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The Pedals

PIANO FORTÉ

By Hans Strydom

198.01 vol.

J. Leone Rhoades.

Nov. 10, 1897.

THE



Pedals of the Piano-Forte



AND

THEIR RELATION TO PIANO-FORTE PLAYING AND
THE TEACHING OF COMPOSITION
AND ACOUSTICS.



FOUR LECTURES DELIVERED AT THE CONSERVATORY OF MUSIC, IN VIENNA,

BY HANS SCHMITT.

TRANSLATED BY FREDERICK S. LAW.



Philadelphia
Theodore Presser.
1708 Chestnut Str.

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INTRODUCTION.

The importance of the pedal as an adjunct to artistic piano playing can hardly be overestimated. It is not too much to say that the effect of almost all modern piano music (from the earliest compositions of Thalberg and Liszt,) depends upon its skillful use, and yet no question of technic has been so much neglected. While touch has been analyzed in the most minute manner, every movement of finger, wrist and arm noted with the greatest accuracy, the study of the pedal, as Herr Schmitt remarks, has hardly gone beyond the standpoint of instinctive feeling on the part of the player. To demonstrate the importance of the pedal from an artistic point of view, and to discover the causes which impel the finished player to his various uses of it are the objects of the following work, which consists of four lectures originally delivered by Herr Schmitt in the Vienna Conservatory of Music, and subsequently collected and published in book form.

(It may be confidently asserted that no one has made so thorough a study of this subject as Herr Schmitt, and the practical results of his investigations, together with his position as an acknowledged authority on the question of pedal effects, are such as to require no apology for an English translation of his work.)

He relates that in a conversation upon the subject with Anton Rubinstein, the latter expressed himself as follows: "I consider the art of properly using the pedal as the most difficult problem of higher piano playing, and if we have not as yet heard the instrument at its best, the fault possibly lies in the fact that it has not been fully understood how to exhaust the capabilities of the pedal."

As Schmitt justly remarks, this utterance from the lips of such an authority is of more weight as to the importance of the subject and its present position than anything else that can be adduced.

The student is recommended to read this work at the piano so that the different uses of the pedal may be practically tested as they occur. Where practicable, the instrument should be a full grand piano in perfect tune, to ensure the production of all the effects herein given, this being a point upon which great stress is laid by the author.

Many of the examples are taken from the most familiar compositions for the piano, and if possible, they should be studied in their connection with the original, since many of the more daring examples in the third chapter, taken out of their proper connection, will sound wild and confused, lacking the working up to a climax which alone justifies their use.

TRANSLATOR.

THE PEDALS

OF THE PIANO-FORTE.

CHAPTER I.

He who has talent uses the pedal well, he who has none uses it badly. This dictum seems to be about the gist of the scanty explanations on the use of the pedal found in the older piano methods. Thus far the question hardly seems to have gone beyond the standpoint of instinctive feeling on the part of the player, but in view of its importance it seems well worth the effort to demonstrate its significance and to investigate the original causes which impel the finished player to his various uses of the pedal. To reach as far as possible these two aims is the object of this work.

Presupposing in the reader a practical knowledge of piano playing, we will omit any explanation of the mechanism of the pedal, and begin with its most common effect: that of sustaining the tone without the action of the fingers.

It is well known that on the piano a tone sounds just as long as the key struck is held down, and ceases to sound when the key is allowed to rise. But if the pedal be used, the tone sounds as long as the pedal is held down; it makes no difference whether the finger be raised before the foot, or at the same time; (whether, for example, a chord be played so:

Hand.

Foot. *Ped.* *

Effect.

or so:

Ped. *

Only when the tone must be sustained a longer time than the pedal is to be held down is it absolutely necessary that the finger remain on the key.

In case of the other fingers this is immaterial. *e. g.*:

This shortening of the touch should be seldom allowed in polyphonic music; least of all in fugues, as it is only in exceptional cases that all the voices cease at the same time.

Since, then, every key struck staccato can produce a long tone by the aid of the pedal, the player thus gains rest for his fingers, which detract nothing from the length of the sound.

These rests and their skillful use by players and composers are what radically distinguish modern music for the piano from that of the older school. The majority of sound effects (Klangwirkungen) attained by modern pianists and composers, depend upon this use of the pedal.

In order to gain a precise notation for the pedal, we will abandon the usual and unreliable signs for its use, *Ped.* and *, (which indicate the rising and the falling of the dampers upon the strings), and henceforth use a line below the staves, upon which, by means of notes and rests, the exact duration of the pedal can be determined, thus avoiding all possible misunderstanding.

The pedal is the only means of connecting tones which are too far apart to be connected by fingers alone. In such cases the tones are struck staccato, and, while they are sustained by the pedal, the hand makes the skip to the remote keys, not releasing the pedal until they are struck, *e. g.*:

Effect.

As executed by the hand.

By the foot.

In order to reach a distant key the finger must necessarily observe a rest, *e.g.*:

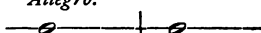
Allegro.

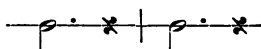
As written. 

As played. 

On the other hand, the pedal must also observe a rest before it can be used a second time, *e.g.*:

Allegro.

As written 

As played 

If these two rests occur *at the same time*, a disconnection between the two tones is occasioned, which if never so slight, is enough to destroy continuity of sound, *e.g.*:

Allegro.

Hand. 

Foot. 

In order therefore, to preserve the requisite legato, the rests for the fingers and those for the foot must be so divided that they never come together. This can be done in the following manner: first strike the key, and later press the pedal. As soon as the foot is down let the finger be removed and strike the succeeding key, but after it is struck let the foot rise, so that in continuing the exercise there is always an alternate movement: first the fingers and then the foot, *e.g.*:

Effect. 

Execution.

(a) Hand. 

(b) Foot. 

In order to draw the greatest advantage from the sustaining power of the pedal, in teaching, the pupil should be made fully conscious of this shortening of the touch. This is best done by the teacher writing down as above at *a* and *b*, under the notes, their real value as played, and the exact duration of the pressure of the foot on the pedal, by means of notes and rests on a special line below the staves. Also, in order to avoid cumbering this pedal line with rests of small value, a line can be drawn through the head of the note when it is wished to show that the foot presses down the pedal a little later than the note would indicate.

In case this writing out takes too much time from the lesson, let the teacher play the passage three times: first, precisely as it should be executed, with the pedal, the fingers rising before the value of the notes has expired; then by the fingers alone, without the pedal, using the same shortened touch, however rough it may seem; and lastly, with the pedal as at first, to show again by example how the passage should sound. In this way the pupil learns to appreciate the advantage of this use of the pedal from the contrast between the two different effects.

In the same manner chords and octaves can be played legato, which, by the fingers alone cannot be joined at all, or only with great difficulty.
e. g.:

Grave.

ritardando.

sfz

Ped.

Less extended chords whose tones end together, can also be joined by the pedal, thus greatly simplifying the fingering. For example, the following passage from the finale of Beethoven's Sonata in C major, Op.



