music. He was deaf, but he was not blind. He could see, and he could read, and best of all he could still write.

Kinaesthetic Memorizing. -- This is the activity of the muscles employed in playing, the feeling of the hands and of the whole body in connection with the instrument. Strictly speaking, the 'muscles' do not remember. Speaking of 'kinaesthetic memory' is a good deal like saying that it is the lead that writes, ignoring the wood that holds it and the fingers that move it, etc; (organism-as-a whole process).

Kinaesthetic memory must be highly developed.

for without immediate nervous response to touch as well as ear, technical proficiency is impossible; although necessary movements should never become 'mechanical,' they must become automatic, in the sense of 'subconscious.' It is indispensable in rapid passages, where the fingers must learn to move automatically. It should be present to some extent in slow passages also, although in these the mind has more opportunity to control the movements of the fingers. The value of slow practice is its effectiveness in establishing accurate muscular memory.

Students should realize that by means of a very thorough technical training they obtain a vast number of so-called kinaesthetic impressions, which later bring about a surprising economy of effort in memorizing. A scale in a Beethoven concerto is no different from a similar scale in any composition. Many students ask; "Why 'study' scales and arpeggios when one does not play them in public?" Scales in music might be compared to the multiplication table in mathematics. One does not recite the multiplication table, but it's value lies in 'understanding' the process and the uses to which it can be put. For whatever calculating one has to do in the ordinary contacts of life, even in these days of calculating machines, the multiplication tables are indispensable. In similar manner the scales
and arpeggios and other technical patterns impress the sequences of notes and the most approved fingering in the different keys, in various rhythms in thirds, sixths, and octaves until they become a kind of 'subconscious' background to the player's art. They not only save a great amount of future time, aiding in sight reading and memorizing, but adding a kind of facility, fluidity, and finish, which become acknowledged assets when later one must concentrate upon the 'aesthetic,' 'emotional,' and 'spiritual' elements in the interpretation of a work. They serve to create a pianistic vocabulary which adds to the ease of expression.

... We can with fair certainty, make those deductions: It seems to be quite possible to make accurate kinaesthetic response to printed musical symbols through some hundred repetitions and to have, at the end of that time, only the most shadowy mental images of those symbols when they have been physically removed. The chain of muscular habits which has been set up through these hundred repetitions is, however, by no means so shadowy--and, under certain favorable conditions can be depended on to complete the circuit successfully. What are these favorable conditions?

First, we must determine the number of times a person must play over a composition in order to build a muscular habit of such automaticity and strength that it can be allowed to find its own way without guidance. Naturally, such a number depends upon the complexity and length of the composition, the muscular adaptability of the student, and, in some measure, on a foundation of what may be called good "playing habits."

The next condition is that, while playing, the student experiences no emotion--such as fear--strong enough to inhibit or interrupt the easy flow of muscle continuity between one finger and another. When this continuity is interrupted, he has nothing to fall back
on. His only resort is repetition from the beginning. Lastly, the student should not inject any mental concept into a hitherto purely physical performance. Sudden concern with "what comes next," or apprehension over a weak section some measures ahead, or any attempt even to think about the material under the hand at the moment, may prove disastrous. What is the possibility of these conditions being fulfilled? The answer lies in the appalling number of disasters in performance.¹

Review of the Various Methods. -- It remains to review briefly some of the so-called "methods" of memorizing music and to show how the general principles of memory may be applied specifically to the reproduction of piano music in particular.

What would happen if a pupil were required to memorize exclusively by sight? He would have to retain a mental image of the page in all its details and a concept of the location of the notes on the keyboard. Aural memory would be brought to his aid according to his ability to "hear" the music by sight. Muscular memory would not be available. Perhaps with extreme concentration a composition could be memorized in this way; but as soon as it was played, the other elements of memory would come into use.

