you have earned it. Your commitment to grow with it, renewing and refining your understanding of it, whenever and for as long as you wish, is your passport to yet greater accomplishments.

In the absence of a spontaneous reaction to a particular piece and without the cumulative effects of awareness through analysis, such a commitment is more often than not virtually impossible. There is one factor, however, that can supply the missing ingredients, if need be—the enthusiasm of a genuinely interested teacher. Indeed, one of the few but great rewards of teaching is to see how a student will respond to the well-considered direction of the teacher. If a teacher is alert to a student's needs, he will not fail to notice two things: whether the student seems to be laboring under or is uninspired by his repertory, and whether he should be assigned repertory rather than be given free rein in selecting pieces to study. Since even the most advanced students can sometimes seriously misdirect themselves with respect to repertory, a teacher must be able to judge if and when he should interfere in the matter of selection. Above all, he must know to what pieces he should direct the student. And frequently, this requires no small amount of thought and discussion. It can happen that an assigned piece will at the outset make little impact upon the student. "It leaves me cold; I have no affinity for it," he may complain. If it was the right piece, six months later he will be utterly captivated by it and will scarcely be able to remember his initial reaction. Such a metamorphosis is usually brought about by the inspired and thoughtful direction of a teacher from whom even a single well-placed remark can supply a spark of excitement in a sensitive student. Commitment is the inevitable result and the beginning of serious growth.

Synthesis

This is the stage of enlightenment at which all your resources of feeling, thought, and physical co-ordination meet in a mutually supportive balance. At this point, everything you felt, dreamed of, and understood intuitively in your first moment of love is realized and fulfilled, but with this important difference: it is all informed now by awareness and knowledge. Your love is no longer a mystery nor are your responses vague and ill-defined. You have given your love space and dimension; you have fortified it with understanding. Armed with this new meta-knowledge or supra-consciousness, you are now in a position to gratify others with the beauty you have absorbed into yourself. You are ready to perform.

10 Memory

HISTORICAL SURVEY

Until the latter part of the nineteenth century, it was considered bad taste and ostentatious for performers to play in public without their scores. Even Mozart, whose memory was prodigious, always placed the music before him whenever he performed, in deference to the conventions of his day. On one such occasion, the emperor himself was to discover inadvertently just how extraordinary Mozart's memory could be. He had been especially pleased by the premier performance of the *Sonata in B flat* for Violin and Piano, K. 454, and asked to see the score from which Mozart had just played. To his astonishment, he was handed a single sheet of manuscript paper—completely blank. When he asked the meaning of this, he was told that Mozart had completed the work only the night before at the request of Signora Strinasacchi, the violinist who performed it with him. With scarcely enough time to copy out the violin part for the Signora to practice the following morning, Mozart had to memorize his own part for the performance. It was in reality a multiple feat of musicianship, for not only did the Signora learn the work in a matter of hours and Mozart himself play it from memory, but they also carried off the performance without a rehearsal.

To judge from various accounts of their performing practices, other great artists before the twentieth century apparently played from memory even though they always appeared on stage with their scores. Small wonder then that audiences, long inured to established traditions, were shocked when Clara Schumann dared to go on stage without a score (she never performed concerti from memory, however—not even the one composed by her husband). It was now 1828 and a new precedent had been set. Clara Schumann demonstrated what was already an accepted fact to all performing artists before her—that a score was quite superfluous

since serious performers always memorized their performing repertory as a matter of course. It was not long, though, before Liszt, with his well-known predilection for showmanship, seized the opportunity to turn this new development into a dramatic ritual. He had always thrilled his audiences when he peeled off his white gloves and tossed them lightly into the first few rows. But at one performance he caused a veritable uproar by tossing his score after his gloves. If the average concert-goer was dazzled, certainly the opponents of memory-playing were positively scandalized by Liszt's theatrics. But it would take even more than a Liszt, however much he was given to flaunting his remarkable memory in the faces of his critics, to camouflage a truth that has been known to musicians for centuries—namely, that all performing artists, including Liszt, Clara Schumann, and Mozart before them, are able to listen more intensely and play more fluently when freed from the score. Even those musicians who agree that a fear of memory slips is the chief cause of nervousness would still defend the virtues of playing from memory. In any case, it would be many more years before audiences and critics would consider performances from memory as anything more than exercises in showmanship.

In 1861, Sir Charles Hallé, the British virtuoso, began the first in a series of concerts devoted to all the Sonatas of Beethoven. He played from memory. By the third concert, he capitulated to the conservative London critics and appeared on stage with the music. But, like Mozart, he continued to play from memory nonetheless. As late as 1870, Dr. Hans von Bülow, whose feats of memory were legendary, found the London critics to be as resistant as ever to performances from memory. In this case, however, the audience came in for a greater share of censure from the Daily Telegraph than von Bülow: it was his memory and not his musicality that seemed to make the greatest impression, the critics complained. It was not until the end of the nineteenth century that playing from memory came to be regarded as a serious practice and not mere sensationalism. Certainly today it is far more unusual for a soloist to play with a score than without it.

WHY MEMORIZE?

There is something very important to be gained from memorization that many musicians themselves may not be aware of. Apart from freeing a performer in musical and technical ways, memorization per se, despite current opinion to the contrary, actually sharpens the mind. In ancient Greece, students of rhetoric were required to memorize all of their texts and recitations not only to master public speaking, but also to hone their minds. Music, which occupied a status equal to that of arithmetic, geometry, and astronomy in the ancient curriculum or Quadrivium, was performed without exception from memory. In fact, it is quite probable that compositions—both vocal and instrumental—were handed down directly from master to pupil without scores, a practice that would explain why so little ancient Greek music has survived. They had a notation, but they relied primarily on memory. Thus, when Athenaeus said, "The study of music contributes to the exercise and acumen of the mind," he no doubt was referring to memorization as one of the many educative features associated with the disciplines of music.

There are, of course, as many variations in the ability to memorize as there are degrees of talent. Certainly, it would be difficult to imagine any feats of memory more awesome than those performed by Mozart. Once, while still a boy, he was more or less smuggled into Saint Peter's in Rome to hear Gregorio Allegri's *Miserere*—a work that had been the exclusive property of the papal choir for more than a century—and subsequently wrote down all nine voices from memory. Mendelssohn, at a comparable age, was said to have performed the identical feat. Very few musicians can boast of such extraordinary powers. Whatever your faculties, though, there can be no disputing the value of memorizing your music. A work cannot be thoroughly known unless it is committed to memory. For details which would otherwise go unnoticed are consciously absorbed only through memorization. Once you have memorized your music, you have the option to use it or not in performance. Some performers are in fact distracted by any visual contact with notation and therefore prefer to play without a score. Better to risk forgetting, they feel, than do anything that might interfere with their involvement in the music. Other musicians have a sense of complete freedom only when the score is before them.

Despite personal preferences, there are times when the decision is not yours to make. The problem then is one of adapting to circumstances, as I had occasion to learn. I had been invited to record a recital for the BBC and was somewhat surprised to find in my contract the stipulation that a page-turner be present in the studio. The reason, of course, was that the BBC quite simply did not want to waste more time than was necessary with retakes owing to

memory slips. An occasional wrong note is one thing, but a serious memory lapse can ruin a taping session. As I knew, looking at the score during a performance requires a highly developed keyboard sense, an ability that is conditioned by sight-reading more than by any other single factor. This is because reading forces your eyes away from the keyboard and places the burden of judging distances wholly within your hands. Consequently, those musicians who rely solely on their memory are often quite deficient in this crucial ability to estimate large and small distances on the keyboard. Playing chamber music or accompanying other musicians, both of which entail reading, are aids to developing this sense of distance. In this case, the knowledge that the music would be before me during a recording session forced me to refashion my performing technique. First, I planned very carefully exactly when to look at the keyboard so that I would know which leaps and which fast passages needed watching. Second, I trained my eyes to find the right place in the score afterwards. These two simple steps, practiced diligently, made the recording session far less strenuous than I had anticipated—perhaps even less so than if I had played from memory.

THE KEYBOARD MEMORY

There are various methods of memorizing for a performance that can be used to good effect. Some involve conscious procedures that account for every detail down to the most subtle movements of the body and hands; others are devised to free the automatic pilot through the most efficient conditioning of the reflexes.

Where to Look

Playing from memory invites you to look at the keyboard. But where you should look and what you should look at, especially when your hands are negotiating fast passages, are covering great distances, are widely separated from one another or are executing leaps, are questions that have received comparatively little notice even from experienced pianists. In the following outline, various options for focusing your eyes are suggested as well as those physical movements that will best assist them. For eye focus alone cannot always insure accuracy in performance.

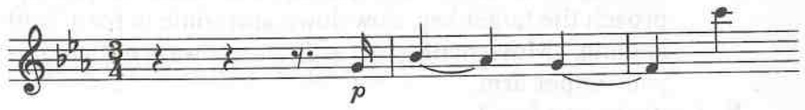
I. For fast passages that extend across or weave up and down the keyboard, choose one of the following:
   A. Focus your eyes midway between the lowest and highest notes of the passage, relying upon your peripheral vision and tactile sense of the keyboard.
   B. Hold your head stationary, keep your spine erect, and follow the rise and fall of the passage with your eyes.
   C. Focus on the first note of the passage, hold your head stationary and let your torso glide gradually along with the rise and fall of the passage.