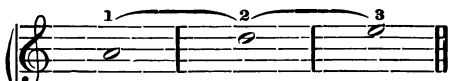
Even where the tones are connected by the fingers the pedal should be taken in the same manner. The common rule for legato playing is that one key must be held down until the next key be struck. But while the key is down its damper has no effect upon the string, and if the pedal be used for the succeeding tone at the instant the key is struck the previous tone, not having been damped, is sustained still longer. In a word: in legato passages, if the foot move exactly with the fingers the tones sound as follows:

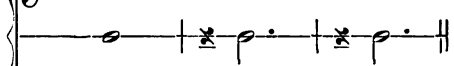
(a) As executed by the fingers. 


(b) As executed by the foot. 

(c) Effect. 

This mingling of sounds can only be avoided by pressing down the pedal after the key is struck.

(a) As executed by the fingers. 

(b) As executed by the foot. 

(c) Effect. 

In the following passage from Heller's Etude, Op. 46, No. 11, if the pedal be used exactly at the beginning of each measure the effect is bad, since the last tone of the measure previous will be prolonged into the measure following; but if it be taken with the second sixteenth of each measure the passage will sound clear.

Andante.

a. bad.
 Foot. {
 b. good.

The first Song without Words by Mendelssohn, should also be played in the same manner, the pedal coming on the second sixteenth of each quarter note.

An excellent pedal exercise is to play the scale of C in triple measure, pressing down the pedal on the second count and letting it rise on the first. This should be practised until it can be played in rather a quick tempo.

In legato passages where the tones are preceded by grace notes it is particularly difficult to use the pedal in this way, because the player is apt to press it down before reaching the principal tone, thus creating dissonance. The following exercise will remedy this fault, but one must be careful to lift the fingers with precision in playing the small notes and only bring the pedal down after the principal note has been reached. It should also be practised until it can be played rapidly.

1 2 1 2 etc. etc.

Foot.

This habit of taking the pedal after the tone is absolutely necessary to the player if he wishes his playing to sound clear. It is at first difficult because the foot, to a certain extent, moves out of time with the

fingers. No one, however, should shrink from the labor of acquiring it since it is an indispensable requirement for artistic playing and is certainly not so difficult as the similar effort in filling the bellows of a harmonium or cabinet organ.

It is the more necessary, as only in rare cases can the foot move simultaneously with the fingers, *e. g.* : at the beginning of a composition or after a general rest. In playing staccato tones it is also allowable, since rests occur between the notes; in all other cases the pedal must be used later, even if the difference in time be very slight, as otherwise either gaps between the tones, or dissonant harmonies result.

But few players are aware of the necessity of this rule; those of fine musical feeling generally observe it instinctively—others do not, and this neglect is the chief reason that the pedal is used so frequently with bad effect.

The pedal not only connects tones which are remote from each other but also serves to sustain them, *e. g.* :

Effect.

As executed by the hand.

By the foot.

The greater the distance between the keys to be struck and the smaller the hand of the player the more frequently must the pedal be used. Modern compositions for the piano abound in extensions and widely spread chords which cannot be reached, even by the largest hand. Such chords must be played arpeggio, *i. e.*, one tone after the other, the whole being sustained by the pedal.

In this case only the first tone possesses the full value of the written note, each successive tone coming a little later than the one preceding, but by the rapidity with which this is generally executed the loss of time is almost imperceptible.

The following passage from Schumann's *Kreisleriana*, No. 2, affords an example of this. Without the pedal the left hand part would sound very broken.

Nicht schnell

etc.

Ped.

In widely extended chords the pedal should be used at the beginning of the arpeggio, since otherwise all the tones will not sound together. If it be used after the chord has begun, only the later tones will be sustained, those first played being previously silenced by the fall of the dampers, *e. g.*:

As written.

As executed.

(a) bad.

Foot.

(b) good.

We now arrive at a freedom of playing which belongs distinctively to the realm of the virtuoso, who uses the pedal as a means of increasing the power of his touch. In legato playing the grade of power is limited, being dependent both upon the pressure from the arm and upon the raising of the fingers; the higher the fingers are lifted the stronger will be the touch. But the fingers cannot be raised a greater distance than they are long, so that in legato playing their strength is partly limited by their length. If this be insufficient, nothing remains but to abandon the legato. In this case the fingers play staccato while the tones are connected by the pedal.

Fortissimo passages must therefore often be played staccato, even when the legato is expressly indicated. Concert literature, especially that of late years, abounds in examples of this style of playing, *e.g.*: measures 132 and 133 in Rubinstein's D minor Concerto, the beginning of Weber's Concertstück, and the run before the last two pauses in the variations in E flat by Mendelssohn.

Also the following passage at the end of Schumann's Kreisleriana, No. 3, must be played staccato, although in the original the legato is expressly marked by slurs.

Sehr aufgereggt.

As written.

The musical notation for 'As written' consists of two staves. The top staff is in treble clef and the bottom staff is in bass clef. Both are in 2/4 time and have one flat (B-flat). The right hand part is slurred together, and the left hand part is also slurred together, indicating a legato performance.

As executed.

The musical notation for 'As executed' is identical to the 'As written' version, but with vertical staccato marks placed under each note in both hands, indicating that the passage should be played with a staccato touch.

Foot. $\frac{2}{4}$

The 'Foot' notation shows a single staff with a 2/4 time signature. It contains a sequence of notes: a quarter note, a quarter note, a half note, a quarter note, a quarter note, and a half note, all connected by a slur.

The crossing of the two parts can only be surely executed when each hand, after striking its key, is raised high enough to allow the other hand to slip under it. The degree of staccato depends upon the strength required; the stronger the tone the more staccato the touch, until the utmost force is required, when the greatest possible staccato must be employed, in order to gain rests between the tones long enough to admit of the whole arm being raised high enough above the key-board to be thrown with full force upon the keys.

In this way only, for example, will the finale of the Etude, No. 25, from Heller's Op. 47, attain its proper brilliancy and effect. Still shorter

and stronger should be the touch in the beginning of Rubinstein's D minor Concerto, and in the chords of the left hand in the following example, which is taken from Liszt's Etude, No. 1.

(Prelude.) *Sva*.....
Presto. *Sva*.....

(a) As written.

(b) As executed.

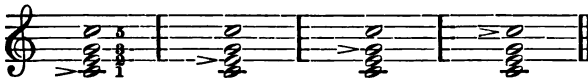
Timid instructors may be not a little alarmed at the freedom of touch here recommended. Many will not be able to rid themselves of the idea that the character of a tone struck with the pedal becomes different as soon as the finger is taken from the key. That it is in nowise altered can be practically tested by turning away from the player and endeavoring to detect the moment in which the finger is withdrawn, while at the same time, the tone is sustained by the pedal. In this way it will be made perfectly clear that for the duration of a tone it is entirely immaterial while the dampers are raised, whether the finger holds down the key or not.

Those not physically strong and whose fingers are weak must find assistance in the staccato if they wish to vie with those of strong physique, and who possess a naturally strong touch.

Such a manner of playing in passages where the pedal is not admissible would of course be broken and disconnected, but in all cases where the pedal can be used the effect is precisely the same whether the tones are played legato or staccato, provided they are struck with the same force.