This method is said to have been used by concert artists while travelling on trains from one place to

another. The exclusive use of aural memory would be practicable for some, and totally impossible for many; and as in the other case, the two other elements would be employed after the first playing. Muscular memory could not be brought into play without sight or hearing. Thus we see the impossibility of separating memory into its component parts, except for their analysis as contributing agents.

*Notably, Fritz Kriesler.*
CHAPTER V

PRACTICAL STEPS IN MEMORIZING

"I simply cannot memorize!" Most teachers have probably heard this exclamation innumerable times. A few famous performers have been obsessed by the same thought. Clara Schumann was baffled by many attempts at memorizing. However, there probably are few musicians who cannot learn to memorize.

The practical steps in memorizing are listed as follows:

1. The intention to memorize must exist during the first reading of the composition.
2. After the preliminary study period, each repetition at the keyboard must be a memorizing repetition, and not a reading repetition.
3. No time should be wasted in aimlessly reading the material with the notes. The notes should be used only to refresh the memory.
4. Difficult technical passages should be mentally analyzed and then consistently practiced without the music.
5. Singing during the studying and the actual playing of the composition enormously facilitates the memorizing, especially of the melodic line.
6. Intensive study of the music before playing will tend to produce clear mental images of the notes; a capacity for this can be developed if such study is done persistently and with vigorous concentration. Such mental images, built on an
understanding of chord and voice relationships, offer a great feeling of security to the person performing publicly.\textsuperscript{1}

The first piece to be memorized is the most difficult. If one makes use of 'method' in his memorizing, he will soon be able to memorize in one session what might have taken a week before that time.

When the piece has been selected, use either of the two following methods:

1. Memorize the piece as a whole.
2. Memorize the piece in sections.

Some pupils are more successful in memorizing the piece as a whole, and others apparently are able to learn when a work is taken in short sections. The Gestalt psychologists tell us that it is a great time saver to learn the piece as a whole rather than in sections. This means that one must see the order and relationships of the material that is to be memorized.

So-called 'intellectual' memory is the result of 'conscious' analysis, which may and should be started when a piece is first taken up for study. This is long before aural and finger memory have fully matured through slow practice. The teacher should first show

the student how to analyze a piece by studying the material away from the piano, analyzing the structure, three part form or two part form, etc. This helps the student to 'see' how much actual memorizing will be required and to see the measures or phrases which are merely repetition.

On the following page is an arrangement of Chopin's Prelude in A, Op.28, No.7. An advanced piano student might make an analysis such as this:

1. Signature: 3 sharps, Key of A.
3. Tempo: Andantino (J = 72 senza rigore).
5. Form: 16 measures with 2 part form. First 8 measures—Part A. Measures 9-16—Part B. The piece contains 3 phrases of the same rhythm—\(\frac{3}{4}\)\(\frac{3}{4}\)\(\frac{3}{4}\). The first and fifth phrases are repetition—making 14 measures to memorize.
6. Melody: Begins on dominant or fifth of scale.
7. Harmony: First phrase dominant, second, tonic: third, dominant; fourth, tonic, fifth, dominant; sixth, tonic and submediant; seventh, super-tonic and dominant seventh; eighth, dominant and tonic.
8. Melodic Outline: The melody has the same pattern throughout the piece with three repeated notes at the end of each phrase.
Illustration 5

Andantino (L. = 72 senza sordino)
9. Touch: The right hand is played legato with a sustained singing tone; the left hand, legato with all rests observed.

10. Expression: Soft with a gradual crescendo in measures 11, 12, 13, and 14; ending with a decrescendo at the 15th and 16th measure.

11. Pedal: The pedal in the first, fifth, and eighth phrase is employed on the first beat but released on the beginning of the next phrase. In the second, third, fourth, sixth and seventh phrases the pedal is employed two times—on the first and third beats.

12. Fingering: See that the correct fingers are used as marked in the music.

At this point, I would like to quote two paragraphs from Mursell's Psychology of Music.