II. Leaps.
   A. Leaps of every kind.
      1. Strive for economy of motion. Since the closest distance between two points is a straight line, executing leaps will be greatly facilitated if you stay as close to the keys as possible. Because you cannot move your hands on the keyboard in a literally straight line—if you did, you would collide with the black keys—trace, instead, a slight curve from the beginning to the end of the leap.
      2. To achieve the greatest accuracy in leaps, begin by moving your hand very quickly and then, as you approach the target key, slow down and come in for a "soft landing." Movements such as this are always initiated by your upper arm.
   B. Leaps in one hand.
      1. Hold your spine erect.
      2. Turn your shoulders and head in the direction of the leap.
      3. Your eyes will then focus naturally upon the note to which you must leap, while the other hand—if it is playing—remains grounded.
   C. Leaps occurring simultaneously in both hands.
      1. When the intervals are not too large, both hands may negotiate their leaps simultaneously.
      2. Should one interval be larger than the other, the hands must move sequentially; that is, the hand required to leap the greatest distance moves first, while the other hand momentarily remains grounded before negotiating its leap.
      3. Where to look: three options.
         a. Fix your glance midway between your hands, relying upon your peripheral vision.
         b. Shift your eyes from one hand to the other while keeping your head stationary.

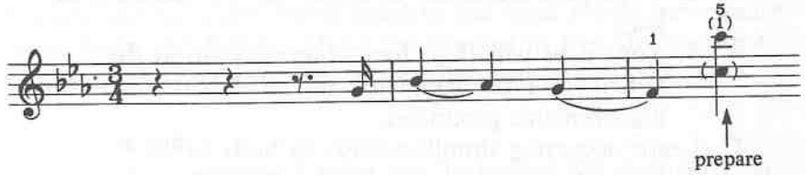
c. Look at the leaps before playing:
   i Shift your eyes quickly to the first leap.
   ii Shift your eyes quickly to the second leap.
   iii With your eyes focused upon the second leap, the image of the first leap being retained in your mind's eye, hold your head stationary, your torso erect, and negotiate both leaps sequentially.

D. Leaping to the fifth finger.
   1. Your hand position is as important as the path which your hands trace. When leaping to the fifth finger (up in the right hand, down in the left), open your hand to an octave position. This forces your fifth finger to draw upon its own strength and also activates your thumb, making it a stabilizing fulcrum that fills in the distance between the leap.
   2. To negotiate the following leap,

Mozart, *Concerto in C minor*, K. 491 (excerpt)

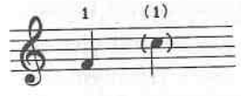


prepare your thumb as follows:

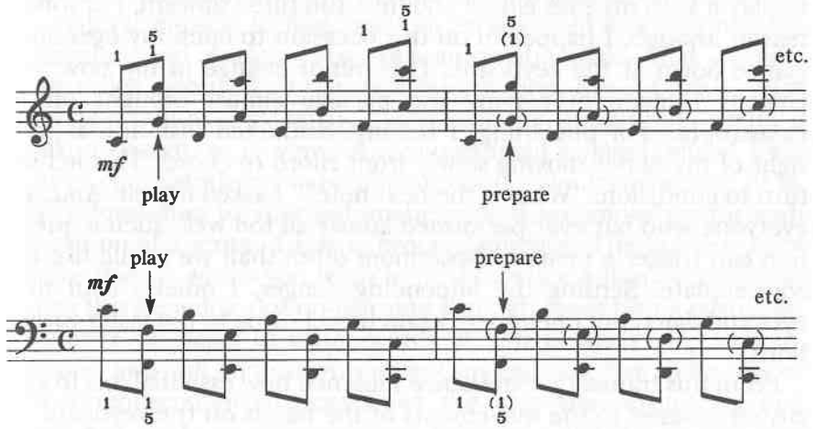


Thus, the interval of a twelfth:

now feels and looks like a fifth:



Practice all leaps to the fifth finger as follows:



III. For distributions in which the hands are widely separated:
   A. Focus your eyes on the hand that has the most complex figures to play. Ground the other hand.
   B. If the difficulties are roughly equal for both hands, focus your eyes at a point midway between your hands, thus allowing your tactile memory to be assisted by your peripheral vision.

IV. For all three cases—leaps, extended passages, wide distributions—try practicing with your eyes closed. This takes bravery, but it helps to develop an accurate mental image of the keyboard that is retained through repetition.

Playing Slow Movements

Experience has taught me that focusing the eyes on some predetermined spot or area of the keyboard is essential for accuracy in certain situations, such as those discussed above. But if you have no technical reason for looking at one place more than another on the keyboard, there may be a tendency for your eyes to wander arbitrarily. This practice, if it becomes habitual, can lead to dangerous consequences. Slow movements in particular invite such tendencies. Long before I ever considered this problem, I recall having almost sabotaged my concentration during a performance of the *Arietta* from the *Sonata*, Op. 111, by Beethoven through a

shift of focus. The sublimity of the *Arietta* had induced me always to play it with my eyes closed and my head tilted upward. For some reason, though, I happened on this occasion to open my eyes and glance down at the keyboard. This minor change in my now accustomed mode of playing the passage almost brought on a catastrophe. For one thing, I became distracted instantly at the sight of my hands moving slowly from chord to chord. This led in turn to confusion. "What is the next note?" I asked myself. And, as everyone who has ever performed knows all too well, such a question can trigger a memory lapse more often than we would like to contemplate. Sensing the impending danger, I quickly shut my eyes and dared not open them again until I came to the faster variations.

From this traumatic experience I learned how essential it is to accustom oneself to the movements of the hands on the keyboard. I realized further that eye contact with the keyboard, even if unaccustomed, ought not to disturb one's concentraton or conflict with a deep emotional involvement if the reflexes have been properly conditioned. What I had to face, then, was the fact of my deficiency in memorizing the *Arietta*. Because I had allowed my euphoric state to dictate how I practiced, my feelings were not sufficiently supported by reasoned analysis and my playing therefore lacked security. On the other hand, had I relied so heavily on analysis in my practicing that I lost contact with the sublimity of the passage, my playing would have ended up being tedious and boring. As I saw it, then, my task was to confront the keyboard in all its shiftings of pattern without ever losing touch with my emotional involvement in the music. Only then would I have earned the right and the confidence to look up or away if I wished—and even to close my eyes if I was moved to do so. Musical spontaneity, as we have seen, can be sustained only by that synthesis of thought and feeling that makes eye contact with the keyboard, or even the lack of it, wholly immaterial.

REPETITION AND THE CONDITIONED REFLEX (THE AUTOMATIC PILOT)

As we have seen, a movement, a gesture, even a glance, will become automatic if it is repeated often enough. For this reason, it is essential to feed the *right information* into your reflexes, as I

mentioned earlier (Chapter 3). This means that the right fingerings, the right technical facts, the right physical movements, and, above all, natural musical feeling, must all be absorbed into that mental, muscular, and sensory axis—the automatic pilot—that governs your reflex system. Fed the right information, the automatic pilot does two things: it safeguards your memory, supporting it with a backup system, as it were, of well-organized reflexes, and it frees you to concentrate on musical issues only. The transference of all this information to your automatic pilot is accomplished through repetition of a series of acts in proper sequence. The process is not unlike that by which you learn to tie a shoelace automatically in so far as this depends also on learning through repetition a particular sequence of steps. In other words, if you radically alter the sequence, you will end up with a knot instead of a bow. The sooner the correct sequence is ascertained, the faster the transference of a conscious act to an automatic one will take place. The concluding pages of this chapter are devoted to a detailed analysis of this process.

Tying a shoelace calls, of course, for a fraction of the skill required to play a phrase of music. Yet, it illustrates the degree to which the reflexes must be conditioned if a musical act is to be performed automatically. Preparing for a performance requires the kind of repetition that brings this about—repetition not only of a series of consciously determined steps but also of the musical feeling that is an integral part of each step. Karl Ulrich Schnabel, the son of the late Artur Schnabel, tells a delightful story about this kind of practicing. One day, as he listened outside his father's studio, he counted two hundred repetitions of a single passage. Knowing how much his father disapproved of mechanical practicing, he questioned him about all these repetitions. "But I wasn't practicing mechanically," his father protested. "I was making music!" For Schnabel, repetition had nothing to do with mechanistic or rote practicing. On the contrary, it provided him with the means to make music through constant experimentation. Subtle variations in dynamics or changes of fingering may have occurred to him with each repetition—perhaps even two hundred of them. Hence, two hundred repetitions were needed. Ultimately, the purpose of repetition is to arrive at a convincing interpretation and to repeat that interpretation until your musical intentions become synthesized with the most efficient corresponding physical movements. Searching for those dynamic nuances that will ade-

quately express your feelings means that you must always be *making music*—especially when you practice. Only then can you refine your sense of discrimination, thereby narrowing down your interpretive choices until you arrive at a course of action that favors your convictions. These convictions will then be projected to your audiences, arousing in them the fire, the passion, and the poetry that you experience from your own playing.

"My convictions are, like my tastes, my own," you may say. Even though personal tastes are proverbially indisputable, there is much to be said for the stimuli that activate these preferences. In other words, music itself is the higher authority to which we must ultimately offer tribute in the form of discrimination based on knowledge. It is the order and disciplined energy in music that teach us truths we could never discover otherwise. In the process, our convictions are not imposed on but, rather, are shaped by these truths. We can best serve music, therefore, by being its eternal student, always ready to discipline our natures to its greater efficacy. If music is thereby to ennoble us and if we are, in turn, to become its most faithful interpreters, we can do no less than absorb a work of musical art so thoroughly into our minds that it becomes a part of our life's experience. Memorization is the most direct route to this critical juncture where thinking, feeling, and physical coordination become synthesized. It is at this point that we are able to transcend all technical details and deliver in our playing the meaning music was meant to convey.

CONSCIOUS MEMORY

In memorizing music, there is no substitute for repetition. With each repetition of any part or parts of a piece, your tactile memory becomes more secure. And if each repetition is impregnated with musical feeling, this too is incorporated into your tactile memory. Thus, by having literally *touched* musical patterns repeatedly with the same fingering and with the same expression, you condition those reflexes that form the mainstay of your memory. All this notwithstanding, it is not enough to rely on tactile memory, however well you may have developed it. Another backup system is needed to fortify your tactile memory if you hope to perform with comfort. This system is based on *conscious memory*. It demands a conscious awareness of everything your mind can grasp from the music.