This use of the pedal also serves to beautify the touch. The more time one has to prepare the touch the finer it can be made. The pauses

between the tones can be utilized by arranging the fingers while in the air, in such a way that the finger which is to play the strongest tone is held somewhat stiffly and more bent than the others, so that its tip projects, and in consequence, strikes with a stronger touch. For instance: in the following four measures, if it be desired to bring out, first, the lowest tone, then the second, third and fourth tones in succession, with more strength than the others in the same chord—first the thumb, and then the second, third and fifth fingers must be successively held more stiffly and bent than the others, so that one after the other the C, E, G and C may be struck more strongly than the other tones of the chord, *e. g.*:



This use of the staccato in connection with the pedal, also serves as a means of repose from the labor of playing. Even the mere holding of a full and extended chord somewhat strains the muscles, and compositions, which, like the most difficult piano music of the present day, are full of daring chords and stretches can hardly be played to an end without the rests made possible by the pedal.

After great extensions it is of advantage—particularly to players with small hands, to close the hands when in the air in order to rest the muscles from the strain of the previous stretching. Even so mighty a pianist as Rubinstein does not disdain to avail himself of this advantage and after fortissimo chords, frequently raises his clenched hands high over the keyboard, thus resting his fingers and gaining fresh strength for renewed efforts. Many an uninitiated observer may have regarded this as an exaggerated mannerism—indeed, as a serious fault which he only pardons in the virtuoso because he produces so fine and powerful a tone in spite of his so called fault, which is in reality, the cause of the admired effect.

In this connection it must be remarked that this closing of the hand should be involuntary; the player should not will it directly but allow it to occur instinctively.

If after playing staccatissimo the hand be allowed complete relaxation it will of itself rise—the stronger the touch and the greater the relaxation, the greater the height it will reach. This allows it a brief period of rest, but one long enough to renew strength for a fresh attack. The shock of a staccato touch is decidedly greater than that of a touch which retains the keys, and as on the piano the moment of percussion is

alone to be considered, staccato chords can be played with much more force than those requiring the fingers to be kept down.

(Another, and a favorite use of the pedal with many players must not fail to receive mention—it serves to prolong the last chord on the right-hand page of the music, so that it may be turned without breaking the sound.)

It must also be noted that since the pedal sustains the tone it must never be employed where a staccato effect is required, *e.g.*: in passages like the following: Mendelssohn's Variations Sérieuses.



The pedal may now be considered in its relation to the composer, to whom it is of no less advantage than to the player.

One of the most effective uses of the pedal is that originated by Thalberg, in sustaining the long tones of a melody, leaving the hand free to execute a brilliant accompaniment. This effect is most frequently employed in grand arpeggios whose first note is also a note of the melody, particularly in melodies played mainly with the thumb (Daumen-melodien). Of these, Charles Mayer's Etude in F sharp major, furnishes the best known example.

Allegro.

The image shows a musical score for Charles Mayer's Etude in F sharp major. It consists of two staves: a treble clef staff (right hand) and a bass clef staff (left hand). The time signature is 6/8. The right hand plays a series of chords, with the final chord being sustained by the pedal. The left hand plays a melody. The word "Allegro." is written above the first staff.

In such cases the pedal is indispensable.

Not only arpeggios, but ornamented chord passages, and even scales can be made to fill the pauses between the tones of the melody, but these, as a rule, only sound well when they are played on the upper part of the piano, and the melody in the middle or lower part, *e. g.*: Pacher's salon piece, Song of the Mermaid from Oberon.

However effective this method of ornamentation may be, it conceals a danger for the composer—it tends to make the melody stiff and the rhythm monotonous. The brilliancy of a melody accompanied by runs is so great that a meagreness of sound inevitably results if they are suddenly abandoned in the course of the composition; in such a case, if the composer has said A, he must also say B.

But if the same effect be continued a number of evils arise: it is only possible with the long notes of the melody—if the composer has begun one measure with a long note the next one must begin in like manner—so that a natural continuation of the melody demands the long tone at the beginning of every measure. It will thus be seen that the rhythm of the

melody is greatly limited since each measure must begin with a long tone. After the run is finished the melody can only be continued with short notes, or the first note must be followed by one equally as long, which is only possible in double time. So, for example, the entire Etude in F sharp by Mayer moves only in three rhythms :



In all three the long note occurs at the beginning of the measure, and so is it in the arrangement from Oberon by Pacher, which moves constantly in the same rhythm as the first one of the Etude. In nearly all compositions of this kind each measure begins with a long tone, which causes a wearisome monotony of rhythm, and in the end, a fatal family resemblance to each other.

Composers who especially devote themselves to this manner of writing, sacrifice melody to sound, and rhythm to effect.

The great difference which results from the freedom of movement in a series of tones may be readily seen by comparing the so-called Perpetuum Mobile, from the Sonata in C major by Weber, with the Etude quoted above.

Presto.

The image shows two staves of musical notation for the Perpetuum Mobile. The top staff is in 2/4 time and features a rapid, continuous melodic line with many sixteenth notes. The bottom staff provides a harmonic accompaniment with chords and moving lines. The notation is dense and fast-paced, characteristic of a Presto tempo. The piece ends with the word "etc." indicating it continues.

In this the melody itself moves freely while the melody of the former remains stiff. Although the notes of the accompaniment follow each other with rapidity, they appear only as an embellishment of the melody. In Weber's composition, not a note could be omitted without injuring the melodic flow, while in that of Mayer's, the melody can be played entirely alone, giving a picture, if but a faint one, of the spirit of the composition.

Composers were not long in discovering that their compositions suffered from this manner of writing, so that it soon came into discredit and at present is considered worn out and commonplace. It was, however,

too effective to be entirely thrown aside, and a skillful management of the two hands was devised by which the melody could move on without waiting for the run to be finished, thus avoiding the tiresome uniformity of rhythm, *e. g.*: Heller. Op. 46, Etude No. 25.

The musical score for Heller's Etude No. 25, Op. 46, is presented in three systems. The first system is marked *Allegretto.* and *Cantabile.* and includes a *Ped.* line. The second and third systems show two different ways to play the runs, labeled *1* and *2* respectively, with corresponding *Ped.* lines below.

A practical method of gaining a clear understanding of the mode of performance is to write out the simple melody, omitting the runs, *e. g.*:

The musical score shows the simple melody from Heller's Etude No. 25, Op. 46, in 2/4 time and B-flat major. The melody is written in a single staff with two measures labeled *1* and *2*.

The melody with a simple accompaniment was also sometimes given entirely to the left hand, while the accompanying runs were played by the right hand, *e. g.*: Thalberg, in his *Fantaisie on Les Huguenots*.

Maestoso. *8va.....*

8va.....

8va.....

8va..... *eto*

In the course of time composers have become more and more inventive in their use of the pedal. Even remote chords are used to fill in the pauses between tones sustained by the pedal, a good example of which is furnished by the conclusion of Liszt's Mazeppa Etude:—

The image shows a musical score for Liszt's Mazeppa Etude. It consists of two staves (treble and bass clef) and a separate line for the pedal. The music is in 3/4 time with a key signature of one sharp (F#). The score features dense, complex chordal textures, particularly in the right hand, which are sustained by the pedal. The left hand provides a rhythmic accompaniment. The score includes dynamic markings such as *f* and *8va.....*. The pedal line shows a series of chords that are sustained throughout the piece.