Heinlein (183) has pointed out that the performance of music from memory is a different function from performance from the score, his reason being that his subjects could never manage to pedal a composition in the same way in these two situations. This of course is a slender basis of fact for so large a generalization, and we could hardly accept it for this reason alone except for its fundamental tenability. Since playing and conducting from memory has come so much into vogue the differences in control involved when the score is used and when it is not deserve far more adequate experimental investigation. It is in fact a question of great interest whether the use of the score favors or is detrimental to adequate interpretation. That a great difference is involved is evident, because a performer who has learned a composition by memory can be almost as embarrassed by the presence of the
score as one who has not can by its absence. It
might well be found that performance from memory
is nothing but an arbitrary fashion, and that it
has no psychological or artistic justification.

As to the factors of control in memoriter per-
formance, Kovacz finds that these cannot be visual,
for pupils who could write out a composition from
memory could not always play it without the score,
and that they cannot be motor, for advanced pupils
did not exhibit memory failures in the most diffi-
cult passages. His conclusion is that musical
memory depends upon "inner hearing." His advanced
pupils were unable to play from memory the melody of
a familiar composition an octave above its normal
position, and could not reproduce vocally the alto
or tenor parts of a memorized fugue. He attributes
these failures to lack of aural analysis and to
inadequate aural grasp. And he finds the best method
of memorizing to be the study of the composition
from the score before beginning to play it. The
method is admittedly difficult at first, but once
the learner has become accustomed to it, the use
of aural imagery which it requires gives a very
firm and lasting grip upon the entire musical
pattern.1

Memory works by association. An 'idea,' to be
assimilated by the 'mind,' should be associated with
an 'idea' already there. (From the known to the re-
related unknown.")) The operation of remembering a past
experience is started by some occurrence which sets
into activity that part of the brain which received
the original impression and its associated impressions.
The wider and more definite the associations, the
readier the whole region may be set into activity
and the surer the various associated ideas will bring

1 James L. Mursell, "Miscellaneous Findings In
Regard To Performance Problems," The Psychology Of
to consciousness the impression we desire to recall.

**Seldom Used Ways Of Making Associations**

Because students sometimes do not realize how many different kinds of associations are possible, several are given below. The more different kinds of associations there are, the more numerous will be the tonal links, the stronger the musical texture, and the more nearly infallible the memory will be in performance.

1. Through the piece, the student should know in what key he is playing. The significance of a key lies in the fact that until modulation takes place most of the tones belong to the scale of that key. (The exceptions, of course, are the chromatically altered tones.) It follows that there is a better chance of remembering a passage if one knows from what scale most of its tones are selected.

2. It is well also to acquire the ability to identify the tones of the melody and its accompaniment in an even more precise manner—as specific degrees of a scale. One may think either in terms of the Italian syllables do-re-mi or in terms of numbers for the scale degrees.

3. Another good idea is to know the intervals that make up the melody. Even such obvious details as
there are sometimes neglected: Where does the melody progress stepwise? When it skips, which direction does it go? What interval?

4. Another useful device is to memorize how your fingers look on the keyboard while performing a passage. To be more concrete in describing ways of acquiring a visual keyboard memory: notice the pattern of the black and white keys that are used in a passage; notice how far apart the hands are; memorize exactly which fingers occur on the keys, especially in passages that are easily confused with each other.

5. The tonal relationships of the melody should be so accurately recalled that one can play it with no help from finger-memory. A sure test of this ability is to play the melody, alone, with the other hand.

6. The intervals between the bass and the melody, at least on the strong beats, may be memorized. In this way, the two most important voices are more surely associated with each other.

7. The "tonal centers" of the melody are easily discovered by a brief analysis. A tonal center is usually a long tone around which shorter tones are grouped, or to which the shorter tones progress. Taken together, the tonal centers form a simplified contour of the melody.
8. A rhythmic framework should underlie all associations, whatever their nature. Unrhythmic memorizing is sometimes observed in the playing of a student who has memorized each hand alone, without counting, so that the hands continue to play even when one hand is a beat ahead of the other.