Without it, even the intrusion of a simple question, such as, "What is the next bass note?" or, "What interval do I leap to?" can subvert your tactile memory and invite disaster.

You can best begin by memorizing the hands separately, there being no more efficient way to develop a conscious awareness of musical particulars. Many pianists balk at this approach quite simply because it calls for more mental effort than they are willing to expend. It is not an easy method, but the results it brings more than justify the effort it requires. If you are trying it for the first time, start with moderate goals: memorize a few measures or perhaps only one line a day. By the end of a week, you will be gratified as much by the quality of your understanding as by the quantity of music you have memorized.

To gain a firm grasp of one of the more difficult memory problems in the literature—the first fugue in the *Sonata in A flat*, Op. 110, by Beethoven—a pupil of mine once elaborated on this method of memorization in the following way:

1. She memorized the hands separately.
2. She played one hand on the piano and fingered the other hand in her lap.
3. She reversed this procedure.
4. She fingered both hands in her lap.
5. As a final test, she closed her eyes and envisioned each note in her mind's eye.

With this indestructible backup system added to her tactile memory, her security was total. She could now perform without fear of memory slips. "I felt as though I had reached a transcendental state," she told me, "as though *I* were being played by the fugue."

DEADLINES

There are no short-cuts to memorization. Yet, occasions do arise in the life of a performer that call for rapid memorization of scores—a request to play a newly composed work, for example, or an unexpected invitation to participate on short notice in a summer festival program. Young musicians, anxious for an opportunity to perform, are loath to turn down such invitations and thus find themselves having to memorize new scores in record time. Facing a

deadline, what would you do? It was probably her consciousness of this fact of musical life that induced the late Nadia Boulanger to announce one day toward the end of a summer session in Fontainebleau that a competition for instrumentalists would be held three weeks hence. The repertory for each category of performers was selected by her personally, the pianists being assigned: the first movement of the *Capriccio for Piano and Orchestra* by Stravinsky, the *Prelude and Fugue in D minor,* Book II, by Bach, and a work of our own choice (I selected three contrasting *Preludes* by Debussy). Having to master these works in only three weeks gave us no time even for despair. The tension mounting with each passing moment, I embarked on a rigid schedule that included ten hours of practicing each day. No more trips to Paris, no more forays abroad until all hours of the night. Everything had to yield to the single most challenging task—memorization. I began by memorizing each hand separately, and in the case of the *Fugue* by Bach, each voice, singing now one, now another, while playing the other two from memory. Sometimes, another student and I would work at two pianos, one playing one voice, the other playing the remaining voices from memory.

From this point on, I proceeded to employ every technique of conscious memorization that I could devise. I analyzed every structural feature of the music, taking special note of every modulation, an especially difficult task in the Stravinsky work. My analysis of chords and progressions focused particularly on all cadences since these served as structural points of reference or landmarks. I marked each section of the works with a letter and trained myself to start from any one of them at random. I carefully observed all variations of similar material and tabulated them in my mind (many musicians actually write down observations of this sort). Next, I accumulated an enormous storehouse of mnemonic devices, these consisting for the most part of the simplest or most elementary associations, such as: the melody moves stepwise for three notes and then jumps down a sixth; the bass plays two black keys followed by three white ones; the A♭ in the right hand coincides with the A♭ in the left hand; the third finger in both hands come together simultaneously. At no point did I fail to practice and, therefore, memorize dynamics, for these invariably fortify the memory through specific associations, as, for example: the *forte* always occurs with the C minor cadence or the subito *piano* marks the entrance of the second theme.

With one week remaining before the competition, I began to try out my pieces for others, at the same time attempting to reduce my conscious awareness of details to fewer and fewer associations. When the day of competition arrived, I felt prepared in all respects but one: the automatic pilot. In other words, my reflexes had not been sufficiently conditioned to withstand the onslaught of nerves that accompanied every note of my performance. But I did play every note; and even if I felt that my playing was not at its best, I had nonetheless to attribute whatever competence I achieved to the preparation I had exacted from myself. That the judges saw fit to award me the Premier Prix de Piano and the Prix Jacques Durand was a not unpleasant consequence of my efforts. More important, though, it encouraged me to know that I had faced my limitations and matched them with my strengths. Yet, to this day, I cannot establish dependable reflexes in just a few weeks of preparation—at least not sufficiently to stem the tide of nervousness that inevitably results from too little time. Many musicians are blessed with the ability to learn rapidly, but others quite simply require a certain span of time which no amount of labor can safely supplant. But this is something we all must learn about ourselves. Above all, my experience in Fontainebleau taught me that the methods of memorization I had developed to meet a deadline had their value for more normal situations by being sound, efficient, and trustworthy. They had only to be made as systematic as they appear at the conclusion of this chapter.

CONSCIOUSLY FREEING THE AUTOMATIC PILOT

An automatic skill will operate efficiently so long as you do not interfere with it. One evening shortly before a concert, I stood before a mirror and began to tie my bow tie. For some reason, I became aware of the process and completely forgot one of the steps in the sequence. Thinking that this was just some momentary lapse, I tried again. Failure. With the concert only moments away, I began to panic. "This is ridiculous," I thought. "I have been tying bow ties for twenty years. Why can't I do it now?" I cannot remember now how many times I tried and failed, but suddenly I found the key to my problem. I started once again, but this time I tried not to think about the steps involved and simply allowed my

hands to do their work without any conscious interference on my part. It was a great relief when I finally succeeded (the stage manager thought so, too) and I walked out on stage where, paradoxically, I felt far more in control of events.

This sort of lapse in continuity is common among music students. You may think that you know a piece perfectly from memory—that is, until someone walks into the room. Then, suddenly, your memory fails you. To attribute this to some inherent weakness in your talent would be just as foolish as to blame it on the person who entered the room. The cause quite simply is that you did not learn the piece as thoroughly as you thought. That the mere presence of one person was enough to interrupt your soliloquy and force you to listen to yourself—perhaps for the first time—shows that your grasp of the piece was in fact tenuous. But suppose you are convinced that you have taken all the necessary precautions against memory lapses and yet continue to suffer them under pressure of performance. There are two possible explanations. First, playing for an audience can make you uncomfortably aware of certain areas that were neglected in your practicing—those you always considered too easy to merit repetition and analysis. In performance, these are the very places that have a way of disintegrating beyond repair. Second, your consciousness of all the details you did in fact repeat and analyze may, during a performance, overwhelm and therefore defeat the workings of your automatic pilot. Assuming that your preparation has been sound in all respects, your task then is to use the full resources of your automatic pilot. The question is, of course, how this can be done.

Ideally, everything that contributes to a convincing performance ought to be automatic. You acquire any number of refined backup systems to lessen your concern about memory slips; you practice technical passages repeatedly to free your hands of impediments; you carefully plan the shape of phrases, repeating them until their musical content is programmed into your muscles. With your mind relieved of memory-related worries, your hands disciplined to their task, and your body conditioned to respond to every musical nuance, you can now address yourself to musical values exclusively. It is at this point that all your powers of concentration must be directed away from the details of your preparation and brought to bear instead on the functioning of your automatic pilot. For therein lies the key to a successful performance. Just as my ability to tie my bow tie came from the conditioned reflexes of my hands,

the ease and security of performing music from memory depend upon the full development of the automatic pilot. However, to trust in your automatic pilot, you must first condition it by dealing consciously with each and every facet of the music before you. Once your skills have been brought to the deepest level of automatic activity through repetition, it is time to allow your automatic pilot to function unimpeded. I am suggesting that it is now in your power to *free your automatic pilot consciously.* Memorizing consciously is what enables you to do this. Supported then by your conscious memory and conditioned reflexes, you can actually switch back and forth at will—even during a performance—from a state of mental awareness to one of emotional release.

AURAL MEMORIZATION

Some musicians possess an innate hearing sensitivity that enables them to reproduce on the piano every pitch or group of pitches that are heard, sung, or imagined. Inborn (absolute pitch) or acquired (relative pitch), this highly developed sense makes the absorption of musical details possible. As was discussed in the section on sight-reading, it can be trained to guide the mind in all musical matters. Curiously enough, some musicians who are endowed with the extraordinary aural sense that is absolute pitch regularly suffer memory slips. In some cases, this is because they rely as little on their powers of hearing as do others on their automatic pilot. More often than not, the possession of absolute pitch is not adequate security against the danger of memory slips. Most musicians, however well endowed, must go through a process of conscious memorization.

In Chapter 6, I discussed various methods of training your ear for greater efficiency. If, despite such training, your sense of relative pitch is still not altogether trustworthy, you must compensate for this lack by accumulating through conscious memorization a large storehouse of landmarks (as I did at Fontainebleau). Still, no amount of analytical work can totally supplant the function of the ear, for performing from memory does make demands of the ear insofar as it requires you to hear in your mind's ear sounds composed of various pitches, durations, and intensities, and provokes you to sing them inwardly—a kind of listening with your vocal cords. To

this extent, performing from memory is an aural and vocal experience that is prompted by and a direct result of conscious memorization.

MEMORIZING AWAY FROM YOUR INSTRUMENT

It would be wonderful indeed if we all could memorize complicated scores away from the piano. Think of the use to which we could put our time spent on trains, buses, and planes. One famous pianist is in fact reported to have memorized Beethoven's *Fourth Concerto* en route by train to a concert engagement. But such an ability is given to very few. And these rare individuals doubtless possess the added advantage of absolute pitch. For most of us, however, studying a score away from the piano can be useful provided that the music has already been thoroughly memorized. First of all, by being disengaged from a physical involvement with the keyboard, you can examine your landmarks and structural divisions with a special objectivity that vision alone provides. Second, mnemonic devices based on the appearance of the score can be added to your backup systems of memory as, for example, the deceptive cadence comes at the top of the second page; the recapitulation begins at the bottom of the fifth page. Of course, some students become so adept at this kind of mental photography that they tend to overlook the more organic content of the music itself. But used judiciously, this imaging of the score, because it allows you to bring into sharper focus all your emotional responses to the music together with their accompanying physical sensations, has its place in the total learning program.