These chords may belong to different harmonies, provided they occur on the upper part of the keyboard; e. g., Phantasie Schmitt:—

The image shows a musical score for Schmitt's Phantasie. It consists of two staves (treble and bass clef) and a separate line for the pedal. The music is in 3/4 time with a key signature of one sharp (F#). The score features a variety of harmonic textures, including *pp* (pianissimo) and *marcato* (marked). The right hand has a melodic line with some chromaticism, while the left hand provides a rhythmic accompaniment. The score includes dynamic markings such as *pp*, *marcato*, and *8va.....*. The pedal line shows a series of chords that are sustained throughout the piece.

8va.....

pp marcato. pp marcato.

Ped.

Under particularly favorable circumstances, even scales lying rather low may also be used, but only when the long notes consist of fortissimo chords, as in the following example which is taken from the Etude, Op. 168, by Ch. Mayer:—

Maestoso energico.

pp marcato. pp marcato.

Ped.

It sometimes occurs that the long notes of a melody are accompanied by shorter notes of the same pitch. In such cases the long tone is struck strongly and sustained by the pedal, while the accompanying tones are played piano, the pedal being released only at the end of the long tone: *e. g.*:

pp

Ped.

In this manner the long tone of the melody is brought out and sustained, although broken by shorter tones of the same pitch. This effect can be found in Heller's Etude, Op. 47, No. 16, 21st measure—also in the fourth measure before the return of the theme in the first movement of Beethoven's Sonata in E minor, Op. 90:—

The image shows a musical score for piano, consisting of two staves. The top staff is in treble clef and the bottom staff is in bass clef. Both staves are in the key of E minor (two flats) and common time (C). The music consists of four measures of chords. Above each measure, there are dynamics markings: *pp* (pianissimo) and *pp* with an accent (^). The chords are wide intervals, spanning several octaves. Below the staves, there is a single line with a treble clef and a whole note, with a horizontal line extending to the right, indicating a sustained tone.

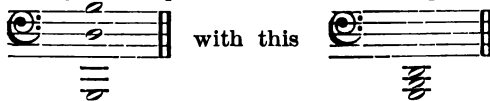
The most significant advantage of the pedal to the composer, however, is that it frees him from the necessity of limiting chords to such as can be readily executed by the average hand. This result has of itself wrought a great change in the manner of writing for the piano.

Before Liszt, Beethoven and Weber were the only ones who exceeded this limit. Beethoven wrote a few extensions, having the compass of a tenth, which occur principally in his Concertos in E flat and G major; thus possibly giving the first impulse to the subsequent use of wide intervals. Weber, in his Sonata in A flat, uses chords extending to a tenth, and in his Concertstück, chords with an eleventh: but in his case the use of wide intervals seems fortuitous, in so far that his hands were large enough to strike all the notes of these chords at one time. In this connection it may be remarked that in his time the keys of the piano were narrower than those of to-day.

The most powerful general impulse toward the use of widely extended chord positions was given by Henselt in his charming Etudes, Op. 2 and Op. 5. We are told by Bendel in his book, "*Geist and Technik des Clavierunterrichtes*," that Henselt possessed a naturally great power of extension, which he augmented by an assiduous practice of wide intervals. But even he has written chords too widely spread to be able himself to strike all the tones of the chord at once, thus rendering the pedal indispensable to those who wish to play his compositions. In case of small hands, extended chords can only be played in arpeggio, the necessity of

this manner of performance naturally varying with the size and elasticity of the hand. In Henselt's compositions, however, the sign of the arpeggio occurs very rarely. When, then, is it allowable to break the chord? This question admits of a very simple answer: As long as the hand can stretch the required interval, the tones of the chord are struck together; when the distance is too great to admit of this, they are played one after the other. One player, therefore, will not play arpeggio where another is compelled to do so. Care should be taken where no arpeggio sign is placed, to play the tones as quickly as possible one after the other, in order to give as nearly as may be the effect of a solid chord.

This freedom in the use of extensions made possible by the pedal, has greatly influenced the manner of writing (*Setzweise*) for the piano. In the lower part of the instrument chords in extended positions sound much better than those in close positions. From acoustics we learn that in the nature of musical sounds a low, close position does not exist. It is only necessary to compare the sound of this position



to discover the difference in effect.

Composers have become more and more daring in their use of extended positions; they have set the tones of their chords farther and farther apart in order to bring out the fullest possible resonance from the instrument. When the extreme limit of what even the largest hand could execute in arpeggio was reached, chords of five, six, and seven parts were built up, which were played in two positions of the hand by a rapid passing of the thumb under the fingers and of the fingers over the thumb, which gave almost the effect of a solid chord; *e. g.*—



The image shows a musical score for piano-forte. It consists of two staves, treble and bass clef, with a 3/4 time signature. The music is marked *ff* (fortissimo). There are two sections labeled (b) and (c). Section (b) shows a series of chords in the right hand, with the left hand playing a simple bass line. Section (c) shows a more complex chordal passage in the right hand. Below the staves is a single-line bass line with a 3/4 time signature, indicating the pedal point.

Perhaps the most daring example of this manner of chord writing is to be found in the Mazeppa Etude by Liszt, in the left hand part during the signature of B major. Another well-known example is the passage in C major from the Nocturne in C minor, Op. 48, No. 1, by Chopin.

Such chords are easier of performance if they are divided between the two hands, one beginning after the other has finished, a manner of writing which naturally allows of very wide positions; *e. g.*:-

The image shows a musical score for piano-forte. It consists of two staves, treble and bass clef, with a 3/4 time signature. The music is marked *Molto adagio.* There are several chords in the right hand, with the left hand playing a simple bass line. Below the staves is a single-line bass line with a 3/4 time signature, indicating the pedal point. The word "Ped." is written above the first note of the pedal line.

Even these extended positions were found insufficient and still another form was devised: after both hands had finished, the arpeggio was continued by the hand which had begun at first; *e. g.*:-

Adagio. L. H.

The sixteenth notes are to be played very rapidly.

Ped.

This has the advantage of allowing the left hand to bring out the melody with great distinctness. A well-known example of this manner of playing is afforded in the new edition of Henselt's Etude, "Thanksgiving after the Storm," and the ending of his Etude, "If I were a Bird." Rubinstein's "Etude on False Notes" also abounds in this crossing of hands.

There is still another peculiarly effective kind of arpeggio in which the tones are not struck singly but in groups; *e. g.*—

THE PEDALS OF THE PIANO-FORTE.

Energico.

The image shows a musical score for a piece titled "Energico". It consists of three staves. The top two staves are a grand staff, with a treble clef on the upper staff and a bass clef on the lower staff. The key signature has three sharps (F#, C#, G#) and the time signature is common time (C). The dynamic marking *ff* is placed at the beginning of the lower staff. The music is written in a rhythmic, energetic style with many sixteenth and thirty-second notes. Below the grand staff is a single-line staff with a treble clef, containing a few notes with a 'K' marking above them, likely representing a specific pedal technique.

A fine example of this is to be found in Willmer's transcription of Mendelssohn's Wedding March; also at the close of the second movement of Schumann's Fantaisie in C major, Op. 17.