It is impossible to memorize every note of a piece in all the ways described above. However, there are frequent places in a piece that are easily confused with each other, and there are always faulty places that occur during a test performance for a friend. It is to patch up such places that a selection from these possible kinds of associations should be made. After several test performances, the most serious potential lapses of memory will be eliminated.

**Places That Require Reinforced Memory**

Every piece has several dangerous places that you must memorize especially well to avoid forgetting during a performance. Three kinds of places that require especially careful memorizing are as follows:

1. **Similar Phrases.** Whenever two or more phrases of a piece begin the same way but have different endings, you are likely to confuse them unless you are very careful (a) to locate the exact notes that comprise the turning off places (which may be likened to railway
switches); (b) to stamp the differences distinctly in your mind; and (c) to keep your head during a performance, so that at the critical moment you know which switch should be turned.

2. Exposition and Recapitulation. You are also likely to confuse the two parts of a sonata movement which contain passages that are alike except for being in different keys. Many pianists have learned how treacherous uncontrolled finger-memory can be in performing such passages. Minimize the possibility of confusion by practicing this way: (a) learn one section very well before practicing the other; (b) stop practice on the first section while practicing the second; (c) for a few days practice the sections alternately; (d) finally, contrast the two sections so distinctly, that you can repeatedly play one after the other without confusion.

3. Between Phrases. Finger-memory tends to be weakest between phrases, because it is at these points that rests, pauses, or skips to new registers break the continuity of the musical thought. For this reason, special care should be taken to form strong associations between the end of one phrase and the beginning of the next.

The technically difficult passages of a piece should be memorized first of all, because the analysis
which the memorizing requires will help to clarify the technical problems. In addition, your eyes can watch the keys rather than the notes, so that the movements you practice are more accurate.

Suggestions For Directing Memory Work

Memory work requires regular and careful guidance from competent teachers who know the psychology of learning. It is futile and most discouraging to the student to get the all-too-common assignment, "memorize the next three pages, or the next section, for next week," without being guided in the complex process which lies ahead. Here are some practical suggestions for the guidance of effective, economical memory work which can be summarized as follows:

1. Establish definite, vivid, interesting goals for the memory work. . . .
2. Select high quality and musically significant material. . . .
3. Assist the student in an analysis of the composition to be memorized. . . .
4. Distribute the practice or rehearsal periods.
5. Approach memorization as much by "wholes" as possible. . . .
6. Practice some form of recall during the process of memorization. . . .
7. Establish numerous associations from the music relating it to pictures, moods, colors, words, narration, etc. Also, associating and comparing one rhythmic, melodic, or harmonic pattern, progression,
or section with another may be valuable in building
memory clues, links, and connections. . . .

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1Robert W. Winslow, "The Psychology Of Musical
Memory," Music Educators Journal. Published by the
Music Educators National Conference, January, 1949,
Volume XXXV, No.3., p.15.
CHAPTER VI

VALUE OF MEMORIZATION

Artistic Importance of Memorizing

The artistic importance of memorizing piano music can scarcely be overestimated. The habits of attention to minute details which are thus acquired early in a student's learning are conducive to an artistic perception that is limited only by the individual's abilities in this direction. The processes of memorizing tend to develop a more complete insight into the structure of a composition and the intention of the composer. Thus the student and the artist alike cultivate the invaluable habit of investigating the material that constitutes the inner fabric of the music, and the understanding that results from close attention reveals itself in their public performances.

Memorizing an Intellectual Stimulant

The value of memorizing as a stimulant to the 'intellect' is well known and is not particularly confined to the pianist or to any other musical artist. The development of one single 'intellectual' faculty results in the increased activity of all the others. Memorizing has long been recognized as an important feature of all kinds of mental courses, and is an invaluable adjunct in the development of
the will. The growth of the memory in general practice is usually concerned with facts, figures, circumstances and events, but for the piano student a vast and specialized field is found in the enormous complexity of the works of the masters, wherein the senses of sight, hearing and touch, as well as the faculties of association and contrast are involved to a marked degree. Thus memorizing as a required part of the piano student's equipment is conducive to the highest development of his 'intellectual' capabilities in proportion to his mental stature, whether he be an 'intellectual' colossus like Liszt or whether his other mental faculties might be dwarfed like those of Blind Tom, who could retain the most complicated music by instantaneous memory but who was otherwise in a state bordering on imbecility.