MEMORIZING BACKWARDS

Let us suppose that you have memorized the first two measures of a piece by employing the various techniques we have discussed thus far. Now, you commit to memory the third measure. In order to test yourself, you start from the beginning of the piece and play through the first three measures. But at this point all those as yet unmemorized measures awaiting your attention may intrude upon your concentration and even frustrate your desire to continue

memorizing the rest of the piece. In other words, because you are moving forward to something unknown, you may feel defeated even before you begin the work of memorizing. Suppose, instead, that you begin your memorization at the end of the piece, committing to memory the last two bars. You then absorb the third measure from the end. Having done this, you are now ready to test your memory by playing through the last three measures. This time, you are relieved to know that nothing awaits you beyond the final measure. The feeling is one of moving forward to something that is known. Many musicians employ this method of memorizing for the simple reason that it provides them with a psychological comfort. Some prefer to begin memorizing on the last page; others like to begin at the last section and work toward the end. Memorizing backwards is also an excellent remedy against a common ill—the tendency to become unfocused or distracted as the end of the piece approaches. If you find yourself feeling and sounding less secure the nearer you come to the conclusion of a piece, experiment with this reverse system of memorization. Needless to say, at the completion of all memorization, whether undertaken from the end or the beginning of a piece, all sections must be under your control. With your attention equally distributed, you can then expect each part of the piece to amalgamate into a unified whole. In any case, by knowing the end as well as you do the beginning, you will have reduced to a large degree whatever anxiety you may experience as you approach the end of a piece.

MEMORY SLIPS

It is rare for a concert artist to sustain his concentration throughout an entire recital program without having an occasional memory slip. Considering the range of complexity entailed in any recital program as well as the nervousness that plagues almost all performers, a momentary lapse is an ever present possibility. It is forgivable. However, not all members of an audience are forgiving. Minor slips, like wrong notes, no matter how inconsequential they may be, are added up like errors on a score board and the performer is graded accordingly. Many inexperienced performers—and a good number of them are teachers—deeply admire those who can perform but at the same time envy them, especially for their ability to memorize. Thus, those who cannot memorize

music, whether because of poor training or lack of discipline, look upon memorization as the chief deterrent to their own performing ability. "If I had the score in front of me, I could play as well as anyone up there on the stage," is the sometimes unexpressed attitude of these pitiless concert-goers. Underlying this lack of sympathy for the performer is a characteristic weakness that displays itself given a certain circumstance. That is, if one musician measures his limitations—in this case, an inability to memorize—against the acknowledged strengths of another, forgiveness, especially of memory slips, is the very last courtesy to be extended.

Something in us hates memory slips. To a performer they can be mortifying; to a listener who is laboring under some bias of his own, they are unforgivable. And indeed, those who are given to capitalizing on the transient mishaps of others are usually suffering their own private torment. Such are the teachers consumed with envy of their more gifted pupils; and the parents, friends, or spouses threatened by the possible consequences of their loved ones' talent. Whatever the underlying cause, memory is all too often made the target of unfair criticism. No matter that you played beautifully on a given occasion despite a minor lapse. There is usually someone close enough to you who will invariably whisper in your ear: "You were great, but how come you lost a whole measure in the Mozart when you practiced that thing a thousand hours?" For the performer, all this conspires to make fear of memory lapses the single, most powerful cause of nervousness. One remedy against its devastating effects is the knowledge that memory slips, if they are minimal, easily recoverable, and unobtrusive, count for nothing in the total rendition of a piece. Major blackouts are, of course, another matter. From these there is no returning. They can be prevented in only one way—a faultless preparation.

The ability to discriminate between major blackouts and minor lapses depends upon how objective a judge you are of your own playing. Often, such objectivity is the only weapon you have against arbitrary criticism or destructive teachers. When I was around twenty years of age, I suffered what I knew to be a minor lapse in an otherwise well-structured performance of the *Mephisto Waltz* by Liszt. Far from chastising myself for a momentary slip in a chromatic harmony, I was thankful to have prepared well enough to be able to recover as rapidly as I did. In fact, it raised my self-esteem to know that I not only survived the lapse, but was also able

to dispel its possible after-effects in my playing of the next difficult section. "This is what the professionals are so good at doing," I thought. My teacher unfortunately did not share my views. On the contrary, she leveled at me the sharpest criticism she could call upon from her arsenal of complaints. "Professional performers," she asserted, "do not have memory slips. Think twice before you undertake a career in music." At age twenty, it was difficult to counter the supposedly well-informed judgment of a respected teacher with a mere intuition. But that I was able to say, "My memory slip in the Liszt seems to be a bigger problem for you than for me," came from my belief in a fundamental truth: if you are deeply involved in communicating a musical idea, an occasional deviation from technical perfection does not diminish in the slightest the effectiveness of your performance nor should it be offered as sufficient reason for deterring you from a career in music.

Still, there is no denying that playing from memory is a difficult, if not heroic, task; that memorizing is tedious; that a fear of memory slips is the performer's greatest enemy; that anticipation is its most hazardous corollary. Consider, therefore, the following possibilities and their remedies:

1. You may not know the next note. This can happen especially at a *fermata* or at the end of a section. Therefore, spend some time *deliberately anticipating* the notes following such strategic pauses as well as each and every note of all thematic material. Always know what is coming next (conscious memorization). This will prevent you from anticipating during a performance, the dangers of which were discussed earlier (see Chapter 3).
2. You may not be concentrating on musical values. To repeat a previous suggestion, learn during your practicing to shift your attention away from technical details and toward the music itself—that is, command yourself to become totally immersed in the feeling of the music. Having arrived at this point, observe your mental, emotional, and physical state. Ideally, it is this that ought to be carried over to a performance. But it can be achieved only when you know exactly what is coming next.
3. If memory slips continue to plague you, examine each trouble spot. You may have overlooked a critical detail, as, for example, a fingering on an inside voice; or perhaps you sabotaged your automatic pilot by concentrating on the wrong items.

4. There may be nonmusical factors of a destructive nature at work. This will be discussed in Chapter 11, pp. 262–67.

OUTLINE FOR MEMORIZING MUSIC

Introduction

As was suggested earlier, the automatic performance of a simple skill such as the tying of a shoelace involves mastering a certain series of steps in sequence. Playing music on an instrument—as complex as any skill can be—comprises a seemingly infinite number of separate but interrelated acts, all of which must be executed simultaneously. Superimposed on this audio-visual-manual network of complex functions is yet another highly specialized skill—the memorization of music. It is, of course, repetition that renders these skills automatic—repetition not of haphazard acts, but repetition of consciously determined musical functions. It is the latter that is the key to a dependable memory. If the mind is to retain all the details of a musical score, it needs a well-organized program of repetition.

There is, of course, no one program that will be totally effective for everyone, considering the enormous range of differences in individual talent, experience, and mental acuity. Yet, everyone can be helped by being made aware of one thing: the importance of a systematic approach to memorization. Nothing contributes to security and continuity in the performance of music more than this. The system I have found most effective for the retention of music is one that is built on a series of steps in sequence. In the succeeding pages they are found implemented in an actual musical situation—Schumann's *Erster Verlust (First Sorrow)*. Throughout, you will no doubt notice the specific and diverse ways in which repetition is featured, whether repetition of the entire composition or that of separate sections; whether for one purpose or another. In other words, repetition should not be a mindless, rote activity. Rather, it must be purposeful and with specific intent. Advanced musicians may use this outline as a checklist against their own methods of memorization.

In the following pages I have used the words *melodic invention* to denote a complete musical idea in order to avoid the ambiguity that so often arises from the more usual term *phrase*. *Phrase*, as it is commonly used, can signify anything from a slur mark to a complete musical idea or even the subsidiary motifs of which it consists (Schumann slurred seven such motifs—or phrases—within the first eight measures of *First Sorrow*).[35]

I. General
   - A. Read through the entire composition and analyze its general structure.
   - B. Read through the entire composition and mark all key changes (modulations).
   - C. Read through the entire composition and mark the end of each melodic invention with a check. Memorize the number of measures comprising each invention—is it an eight-measure invention, a four-measure invention? Observe the variations that occur between similar inventions. Memorize the dynamics simultaneously.
   - D. Read through the entire composition and observe all cadences—that is, the harmonic progressions that occur at the ends of each melodic invention. Analyze them to the best of your ability. By-pass temporarily whatever you cannot analyze. These cadences will be your structural landmarks when you perform from memory.
   - E. Observe all entrances of new voices.
   - F. Memorize the simple vertical relationships, occurring between the hands, by-passing, temporarily, the more complicated ones.

II. Specific
   - A. Study the first melodic invention without its accompaniment. Sing or hum it while you are playing. Analyze its structure (as the detailed analysis in Example 21, p. 251, shows, such structural motifs will not necessarily coincide with the slur marks).
   - B. Without playing, scan the composition and try to find any repetition or repetitions of the melodic invention or any structural part of it. Mark them in your music (with letters or numbers or whatever system you wish). Play them, singing or humming them at the same time. Memorize each occurrence out of context, omitting at this stage their accompanying voices.