Sometimes sufficient room cannot be found on the two staves for the composer to marshal his troops of notes, and this has made necessary a new manner of notation. When two staves fail to furnish enough space to represent clearly all the different parts with their notes of varying value, three staves can be used, which device Liszt was the first to employ, as, for example, in the Mazeppa Etude.

There is one composition in which even four staves are used at one time, viz., Henselt's Concerto; *e. g.* :—

Larghetto.

The image shows a musical score for a piece titled "Larghetto". It consists of four staves. The top two staves are a grand staff, with a treble clef on the upper staff and a bass clef on the lower staff. The key signature has three sharps (F#, C#, G#) and the time signature is common time (C). The dynamic marking *ff* is placed at the beginning of the lower staff. The music is written in a slow, grand style with many sixteenth and thirty-second notes. Below the grand staff are two single-line staves, both with bass clefs, containing notes and rests. This four-staff notation is used to accommodate complex textures that would not fit on a standard grand staff.

It is well known that Rubinstein has never written out his remarkable arrangement for two hands of the Overture to Egmont by Beethoven, because of the necessary labor, since to secure a clear notation four staves would almost constantly be required.

Such transcriptions, and those like Liszt's arrangement of the Bridal Procession from Lohengrin, depend almost entirely upon the skillful use of the pedal. This manner of writing has been not unfitly termed the orchestration of the piano, since by its aid no tone of the orchestral score is lost, and the arranger also finds opportunity to add something of his own, since by assistance of the pedal the player's fingers are, so to speak, multiplied.

Alfred Quidant in his clever brochure on the pedal, "L'Ame du Piano," Paris, chez Marquet et Cie, gives a composition for the piano which can be played throughout with but one finger, yet by the skillful use of the pedal it makes an orchestral effect; *e. g.* :—

The image shows a musical score for piano. The top staff is the right hand, containing a single melodic line with various notes and rests. The bottom staff is the left hand, which is highly complex, featuring many notes, some marked with 'x' and others with 'f'. A large, wide slur covers the bottom staff, indicating that the pedal is held down throughout this section. Below the bottom staff, there is a separate line with several notes and rests, possibly representing a simplified version of the accompaniment or a specific pedal technique. The word "etc." is written to the right of the score.

Only through the pedal can the full resonance of the piano be brought out, and often by very moderate technical powers. As an example compare Heller's Etude, Op. 45, No. 15.

Liszt was among the first to use the pedal in this manner, and he it is who has carried this method of writing for the piano to its culmination, so that in this point it may be possible for others to equal him, but hardly to surpass him.

From this, his pre-eminence as a writer for the piano can readily be seen. The instrument may be said to have experienced a new birth since he first gave the impulse to these different pedal effects. Even its structure has been changed to meet the demands made upon it by Liszt and his followers. (If, for example, Rubinstein should attempt to play

with his usual force his transcription of the Egmont Overture upon one of the old-time spindle-legged pianos, it is certain that at the end of the performance but little of the instrument would be left.)

Great as are the advantages derived by the composer from the pedal, none the less worthy of consideration are the consequences of a too great use of its newly discovered effects. Rhythm, harmonic flow, and free thematic development all suffer through the misuse of the pedal.

As already shown in the F sharp Etude by Mayer, the rhythm becomes monotonous when the pauses between the tones of the melody are filled with runs, because the ear always expects the same effect at the same place. (It would almost seem as though the composer were not able to banish the spirits he had called up; he is so crowded and pursued by the same persistent figure that the hearer soon thinks, "Something less effective would have more effect".)

Every increase of the tone-mass seems particularly unfavorable to rhythm. All the enrichments which the pedal adds to composition tend to impart more or less heaviness to rhythm and harmonic progression; the law of inertia is particularly manifest in case of large masses of tone. In the orchestra we also find the same effect: the varying rhythms, and even the general pauses with which Beethoven works such wonders, in our noise-loving age appear more and more rarely; if, by chance, a well-timed silence occurs in our modern music it involuntarily makes the impression of an inspiration.

This neglect of rhythmic feeling in our composers may perhaps be attributed in part to the daily study for years of finger exercises and velocity studies in the same rhythm.

Speaking in general, it seems as though the history of music manifests changes similar to those in the history of painting. At certain epochs color was especially cultivated; in others, drawing enjoyed the pre-eminence. Our present music seems in particular to be characterized by a development of tone color. Such beautiful and unexampled tone combinations as occur in the finale of Wagner's *Tristan and Isolde* will afford sufficient material for wonder and study for generations to come.

Although Wagner's tone drawing (melody) may not be ranked with his tone color (orchestration), such works, as being the creations of a genius opening new paths to art, in spite of many a mannerism, are of far more significance than the most successful productions of the best trained mediocrity.

These observations upon Wagner and the music of the latest period have more bearing than appears upon our subject. Many of Wagner's most brilliant passages are, in reality, only pedal effects genially transcribed for the orchestra; as, for example, the conclusion of the Overture to Tannhauser, the "Ride of the Valkyries" and the "Magic Fire Scene."

A proof of this is found in the fact that in two-handed arrangements of these compositions for the piano the original effect can be produced upon the instrument only by means of the pedal.

When it is considered that the majority of composers begin their careers as pianists, it is manifest that a close connection exists between the manner of composing for the piano and that of composing for other instruments; every notable change in the manner of writing for the piano has been followed by a like change in all departments of musical composition. The trills and ornaments, for instance, which formerly were considered necessary on account of the short duration of the tone of the piano, are disappearing not only from piano music as the instrument gains in power and resonance, but also from that written for the orchestra and the voice.

These observations are by no means unconnected with our subject. The attention which every influence upon the general style of composition deserves renders them the more appropriate, since it is precisely the modern use of the pedal which has occasioned such a revolution in the manner of composing for the piano.

Thematic development suffers through the pedal, in so far as its use is not allowable in quiet passages where progressions occur by the regular steps of the scale. The tranquil movements made up equally of chord and scale passages which were formerly in vogue are, therefore, gradually disappearing from the music of to-day—indeed, it almost seems, from the present universal use of the pedal, as though the scales were going out of fashion, so seldom do they occur, particularly in the middle portion of the piano. Thus, for example, in all Schumann's works not a single scale, having an extent of three octaves, can be found.

Progressions which move by regular degrees of the scale in a tempo too rapid to admit of a change of the pedal with each tone are at

Of all the authors, Czerny has given the most complete treatment of the question in the third and fourth volumes of his grand School for the Piano, which, strictly speaking, belongs to the newer school of piano playing, but even he by no means exhausts the subject. He also commits the error of requiring the pedal to be used when the key is struck, instead of pressing it down afterward, as should generally be the case. From this error the author of this work was perhaps only preserved by the fact that he did not examine the work in question until after he had finished his own investigations—a chance which fortunately allowed him to master the subject by practical experience.

In Kullak's Art of Touch can also be found some explanation as to the use of the pedal.

(Almost ludicrous it was to the author when, possessed by the fear that possibly Marx, in his long treatise on piano effects, *Allgemeine Compositionslehre*, might have anticipated him in the results of his labor, he found, on hastily examining the book, that the word pedal was not even once mentioned.)

CHAPTER II.