Psychological Aspects of Memorizing

The psychological aspects of memorizing piano music constitute together one of the most 'valuable' assets that the piano student is likely to acquire. Memorizing is psychologically conducive to the acquisition of a number of qualities without which the road of the pianist would be difficult indeed. Among these is poise, that indispensable quality in any walk of life and particularly in the profession of music, where nervousness is so common and where it is least desirable. The confidence that is born of a complete knowledge of a musical work enables an artist to give

of his best in all the other departments of the art. Memorizing clears the way for the operation of the artistic, 'intellectual' and 'emotional' activities, and if it be completely mastered the performer is enabled to present in a clear manner his conception of the inner meaning of a piece. His 'emotional' expression is not confined within the limits of an imperfect conception of the composer's intention. His 'intellection' is not confused by an inadequate knowledge of its outline and content.

**Emotional Effects of Memorizing**

The fourth and most elusive by-product of the habit of memorizing is that which is concerned with the 'emotions.' It is difficult to say which element of music contributes most to its suggestion. In the case of the piano, whose tone admits of almost no variation in timbre, its exposition for the listener becomes extremely complicated. Its proper perception depends as much on the receptive attitude of the individuals in an audience as it does upon the powers of the artist himself. It is therefore reasonable to assume that the latter should have the great freedom in expressing his ideas that results from the habit of memorizing. If a public speaker reads from a copy, the attention of the
audience is distracted by the motion of his eyes back and forth from his hearers to the page, and by the shuffle of paper. In a similar manner if the pianist at a piano recital, whether public or private, reads from the music, the listeners are concerned with his attention to the notes and are likely to feel that his interests are divided between themselves and the music, with a large proportion assigned to the latter. Thus the performer who plays from memory is enabled to concentrate the attention of his audience upon himself and the ideas he is endeavoring to express. He does not do this by looking at his hearers, but by his complete absorption in the matter at hand.

The Quality of Memory

Memory varies greatly in the individual both in quality and degree. One musician may be able to recall a piece more or less completely after hearing or playing it for the first time; another may take weeks to memorize the same piece. But the memory of the quick learner is not necessarily as accurate and retentive as that of the 'plodder', who, is absorbing music gradually, makes it a part of himself; while, in the process, he has time to make interesting discoveries concerning the music and its interpretation. Therefore, the slow learner may be safer in the long run.¹

How Memories Differ

In judging memory capacities, we must bear in 'mind' that there is no single measure of memory and that it is possible to measure a great many different functions in memory. Memories differ with reference to the content, as in 'aural,' 'visual,' and 'kinaesthetic' memories. They may be 'organic' or 'conscious,' the organic memories being those which are so deeply ingrained as to have become subconscious in their operation, as in the playing of the score after skill has been acquired; whereas conscious memory is one which operates only under more or less strain or attention. Memories differ in various stages, so that a person may be strong in the registering of immediate impressions, in long retention, in accurate recall, in realistic imagery, and other aspects. Memories differ, of course, with training, as every development of skill is the acquisition of an organic memory.
CHAPTER VII