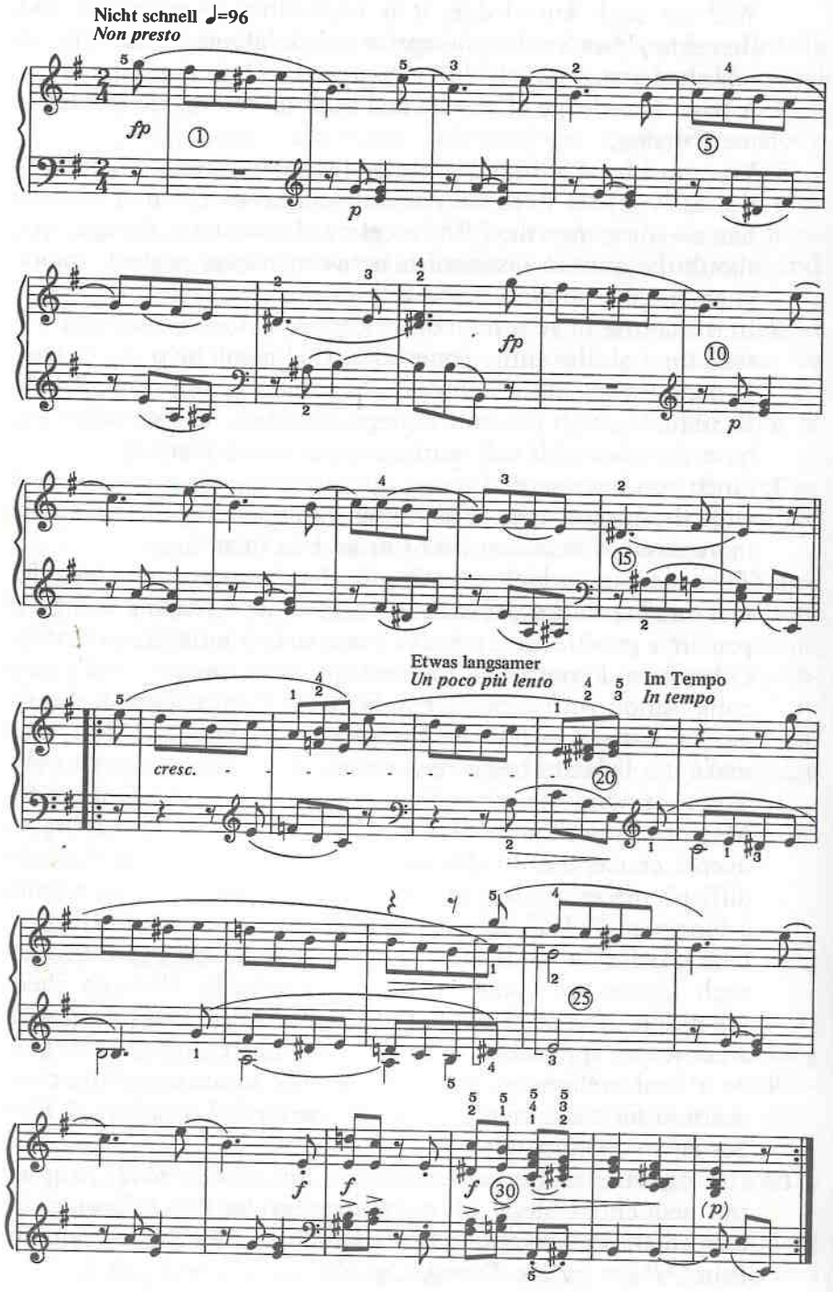
C. Observe and memorize all imitative sections, such as canons and fugatos.
D. Memorize the entire composition hands separately—first the left hand, then the right. While doing so, take note of the following:
   1. Memorize intervallic relationships, especially melody tones that outline chords. Sing them.
   2. Observe and memorize common tones, including unisons and octaves as they appear consecutively and nonconsecutively—between chords, between the right and left hands, and in melodies.
   3. Reduce all polyphonic structures and decorative figures to simpler melodic patterns that move stepwise or outline chords.
   4. When rests or long notes occur, relate the last note of one section to the first note of the next section.
   5. Since most memory slips occur when the fingers or hands shift to large intervals, make it a point to memorize all intervals that span a fifth or more.
   6. Without playing, scan the entire composition for tones that do not belong to the key of a particular section. Mark them in your music. Sound them on the piano. Memorize them, first out of context and then in combination with all other voices.
E. Finally, confront all details that were temporarily by-passed. At this point it may be necessary to expand your knowledge of theory.

IMPLEMENTATION OF THE OUTLINE FOR MEMORIZATION

Preliminary Steps

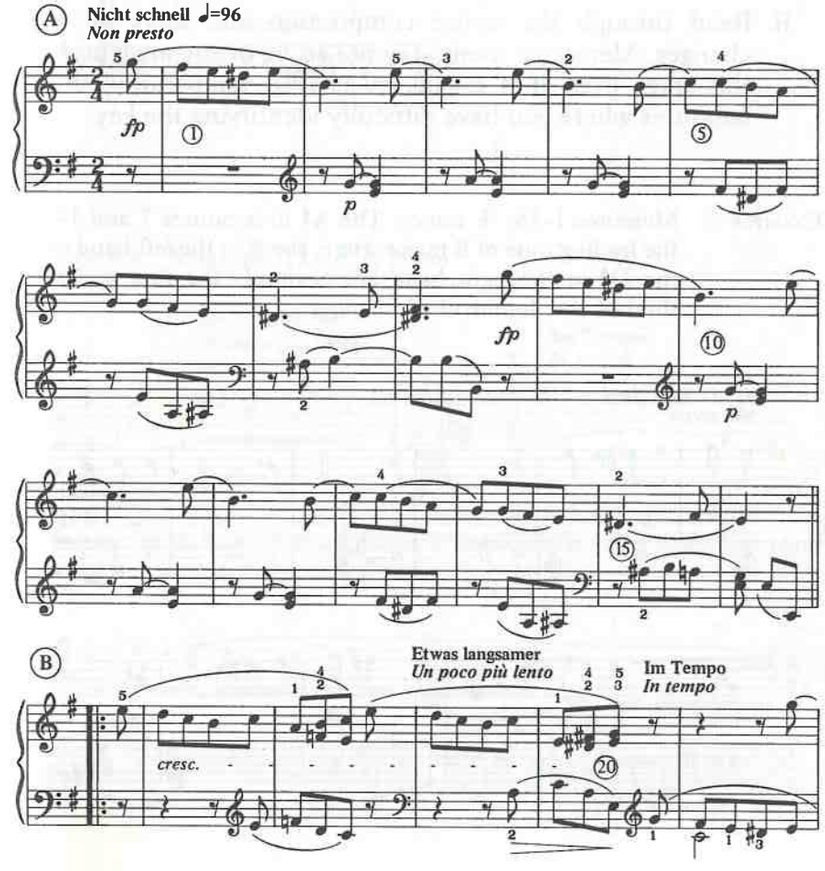
1. Memorizing takes energy. Build up your endurance by making economical use of your practice time. If you are not accustomed to memorizing, be grateful to absorb only a few steps a day.
2. Always feel the music you are memorizing. In other words, memorize your feeling.
3. You should know all scales and arpeggios thoroughly, including all the forms of the minor scales. Students in the early grades should know the scales in which their pieces are written. Without such knowledge, it is impossible to recognize and, therefore, harder to memorize modulations from the established key.
4. A basic knowledge of chords and their inversions is essential in memorizing.
5. You must be able to recognize and name intervals. Students in the early grades need only identify intervals by their number name—third, fourth, fifth, etcetera. Ultimately, though, you should be able to distinguish between major, perfect, minor, augmented, and diminished intervals.
6. In the course of your memorization work, stop occasionally and read through the entire composition. This will help you to keep in mind the overall structure during each step of memorization. Reading through the entire piece from time to time after you have memorized it will reinforce your visual memory.
7. Once you have settled on an optimum fingering, memorize it with the utmost care. For nothing can sabotage the memory more easily than inconsistent or ad hoc fingering.
8. The point at which you begin the sequence of steps for memorizing music depends upon your sight-reading ability. If you are a good reader, you can begin to memorize immediately. Otherwise, do not begin memorizing until you can read a new composition with comparative fluency. Poor readers, it should be emphasized, will never improve their reading skills if they make it a habit to begin memorizing their pieces prematurely. To implement, therefore, the very first step in the Outline for Memorization requires that you gain through sight-reading an overall conception of the composition. Obviously, technically difficult pieces, such as études or fast Scarlatti Sonatas, require a longer period of sight-reading, at least for most instrumentalists, before a modicum of fluency can be achieved. In fact, such pieces are usually absorbed kinetically through sheer repetition. Accept this gratefully, but proceed to fortify it with a conscious application of the sequential steps of the Outline.
9. As a final preliminary step, number the measures of the composition for easy reference (notice the circled numbers in *First Sorrow* by Schumann).
10. Having stated all these preliminaries, we are now ready to apply the sequential steps of memorization to the following intermediate composition: *First Sorrow* by Robert Schumann, from *Album for the Young,* Op. 68.