The effect of the pedal in strengthening and beautifying the tone cannot be explained without touching upon the existence of overtones. By overtones is meant that series of tones heard in connection with the prolonged vibration of every low string in the piano, accompanying the tone produced. These tones occur in a definite order: if, for instance,

this C,  be strongly struck and the tone sustained, the ear,

being held close to the string, will detect the following tones, sounding very softly, yet perceptibly, in connection with the fundamental C:—



A similar series will be found in the vibration of every string.

This phenomenon is occasioned by the fact that every vibrating string vibrates not only as a whole, but also in parts. The starting points for these secondary vibrations are called nodal points, and occur in definite mathematical proportions to the length of the string. The first nodal point is found in the middle of the string, and divides it into two equal portions, thus giving the octave, the fundamental tone bearing to its octave the proportion of one to two.

The twelfth is produced by the division of the string into three parts, each part vibrating independently as a whole; the second octave, by a division into four parts, etc., the fundamental tone and its overtones occurring in the simple proportions of 1, 2, 3, 4, 5, 6, 7, etc. The third tone, for example, vibrates three times as often as the fundamental; the first of every three vibrations of the third overtone therefore coincides with the beginning of one vibration of the fundamental; the same is true of the first of every four vibrations of the fourth overtone and of the first of every five vibrations of the fifth overtone, etc.

Strings possessing this coincidence of vibration are said to be related to each other, since in consequence of it any one of them will begin to vibrate as soon as another sounds in its vicinity.

The relationship may be shown as follows: press down the key of the

large C* without allowing it to sound, and then strike the small c above, strong and staccato, whereupon the tone c will sound clearly from the C string and be sustained by it as long as the key is held down. In like manner the same string can be made to produce its other overtones, g, c̄, ē, ḡ, b̄ flat, as follows:—

Musical notation illustrating the effect of the pedals. It consists of three staves: **Sounding.** (treble clef), **Silent.** (bass clef), and **Effect.** (treble clef). Each staff shows a sequence of notes and rests, demonstrating the interaction between the piano and the pedals.

*For those not familiar with the usual method of designating the keys of the piano by letters, the following table is subjoined, showing each key of the piano with its corresponding letter:—

Table of piano keys and their corresponding letters:

C	D	E	F	G	A	B	C	D	E	F	G	A	B
<i>c</i>	<i>d</i>	<i>e</i>	<i>f</i>	<i>g</i>	<i>a</i>	<i>b</i>	<i>c</i>	<i>d</i>	<i>e</i>	<i>f</i>	<i>g</i>	<i>a</i>	<i>b</i>
<i>c̄</i>	<i>d̄</i>	<i>ē</i>	<i>f̄</i>	<i>ḡ</i>	<i>ā</i>	<i>b̄</i>	<i>c̄</i>	<i>d̄</i>	<i>ē</i>	<i>f̄</i>	<i>ḡ</i>	<i>ā</i>	<i>b̄</i>

The notation includes an *8va* marking for the higher octave keys.

Sounding.

Silent.

Effect.

Employing the same method with the tones

c d e f g a b \flat b

8 9 10 11 12 13 14 15

it will be found that they also are related to C, but that they vary considerably as to strength. This arises from the greater or less support given to the higher overtones by the lower overtones.

The 9th overtone (\bar{d}), for instance, is stronger than the 7th (\bar{b} flat), it being sustained by the 3d (g), nine being divisible by three, while seven stands alone. The 10th overtone (\bar{e}) is supported by the 5th (\bar{e}), while the 11th (\bar{f}) again stands alone. The 12th (\bar{g}), being divisible by 2, 3, 4, and 6, is supported by the corresponding overtones, while the 13th (\bar{a}), being indivisible, is much weaker. The 14th (\bar{b} flat), is slightly reinforced by the weak 7th (\bar{b} flat), and the 15th (\bar{b}) by the 3d (g) and the 5th (\bar{e}).

All the tones, \bar{c} \bar{d} \bar{e} \bar{f} \bar{g} \bar{a} $\bar{b}\flat$ \bar{b} , do not correspond exactly in pitch to the overtones of the large C,— \bar{f} should be higher, \bar{a} , lower. This lack of exact correspondence can be verified by the wavering of these tones which ensues when they are sounded. When the \bar{a} is sharply struck a figure

resembling a turn will be produced; thus:

The

wavering of a tone indicates the presence of at least two tones; in this case it shows a difference of pitch between the tone which sounds and the one which is isolated.

It is also noticeable that the 14th overtone, $\bar{b}h$, wavers, while the 7th, $\bar{b}h$, is steady; this points to the conclusion that the $\bar{b}h$ of the untempered scale does not form a true octave with the bh below.

The sympathy of related strings to each other is most strikingly illustrated by silently pressing down one key and then striking several, or all of its overtones, whereupon they will ring out on the string from which the damper has been raised.

Sounding.

Silent.

Effect.

The first example consists of three staves. The top staff, labeled 'Sounding.', shows a treble clef with a common time signature. It contains two measures: the first measure has a whole note C with an 'x' above it, and the second measure has a whole note G with an 'x' above it. The middle staff, labeled 'Silent.', shows the same two measures with whole notes C and G, but with curved lines underneath indicating fingerings or pedal actions. The bottom staff, labeled 'Effect.', shows the same two measures with complex, wavy patterns representing the sympathetic vibrations of the strings.

Sounding.

Silent.

Effect.

The second example also consists of three staves. The top staff, labeled 'Sounding.', shows a treble clef with a common time signature. It contains two measures: the first measure has a whole note C with an 'x' above it, and the second measure has a whole note G with an 'x' above it. The middle staff, labeled 'Silent.', shows the same two measures with whole notes C and G, but with curved lines underneath. The bottom staff, labeled 'Effect.', shows the same two measures with complex, wavy patterns representing the sympathetic vibrations of the strings.

Its relationship to \bar{c} can be proved by striking \bar{c} with the pedal and isolating, in succession, c , F , C , A flat, F , D , C ; in each case \bar{c} will sound. Sounding. Silent.

The image shows two musical staves. The upper staff is in treble clef and contains a sequence of notes: c , F , C , A flat, F , D , C . The lower staff is in bass clef and contains the same sequence of notes. Below the lower staff, there are pedal markings (pedals) and 'x' marks indicating when the pedal is depressed and released.

These two series of tones differ strikingly from each other, in that by isolating the tones of the upper series reproduce themselves, Sounding. Silent.

The image shows two musical staves. The upper staff is in treble clef and contains a sequence of notes: c , F , C , A flat, F , D , C . The lower staff is in bass clef and contains the same sequence of notes. Pedal markings are shown below the lower staff.

while those of the lower series give the fundamental tones.

The image shows two musical staves. The upper staff is in treble clef and contains a sequence of notes: c , F , C , A flat, F , D , C . The lower staff is in bass clef and contains the same sequence of notes. Pedal markings are shown below the lower staff.

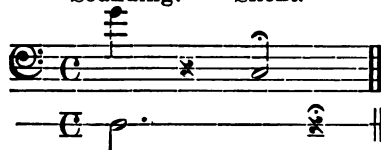
It follows then, since \bar{c} has seven related tones below it, that when \bar{c} is played with the pedal it is also heard as an overtone from each one of these seven tones—faintly, to be sure, but taken together they have by no means an unimportant influence upon the tone. This can be shown by first striking c without the pedal and comparing its effect with the following example, in which the \bar{c} sustained by uniting the seven weak undertones is even stronger than the tone produced by striking the string alone.