HELPFUL HINTS IN MEMORIZING

General Rules

1. Practice at regular hours.
2. Make the first impression correct and musical.
3. When learning anything, concentrate on one point at a time.
4. Learn notes and chords in groups. Should you not know harmony, learn chords by shape—by the intervals they contain.
5. Choose a fingering that suits both your hand and the passage played; this fingering should not be altered.
6. Memorize expression just as carefully as notes.
7. Compare passages that resemble each other in any way.
8. Learn music, not bar by bar, but in phrases or longer musical divisions.
9. When revising, it is unnecessary to return to the beginning of a piece; the previous phrase will make a starting-point.
10. Use few repetitions at frequent intervals.
11. If a passage defeats you, leave it until another day.
12. Cultivate accuracy; facility will follow.
13. When a piece is becoming familiar, begin by rehearsing the most difficult portions.
14. Concentrate on improving one aspect of the music at a time—tone, colour, legato, pedalling, etc.
15. After a mistake, go over the faulty passage once slowly; the last impression, like the first, should be correct.
16. In every piece practice beginning at pre-arranged headings.
17. Relax your 'mind,' and allow movements to be subconscious.
18. Do not look ahead; rely on the contiguity of the music to suggest what is coming.
19. If you think you are going to forget, turn
your attention to rhythm and expression.
20. Should you forget a passage when practicing, look at the printed music immediately, and try to find the cause of the mistake.
21. Should you forget when performing, and be unable to improvise, do not go back—go on to the musical heading that follows.
22. When mentally rehearsing music learnt, hear the sounds, but do not name the notes. 'Consciously' think of the expression if you wish to improve this.

Memory in Performance

Preparing a piece for performance at a concert is quite different from learning it merely for home repetition. Before an audience the nervous strain is such that you must be doubly sure of yourself. For this reason I instructed my pupils to practice the piece to be memorized in the way described below until an unbroken succession of correct performances could be assured. For instance, I found that it was very often possible for a pupil to play a composition through flawlessly ten times in succession. Yet when the number was requested, after a lapse of time, the same pupil could not play the work well the first time. Therefore, with certain pieces, the following plan was used with excellent results.

Piece to be memorized: 5 minutes.
Other work: 5 minutes.
Piece to be memorized: 5 minutes.
Other work: 5 minutes.
Piece to be memorized: 5 minutes.
Other work: 5 minutes.

No rule can be laid down concerning the amount of time necessary for the first stages of work: the individual must decide for himself when 'sufficiently'

well prepared to perform subconsciously.

Testing the Habits

Before a piece is mastered it is advisable to test the habits—to find out how far their training has advanced. Between analytical repetitions, passages (occasionally the whole piece) should be performed without interruption. The last stage, playing 'without book' should be postponed until habits are 'proficient.'

A student usually clings to printed music because he does not really 'know' it. He realizes, perhaps just before an examination, that he has learned his pieces in the wrong way—by muscular memory unaided by 'intelligence.' Naturally he is nervous; but if he does not interfere with his habits, he will probably 'get through somehow,' more safely than another who dare not let himself go.

A performance should never be entirely automatic in the sense that you let your fingers play while you think of irrelevant matters. Your 'mind' should be like that of an alert executive. One should watch that the proper tempo is adopted, the proper balance maintained between the parts, the right turning taken in tricky phrases, and that room is left for spontaneous warmth of color. But your 'mind' should delegate details to subordinates—namely, to the 'muscular memory' that the
fingers have acquired through slow practice. In this way you can concentrate, in performance, on the same musical outlines of which the listener is chiefly conscious—the melody and the harmonies as a whole. You can play with a larger perspective, and thus more artistically, than if you have to concentrate on note-to-note progressions.

**First Performance**

If you have not ever played from memory (or only very little), do not at once undertake a complete sonata; much better practice is provided by little pieces or by variations, because these look short. All tasks should be presented to the 'mind' in tempting portions easily assimilated. When you can play a few easy pieces from memory, your 'mind' will be prepared for something longer, but not until then.

**The Obstacle of Self-consciousness**

If you can play a piece from memory fluently when alone, you know it; but do not be discouraged should you make mistakes when you first play it to others. Such faults are usually due, not to failure of memory, but to lack of practice in performing: many slips are caused by nothing but self-consciousness. Only by giving attention to music instead of the possible
criticism of an audience, can one learn to play safely from memory. The first stage or work is making things happen; the last is allowing things to happen; and there is a world of difference between the two.