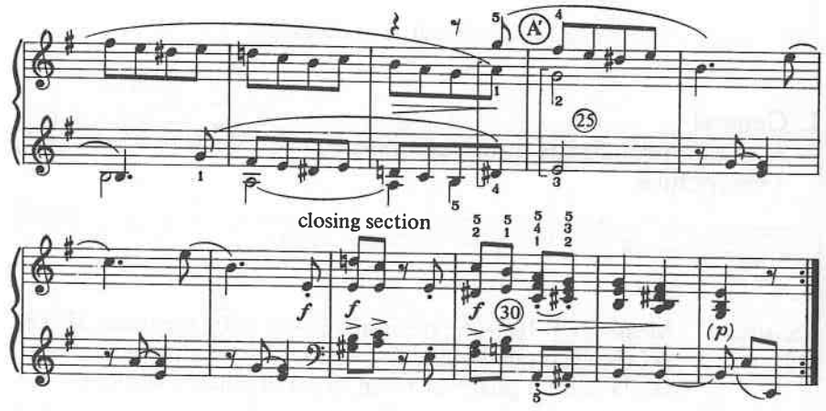
Schumann, *Erster Verlust*, Op. 68



I. General
   A. Read through the entire composition and analyze its general structure.

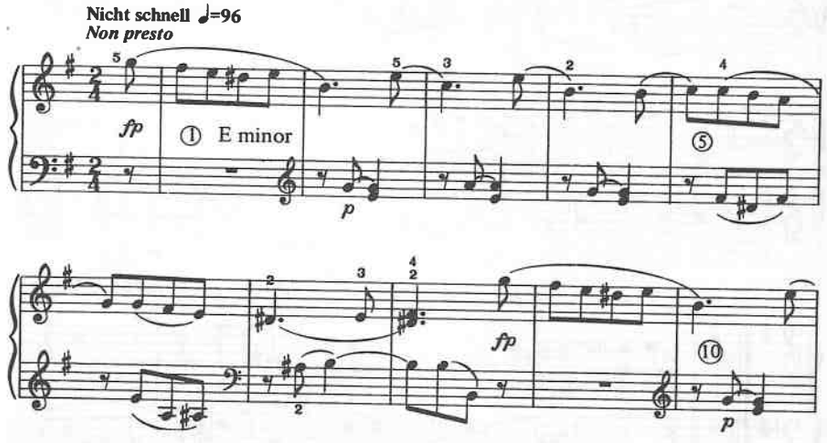
EXAMPLE 1. Measures 1–16 = (A); measures 17–24 = (B); measures 25–28 = (A¹) (recapitulation); measures 29–32 = closing section. Retain a mental image of these larger or smaller sections.

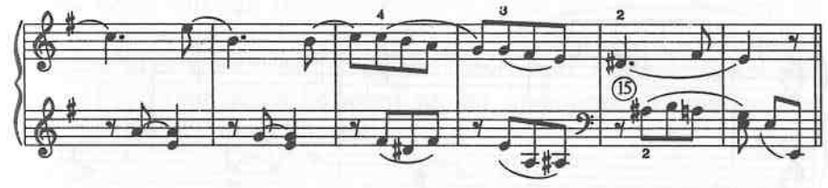




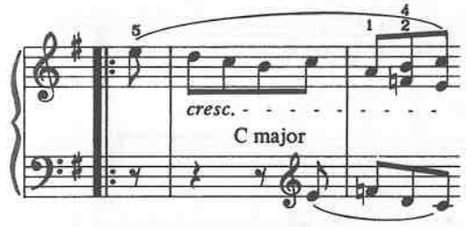
B. Read through the entire composition and mark all key changes. Memorize them. Try not to be overly analytical at this stage even if it means by-passing, temporarily, those measures where you have difficulty identifying the key.

EXAMPLE 2. Measures 1–16: E minor. The A♯ in measures 7 and 14 is the leading tone of B major. Here, the B in the left hand and the D♯ in the right hand are obviously the first and the third of the dominant of E minor.

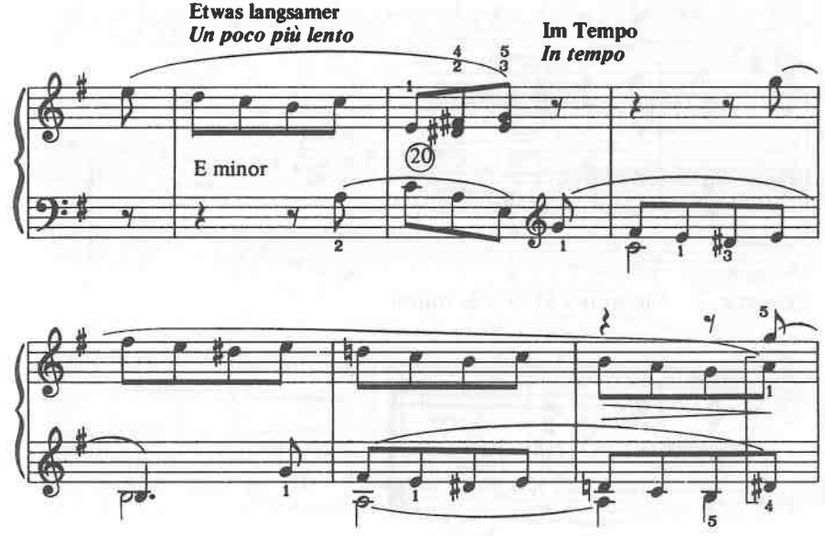


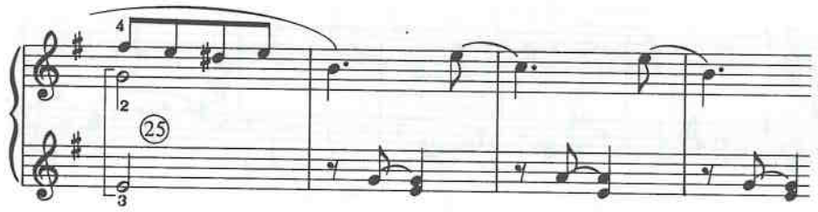


EXAMPLE 3. Measures 17–18: C major

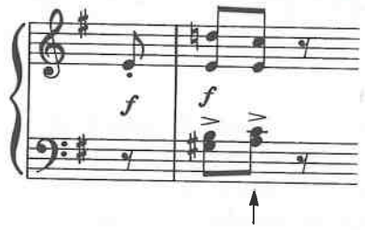


EXAMPLE 4. Measures 19–28: E minor

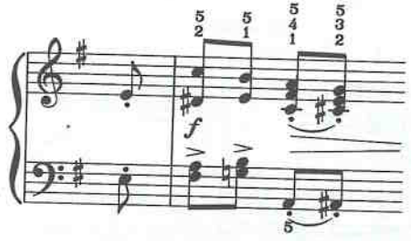




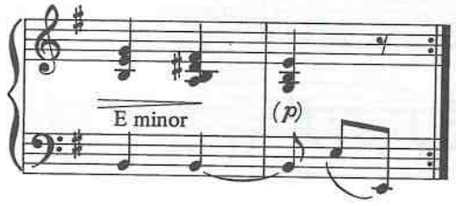
EXAMPLE 5. Measure 29: V^7 — I of A minor. The chord of A minor however, is also the subdominant of the original key, E minor.



EXAMPLE 6. Measure 30: These chromatic harmonies may be by-passed at this stage.

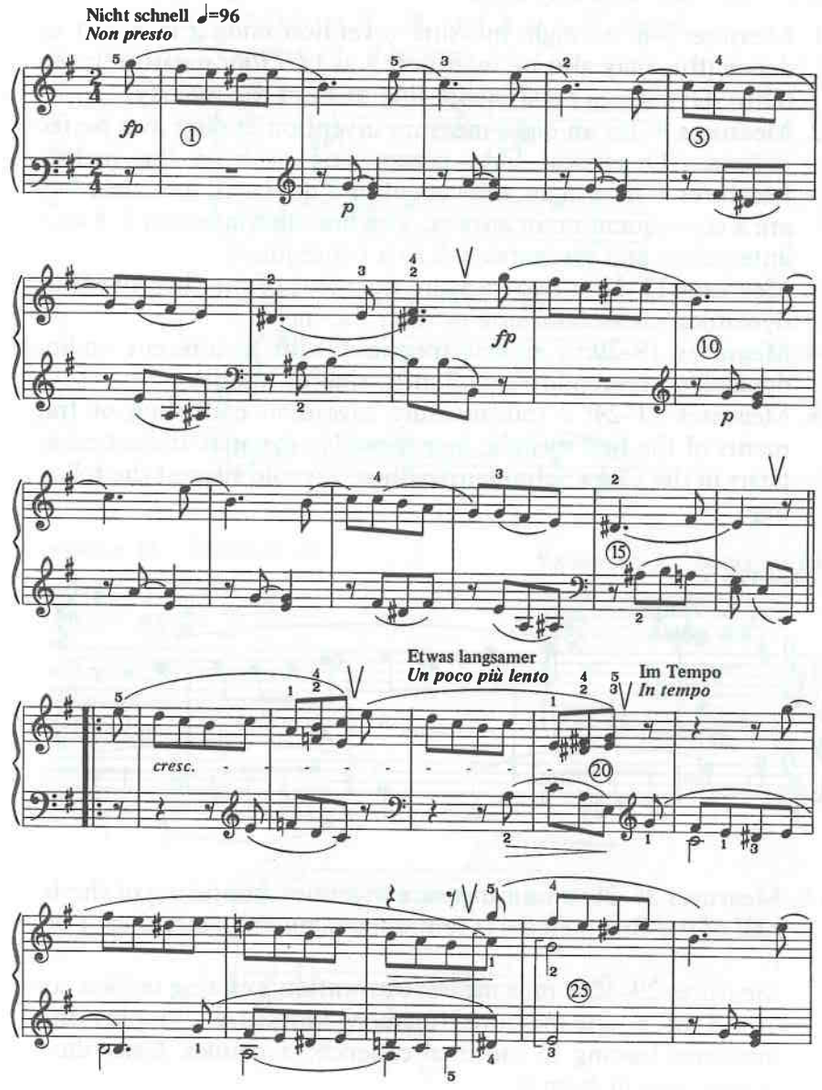


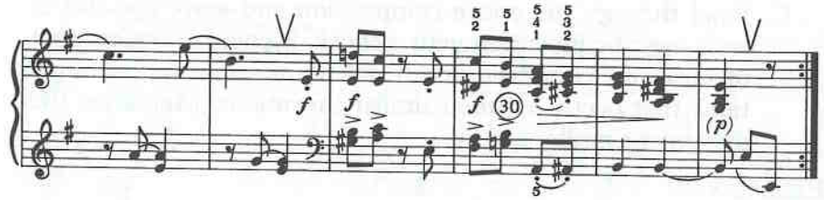
EXAMPLE 7. Measures 31–32: E minor.



C. Read through the entire composition and mark the end of each melodic invention with a check. Memorize the number of measures comprising each invention. Observe the variations that occur between similar inventions. Memorize the dynamics simultaneously.