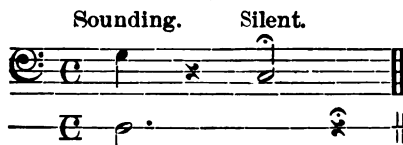
(A better example of the effect of the pedal upon the tone can hardly be found than in the contrast between the dryness of the first \bar{c} and the fullness and beauty of the second.)

High tones have more relations below than above, and low tones more above than below. The number of high and related tones is most symmetrical in the middle strings of the piano, and it is this symmetry which makes the middle tones of the instrument the finest when the pedal is used.

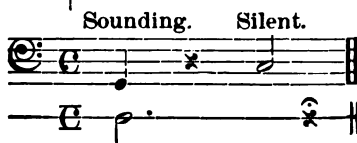
The following examples will illustrate the singular sympathy of related tones in whatever position they are struck, *i. e.*, either nearer to or farther from the fundamental tone than they naturally occur; *e. g.* : \bar{g} is the second overtone of c ; if \bar{g} be struck and c be isolated, naturally the \bar{g} is heard; *e. g.* : Sounding. Silent.



It will, however, also sound if the G be struck an octave lower; *e. g.* :



and even if it be struck below c , *e. g.* :

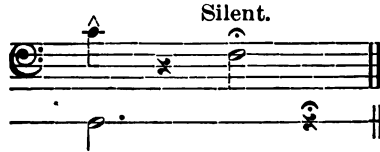


Hence it appears that related overtones never appear in any octave lower than the one in which they naturally occur rising upward from the fundamental tone.

With the related undertones the contrary is the case: *f* is the second undertone of *c*—if *c* be struck and *f* be isolated the *c* is naturally heard; *e. g.*:



If, however, *f* be isolated an octave higher, *C* will be heard an octave higher; *e. g.*:



and if it be isolated two octaves higher, thus:



Thus it appears that related undertones vary in position with that of the isolated fundamental. Tones belonging to both relations can be united; *e. g.*:



It will be noticed that such tones are similar to the harmonic tones of the violin and zither; they are, in fact, none other than harmonic tones produced on the piano by similar conditions. The violinist by gently pressing the fourth of the string gains its second octave; the pianist produces the same effect by noiselessly pressing down the fourth. The following example will prove that the pianist can vie with the violinist

In the production of harmonic tones; e. g.:-

(a) (a) Tones appearing of themselves.
Adagio assai.
Sounding.

(b) Silent. (b) Tones either struck or noiselessly pressed down.
Sounding. Silent.

Detailed description: This block contains two musical examples, (a) and (b), each with three staves. Example (a) shows a treble clef staff with a melody of quarter notes. The piano and bass staves show chords that appear to be struck and then held. Example (b) shows the same treble clef melody. The piano and bass staves show chords that are struck and then held, with some notes marked with a 'v' for vibrato. The labels 'Sounding' and 'Silent' indicate the state of the chords.

(a) Silent.

(b) Sounding. Silent. Sounding.

Detailed description: This block contains two musical examples, (a) and (b), each with three staves. Example (a) shows a treble clef staff with a melody of quarter notes. The piano and bass staves show chords that are struck and then held. Example (b) shows the same treble clef melody. The piano and bass staves show chords that are struck and then held, with some notes marked with a 'v' for vibrato. The labels 'Sounding' and 'Silent' indicate the state of the chords.

Even low tones can be produced in this manner in their original pitch; e. g.:-

Sounding.

Silent.

Detailed description: This block contains a musical example with two staves. The top staff is a bass clef staff with a melody of quarter notes. The bottom staff is a bass clef staff with chords that are struck and then held. The labels 'Sounding' and 'Silent' indicate the state of the chords.

It may, therefore, be given as a rule that each note of a melody should be played with a separate movement of the pedal, except in case of short notes, when the pedal is omitted. It must not be forgotten that in order to prevent any mingling of the tones the foot must be moved a little later than the fingers. (See Chapter I, page 7.)

From what has been said, it follows that in slow tempo, or *ritardando*, the pedal can be used much oftener in each measure than in quick tempo, or *accelerando*. Its mechanism is such that it cannot move with great rapidity, but it can be used with very short notes, provided they are separated by sufficiently long pauses.



It is naturally most effective when used in beginning the tone, which is strongest at the moment of percussion and thus more fully excites its related tones—see *a* in the following example:—

Thalberg, Etude in A minor, Op. 45.

(a)

yet, even if it be used some time after, a slight strengthening of the tone will result—see *b*.—

(b)

Andante.

f *p*

This slight crescendo may be employed in the beginning of Weber's Concertstück; also in the beginning of the Capriccio in B minor, by Mendelssohn.

Since the pedal strengthens the tone it follows that where the finest possible pianissimo is required it should not be used. Rubinstein, when he wishes only a murmur from the piano, invariably omits the pedal. This rule does not, of course, apply to such cases in which the pedal must be used to sustain tones played staccato.

The following examples will show how the sympathetic sounding of related tones can be practically applied:—

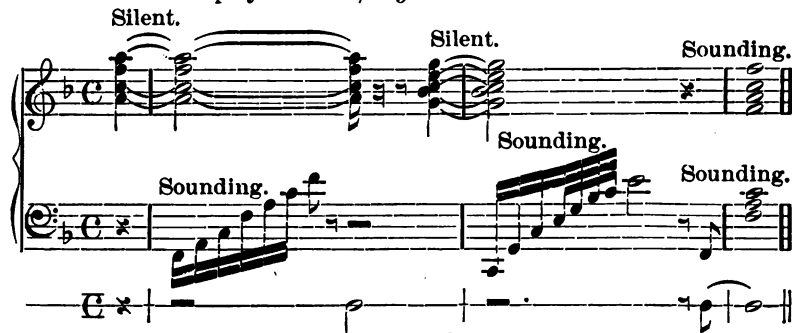
Adagio. *f* *Sounding.*

Silent. *Silent.*

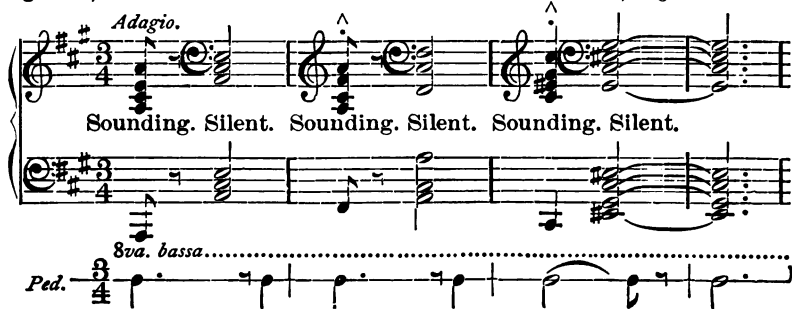


The only application of this sound-effect is to be found in an Eclogue by Thomaschek.

It is less effective when higher chords are isolated, and the tones of the same chord are played below; *e. g.*:-



The finest effect is produced when high and low chords are struck together, and the related tones between them are isolated; *e. g.*:-



Sounding. Silent. Sounding. Silent. Sounding. Silent.