It should be borne in mind that 'conscious' effort is apt to defeat memory. If we are suddenly asked for a name, and try to recall it, it often only the more eludes us, so in order to recall it we have to turn to some other thought, when, after a time, the subconsciousness produces the missing fact without our conscious violation. Unselfconsciousness should be cultivated. If one can play a particular piece from memory when practicing by oneself, one can play it with an audience of a single familiar friend; if one can play it with that audience, one can play it with an audience of six or a dozen or a thousand. The player and the music being the same, there is no more real difficulty in playing the piece in public than in playing it in private, and if a difficulty supervenes that is merely the result of 'bad suggestion.' The player imagines himself failing, and then does so; if he took success as a matter of course he would succeed.

Preventive For Removing Fear of Forgetting

The best preventive measure for removing the fear of forgetting is simply this: memorize the be-
ginning of every phrase so thoroughly that, if necessary, you can jump to it immediately. This can be done in a brief period of the following kind of drill without the score: begin the first phrase, stop after a few notes; then begin the second phrase, stop, and continue thus through the piece. The fact that you have decided what to do during a performance if you should forget frees your 'mind' to concentrate on the music, and so reduces the likelihood of your forgetting.

As a final caution, do not let yourself think ahead in a performance. A slight worry about what is to come in the next phrase or on the next page may disrupt the chain of associations for the passage you are playing. If the piece has been adequately prepared, your associations will work as well in the parts yet to come as in those you have already played.
CHAPTER VIII

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

SUMMARY

'Memory' As It Tends To Operate In Piano Study

was a descriptive study. The problem, as it was stated in Chapter I, was "Are there basic techniques of memorizing that can be applied in piano instruction which may serve to make the learning process more efficient, pleasant and clear to the pupil and to the teacher?"

Is the memorizing of piano music of 'value' in public performance?

What are the elements of memorizing that concern the piano student?

Is it possible for a pupil to memorize using just one of the elements of memorizing?

Are there practical steps in memorizing?

CONCLUSIONS

The finding of this study supports the following:

There seem to be basic techniques of memorizing that can be applied in piano instruction. They are:

1. Practice at regular hours.
2. Make the first impressions correct and musical.
3. When learning anything, concentrate on one point at a time.
4. Learn notes and chords in groups. Should you not know harmony, learn chords by shape—by the intervals they contain.
5. Choose a fingering that suits both your hand and the passage played; this fingering should not be altered.
6. Memorize expression just as carefully as notes.
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11. If a passage defeats you, leave it until another day.
12. Cultivate accuracy; facility will follow.
13. When a piece is becoming familiar, begin by rehearsing the most difficult portions.
14. Concentrate on improving one aspect of the music at a time—tone colour, legato, pedalling, etc.
15. After a mistake, go over the faulty passage once slowly; the last impression, like the first, should be correct.
16. In every piece practice beginning at prearranged 'headings.'
17. Relax your mind, and allow movements to be subconscious.
18. Do not look ahead; rely on the contiguity of the music to suggest what is coming.
19. If you think you are going to forget, turn your attention to rhythm and expression.
20. Should you forget a passage when practicing, look at the printed music immediately, and try to find the cause of the mistake.
21. Should you forget when performing, and be unable to improvise, do not go back—go on to the musical heading that follows.
22. When mentally rehearsing music learnt, hear the sounds, but do not name the notes. 'Consciously' think of the expression if you wish to improve this.

Memorizing is of value in public performance for several reasons. (1) Memorizing adds technical security and greater speed. (2) The performer seems to have more poise. (3) Difficulty of turning pages while playing. (4) The processes of memorizing tend to develop a more complete insight into the structure of a composition. (5) Memorizing acts as a stimulant to the 'intellect.' (6) The performer seems to be enabled to concentrate the attention of his audience upon himself and the ideas he is endeavoring to express.