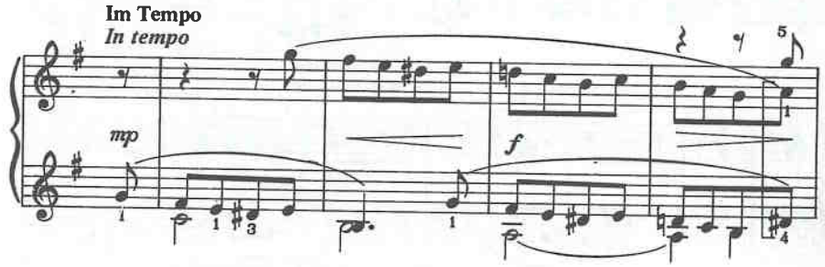
EXAMPLE 8





1. Measure 1–8: an eight-measure invention ending in a half cadence (this may also be interpreted as two four-measure inventions). Dynamics: *forte piano*; sing or hum the melody.
2. Measures 9–16: an eight-measure invention ending in a perfect cadence. Dynamics: forte piano; sing or hum the melody. Measures 1–8 form an antecedent or a question; measures 9–16 are a consequent or an answer. You may also interpret 1–4 as an antecedent and measures 5–8 as a consequent.
3. Measures 17–18: a two-measure fragment of the first invention; dynamics: crescendo; sing or hum the melody.
4. Measures 19–20: a similar fragment with a different ending; dynamics: crescendo–diminuendo; sing or hum it.
5. Measures 21–24: a four-measure invention consisting of fragments of the first melodic invention. No dynamic indication appears in the Clara Schumann edition. I would suggest the following:

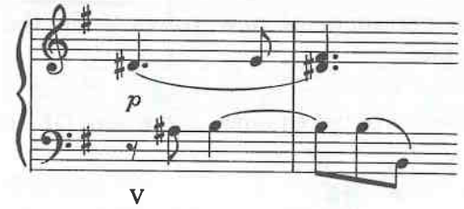
EXAMPLE 9



6. Measures 25–28: a four-measure invention consisting of the first half of the first melodic invention; dynamics: *piano*; sing or hum it.
7. Measures 29–32: a four-measure invention—closing section comprised of a one-measure fragment (measure 29) plus three measures leading to the final cadence; dynamics: *forte*; diminuendo; sing or hum it.

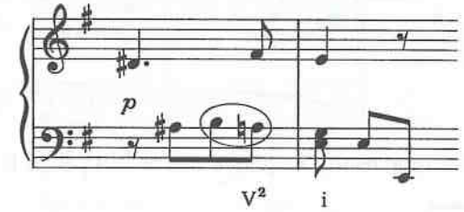
D. Read through the entire composition and observe all cadences—that is, the harmonic progressions that occur at the end of each melodic invention. Analyze them to the best of your ability. By-pass temporarily whatever you cannot analyze. Memorize each cadence out of context. If, for example, you do not recognize the soprano G in measure 24 as the highest note in a V^{13} chord (see Example 14), it will suffice to construe B, D#, and A as a B^7 chord.

EXAMPLE 10. Measures 7–8



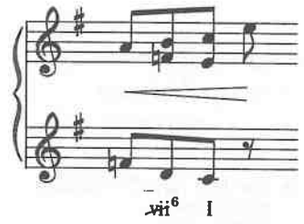
V

EXAMPLE 11. Measures 15–16



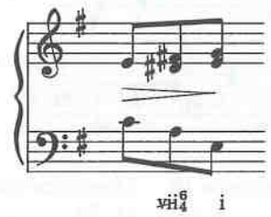
V^2 i

EXAMPLE 12. Measure 18



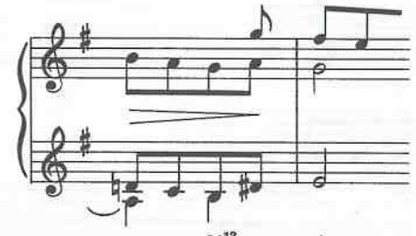
vii^6 I

EXAMPLE 13. Measure 20



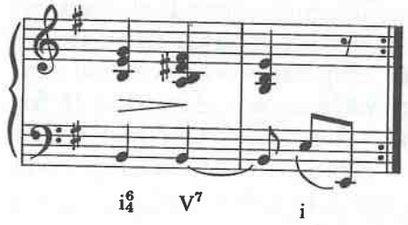
vii^6_4 i

EXAMPLE 14. Measures 24–25



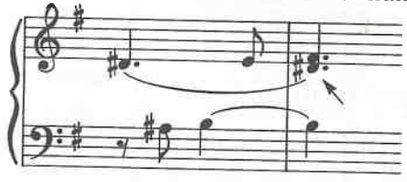
V^{13} i

EXAMPLE 15. Measures 31–32

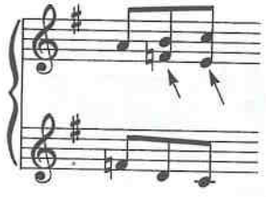


E. Observe all entrances of new voices as in the following three examples.

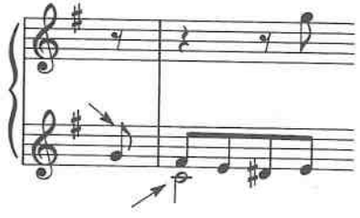
EXAMPLE 16. Memorize the entrance of the alto, D♯—measure 8.



EXAMPLE 17. Memorize the entrance of the alto, F to E—measure 18.



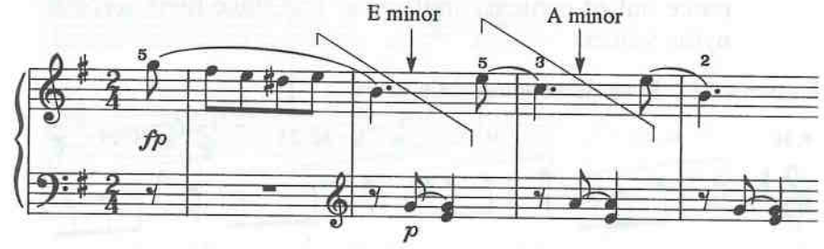
EXAMPLE 18. Memorize each voice separately in the left hand—measures 21–25.



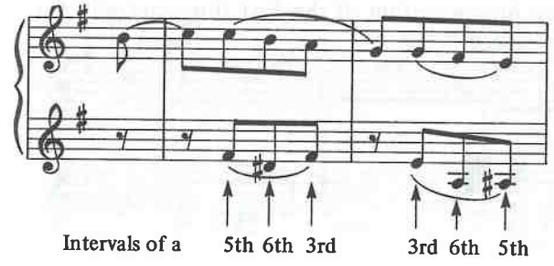
(Learn, separately, all other new entrances of voices.)

F. Memorize the simple vertical relationships occurring between the hands, by-passing, temporarily, the more complicated ones, as in measures 29–30.

EXAMPLE 19. Measures 1–4



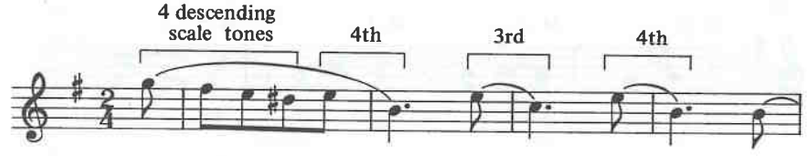
EXAMPLE 20. Measures 5–6

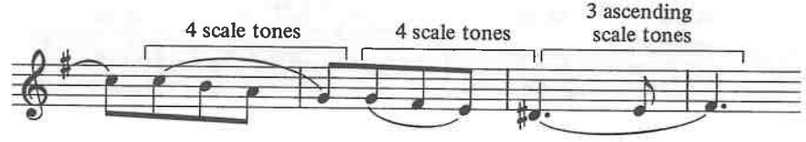


II. Specific

A. Study the first melodic invention without its accompaniment. Sing or hum it while you are playing. Analyze its structure.

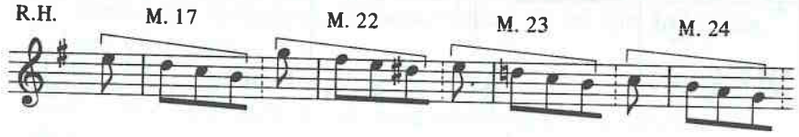
EXAMPLE 21



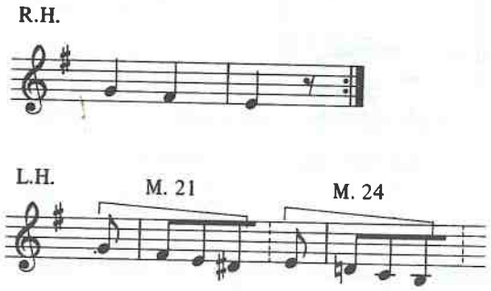


B. Without playing, scan the composition and try to find any repetition or repetitions of the melodic invention or any structural part of it. Mark them in your music with letters or numbers or whatever system you wish. Play them, singing or humming them at the same time. Memorize each occurrence out of context, omitting at this stage their accompanying voices.

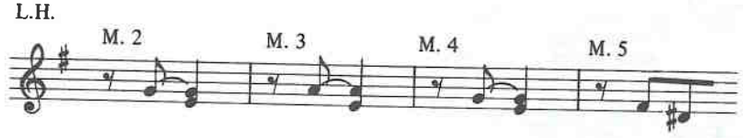
EXAMPLE 22. Four descending scale tones.



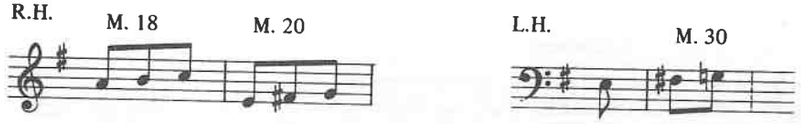
Measures 31–32 (soprano): Augmentation of the first three notes of the piece.



EXAMPLE 23. Descending intervals of a third and fourth.

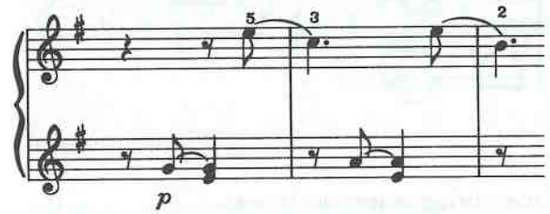


EXAMPLE 24. Three ascending scale tones.

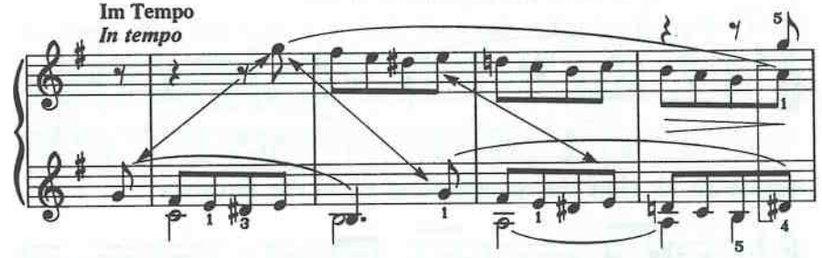


C. Observe and memorize all imitative sections, such as canons and fugatos.

EXAMPLE 25. Measures 2–4: Imitative thirds; imitative fourths.

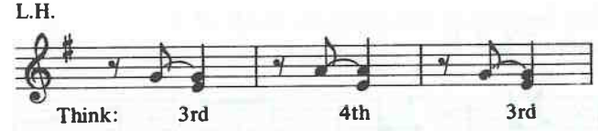


EXAMPLE 26. Measures 21–24: Canons to the octave moving sequentially.



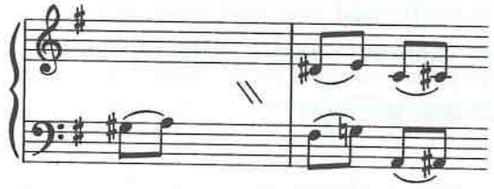
D. Memorize the hands separately—first the left hand, then the right. While doing so, take note of the following:
1. Memorize intervallic relationships, especially melody tones that outline chords (sing them).

EXAMPLE 27. Measures 2–3



Measure 20. L.H. outlines A minor chord—2nd inversion.

EXAMPLE 28. Measures 29–30: Note constant repetitions of ascending half steps in L.H. and R.H.



2. Observe and memorize common tones.

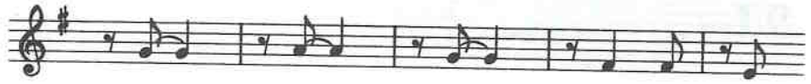
EXAMPLE 29. Measures 1–3 (Compare above, Ex. 27: L.H., Measures 2–3): Note the repetitions of E's.

Measure 29–32. Note the repetitions of E's in the alto voice.

3. Reduce all polyphonic or decorative figures to more simple structures that outline melodies, scales or chords.

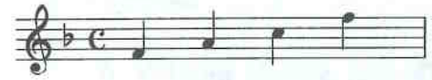
EXAMPLE 30. Measures 2–6, L.H.

reduces to:



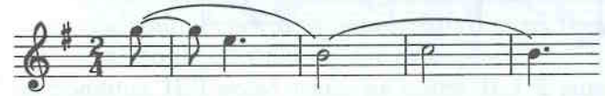
EXAMPLE 30a. In a different context, a figure such as this (In each group of four sixteenth notes, the first and third are, respectively, upper and lower appoggiaturas.):

reduces to this:



EXAMPLE 30b. Measure 1–4, R.H. Decorative figures may also be reduced to simpler melodies.

reduces to this:



J. S. Bach occasionally indicated polyphonic melodies as in the following:

EXAMPLE 30c. Excerpt (Measure 32) from the *Prelude in D major*, Bk. I of the *Well-Tempered Clavier*

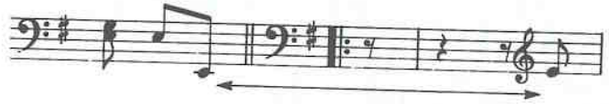
EXAMPLE 30d.

Therefore, when you see this excerpt from the *Prelude in C minor,* Bk. I of the *Well-Tempered Clavier,*

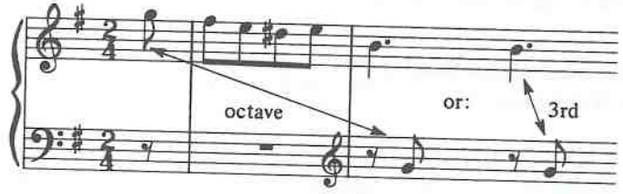
you may follow Bach's example and hold the upper voice:

4. When rests or long notes occur, relate the last note of one section to the first note of the next section; find a mnemonic device for remembering the pitch name of thematic entrances.

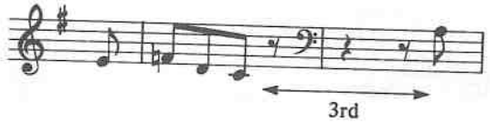
EXAMPLE 31. Measures 16–17: L.H. enters two octaves above previous E.



EXAMPLE 32. Measure 2: L.H. enters an octave below R.H. entrance; or, L.H. enters a third below last note of R.H.

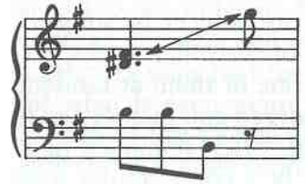


Measure 19. L.H. A enters a third below the previous middle C.



5. Memorize all skips that span the interval of a fifth or more.

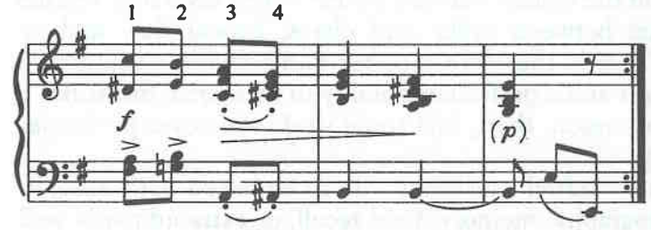
EXAMPLE 33. Measure 8: F♯ to G is a ninth.



6. Without playing, scan the entire composition for tones that do not belong to the key, as for example, measure 6: L.H. A♯; measure 30; R.H. C♯. Mark all such notes in your music. Sound them on the piano. Memorize them, first out of context and then in combination with all other voices.

F. Finally, confront all details that were temporarily bypassed. At this point it may be necessary to expand your knowledge of theory. If you cannot analyze certain harmonic progressions, create landmarks based on simple associations, as, for example, in measure 30: the bass and alto voices ascend by half-steps. You should be able to construe individual chords, however, apart from their relation to the harmonic context, as for example:

EXAMPLE 34. Measure 30



1. D♯ diminished 7th, first inversion ($\frac{6}{5}$)
2. E minor, first inversion (6)
3. F♯ diminished, first inversion (6)
4. A♯ diminished 7th

SOME AFTERTHOUGHTS AND CONCLUSIONS

Contrapuntal music, such as two- and three-part inventions and fugues, demands an exceedingly detailed analysis of motifs. You can best begin by marking with an arrow, a letter, or a symbol of your own choosing all the entrances of the subject or subjects. After learning each of these in turn without the other voices, you should be able to play from memory any one of them at random. Countersubjects and episodes must be analyzed and memorized in similar fashion. Indeed, as Nadia Boulanger often reminded us at Fontainebleau, a thorough memorization of a contrapuntal work depends upon knowing from memory each voice independently. Short of this, a pianist should be able to play from memory each hand separately.

With the exception of certain compositions or sections of pieces in which the hands follow each other sequentially—as, for example, in the *Prelude in C major,* Bk. I of the *Well-Tempered Clavier,* by Bach or in the first four measures of Schumann's *First Sorrow*—everything should be learned hands separately. It is the best way to safeguard the memory. In fact, as you may have discovered, freedom of expression when playing certain repertory—a *Nocturne* or a *Waltz* by Chopin, for example—depends to a large extent on knowing the left hand independently from the right.

Contemporary music—especially serial music—is, for most musicians, extremely difficult to memorize and, for some, impossible. Unless the composer incorporates into his writing logical motivic developments, a performer is forced to invent his own melodic associations, or, indeed, to rely exclusively on his automatic pilot. But music, if it is worthy of the name, cannot deceive the mind, the senses, and the central nervous system—they invariably register the difference between order and chaos, logical flow and arbitrariness. There is, therefore, a correlation between a composer's creative process and a performer's ability to memorize his works. It is not without reason, then, that some works are never performed from memory.

Phenomenally gifted musicians—those endowed with absolute pitch, a photographic memory, total recall, or extraordinarily well-developed reflexes—can dispense with all conscious steps of memorization without adversely affecting their performances. Quite obviously, they have no need to make conscious that which is functioning perfectly in the unconscious. If, for whatever

reasons, such musicians do not trust their gifts, they, as well as their less favored colleagues, can benefit from a well-organized program of memorization such as I have attempted to formulate here. In any case, this outline is intended to motivate pupils and teachers alike to view the memorization of music as an achievable goal. It is never too late to begin. I have witnessed among some of my older pupils an amazing and at times totally unpredictable revitalization of memory skills that had lain dormant for twenty years and more. But what is even more astonishing, through the often laborious recovery of this mental power, these older pupils become for all intents and purposes young in their passion to learn, young in their perseverance, and young in the quickening of their minds. "Remembering music," as one of my oldest pupils once put it, "is not an escape from my age. It is a recovery of my youth."