The elements of memorizing that concern the piano student are three. (1) visual memory (2) aural memory (3) kinaesthetic memory. These elements are so interrelated as to be inseparable in fact, but in an effort to clarify an analysis of the process of memory in general, it was advantageous to consider several of the conspicuous features of each.

**Visual Memorizing**--The eye or the eye complex as a whole includes visual imagination and visual memory. Visual memory is concerned with the aspects of the printed page and of the piano keyboard. We need the eye first to read our music.

**Aural Memorizing**--The 'musical ear' is the most prominent, the oldest, and the most primitive sources of the 'memory
for music.' We understand by the 'ear,' the whole complex: the receiving apparatus, the involved neural processes, and the recognizing and recreating in the 'mind.'

Kinaesthetic Memorizing—This is the activity of the muscles employed in playing, the feeling of the hands and of the whole body in connection with the instrument. Strictly speaking, the 'muscles' do not remember.

Is it possible for a pupil to memorize using just one of the three elements of memorizing? For example, what would happen if a pupil were required to memorize exclusively by sight? He would have to retain a mental image of the page in all its details and a concept of the location of the notes on the keyboard. Aural memory would be brought to his aid according to his ability to "hear" the music by sight. Muscular memory would not be available. Perhaps with extreme concentration a composition could be memorized in this way; but as soon as it was played, the other elements of memory would come into use.

Are there practical steps in memorizing?

(1) The intention to memorize must exist during the first reading of the composition.
(2) After the preliminary study period, each repetition at the keyboard must be a memorizing repetition, and not a reading repetition.
(3) No time should be wasted in aimlessly reading the material with the notes. The notes
should be used only to refresh the memory.
(4) Difficult technical passages should be
mentally analyzed and then consistently practiced
without the music.
(5) Singing during the studying and the actual
playing of the composition enormously facilitates
the memorizing, especially of the melodic line.
(6) Intensive study of the music before play-
ing will tend to produce clear mental images of the
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offer a great feeling of security to the person
performing publicly.1

Suggestions For Directing Memory Work

Memory work requires regular and careful guid-
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of learning. It is futile and most discouraging to
the student to get the all-too-common assignment,
"memorize the next three pages, or the next section,
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suggestions for the guidance of effective, economical
memory work which can be summarized as follows:

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3. Assist the student in an analysis of
the composition to be memorized.
4. Distribute the practice or rehearsal
periods.
5. Approach memorization as much by "wholes"
as possible.

1Grace Rubin-Rabson, "The Psychology of Memoriz-
ing," Music Educators Journal, Chicago: Music
Educators National Conference, January, 1950, p. 43.
6. Practice some form of recall during the process of memorization. . . .

7. Establish numerous associations from the music relating it to pictures, moods, colors, words, narration, etc. Also, associating and comparing one rhythmic, melodic, or harmonic pattern, progression, or section with another may be valuable in building memory clues, links, and connections. . . .

Memory in Performance

Preparing a piece for performance at a concert is quite different from learning it merely for home repetition. Before an audience the nervous strain is such that you must be doubly sure of yourself. For this reason I instructed my pupils to practice the piece to be memorized in the way described below until an unbroken succession of correct performances could be assured. For instance, I found that it was very often possible for a pupil to play a composition through flawlessly ten times in succession. Yet when the number was requested, after a lapse of time, the same pupil could not play the work well the first time. Therefore, with certain pieces, the following plan was used with excellent results:

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No rule can be laid down concerning the amount of time necessary for the first stages of work: the individual must decide for himself when 'sufficiently' well prepared to perform subconsciously.

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RECOMMENDATIONS

In our culture the majority of students can be taught to memorize early in their music career. From my point of view, this is an advantage in that memorizing becomes less difficult for the student as he becomes more advanced.

The student should be assisted in an analysis of the composition to be memorized.

The student should be able to play the composition 'accurately' with the music before attempting to play it without the music.

The student should be encouraged to memorize using the 'method' which is easiest for him.
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