The score consists of two staves. The upper staff shows a sequence of chords and single notes. The lower staff shows a sequence of single notes. The label 'Sounding. Silent. Sounding. Silent. Sounding. Silent.' is placed above the first six notes of the upper staff, indicating the state of the piano's sympathetic strings.

Thus far it seems to have entirely escaped the attention of composers that this sympathetic sounding of related strings can be effectively employed in compositions for the piano. Even the silent isolation of several tones previously played with the pedal, although producing an extremely fine effect, has never been used; *e. g.*:-

Andante.

Sounding. Silent. Sounding.

The score is in 3/4 time and features a melodic line in the upper staff and a bass line in the lower staff. The tempo is marked 'Andante'. The label 'Sounding. Silent. Sounding.' is placed above the first three measures of the upper staff, indicating the state of the piano's sympathetic strings.

Such a use of the pedal produces a particularly appropriate effect in the following passage from Beethoven's Sonata in C sharp minor:-

Presto agitato.

f

The score is in 3/4 time and features a melodic line in the upper staff and a bass line in the lower staff. The tempo is marked 'Presto agitato'. The dynamic marking 'f' is placed below the first measure of the upper staff.

also in Liszt's Hungarian Fantasie; *e. g.*:-

(Note carefully the silent chord in the left hand and the rest in the second measure of the pedal line.)

Bernhardt Stavenhagen frequently takes advantage of this pedal effect; *e. g.*, in the following passage from Liszt's Sonata in B minor:-

In this example he fills the rests which exist in the original between A and B by the isolated chord of F sharp major, which, by its ethereal timbre, forms a fascinating transition into the tender and poetic movement which follows.

Fundamental tones may also be very effectively mingled with overtones; *e. g.*:-

Adagio.

Sounding. Silent. Sounding. Silent. Sounding. Silent.

Skilful players occasionally produce effects by the fingers which resemble these pedal effects; *e. g.*:-

Lento.

pp etc.

instead of

etc.

. Players sometimes take the liberty of playing the notes of an accompanying chord rather than the notes of the melody above, even when not

so directed, in order to bring out the melody more clearly. Such a freedom may be allowed in the following passage from Schumann's Sonata in G minor:—

Sehr schnell.

Measures 4 and 5 are better played thus:—

Sometimes the last note of an accompaniment may be shortened and the pedal omitted in order that the ear may more easily follow the melody. This, in case of soft melodies with an insignificant accompaniment, is frequently done. For instance, the figure of the accompaniment in the Berceuse by Chopin is generally played by virtuosos as follows:—


instead of  in this passage:

Andante. *rit.* *rit.*



Such alterations should, of course, only be made after due consideration, and are never allowable in polyphonic compositions, since in such works all the parts are of equal importance, which is not the case in melodies with simple accompaniments. Such liberties would be the less necessary if the accompanying tone could be suddenly diminished, leaving the melody in its original strength, but, unfortunately, only the beginning and the cessation of the tone are at the command of the player, a sudden decrescendo on the same string being impossible. Where, however, in rapid arpeggios and running passages a diminuendo is required, the pedal must be released at the instant the decrease of tone should occur. A good example of this is found in the first movement of Schumann's Sonata in G minor:—

Äusserst rasch.



(a) good. $\frac{2}{4}$

(b) bad. $\frac{2}{4}$

This rule is less applicable to broken chord passages in slow tempo, which, even in descending, can be played with the pedal decrescendo to the end; a fine effect can be obtained by playing in this manner the following passage from Beethoven's Sonata in C sharp minor:—

Adagio. (poco agitato.)

The musical score consists of two systems. The first system shows a treble clef with a key signature of two sharps (F# and C#) and a common time signature. The melody begins with a broken chord (F#4, C#5, G#4, E4) and descends. Dynamics include *f*, *p*, and *molto dim.* Pedal markings are shown as horizontal lines with a wedge indicating decrescendo. The bass line shows the pedal being held down during the first measure and then released. The second system continues the melody and bass line, with a final measure marked with a double bar line.

By thus sustaining the pedal the tones played during the crescendo in the first measure are prolonged into the third measure, so that the pianissimo tones of the last two measures are heard, as it were, behind a veil.

An exact knowledge of the overtones of each note is of great value to the player, since every upper tone can be made fuller by strongly striking one of its deeper related tones.

As an example, the long D in the conclusion of the tenth Song Without Words by Mendelssohn can only be sustained to the end by bringing out strongly the lower D with the thumb, that being the next lower related tone; each time it is firmly struck, the upper D is excited to renewed vibration and thus prolonged.

Agitato e con fuoco.

It is immaterial whether the other tones be struck with the same degree of strength or not, as only the related tones exercise any decided influence upon each other. This can be readily shown by the two following examples:—

CHAPTER III.

Thus far the pedal has been considered only in its effect on the single tone or chord; if it is to be sustained during a succession of tones, the rules for its use become more complicated. When this succession belongs to one chord, the general rule is to hold the pedal until the chord changes, each change of harmony being followed by a change in the pedal. In order to avoid dissonances from the mingling of different harmonies, the pedal must not strike exactly with the new chord, but a trifle later. (See Chapter I, page 7.)

This necessitates on the part of the player a knowledge of what tones form a chord. A good student generally gains this knowledge in the practice of such chord passages as are found in most collections of finger exercises; a direct study of harmony, however, is of course preferable. It must also be remarked that arpeggios in close position taken with the pedal sound much worse on the lower part of the piano than in the middle or higher part.

A charming effect is sometimes produced by the retention of the pedal during changing harmonies on the upper keys. This effect closely resembles that of a music box, which possesses no dampers.

Sva......

Sempre Pedal.

The lower the pitch of the chords the less endurable becomes this holding of the pedal during changes of harmony, and on the very low keys even the close position of a broken chord played with the pedal sounds more or less false. When, therefore, a pure tone is desired, it is best to employ the pedal only as the arpeggio approaches the middle portion of the piano. For instance, in the following example, the pedalling B is decidedly better than A. Should its effect, however, be thought too dry, the pedal can be used as in C.

Sua.....

A. *f*

B. *f*

C. *f*

Relatively speaking, the best effect of low, close positions in the case of the chord of the diminished seventh.

f

Low minor chords seem to sound a trifle better than major chords of the same pitch; the difference is, however, so slight that it is hardly worth while considering, as all deep, close positions sound more or less harsh when they stand alone. The effect is different when a deep, broken chord is accompanied by full chords in a higher position, since in such a case the dissonance of the low tones is covered by the clear ring of those above; e. g. :—

Allegro moderato.

ff

It must not be understood, however, that the pedal should never be used with unaccompanied, close positions of low chords, since it may readily occur that such a mingling of tones is necessary in order to characterize the spirit of the composition. For artistic purposes much can be used which is not strictly beautiful, and in exceptional cases, even that which is ugly, since thus only art becomes the medium of translating the varying emotions of mankind. Where, however, purity of tone is required, recourse must be had to the order of intervals offered by Nature in the series of overtones. The finest effect is produced when the arpeggio corresponds to this progression; *e. g.*—

Sua.....

The musical score consists of two staves. The upper staff is for the Right Hand (R.H.) and the lower staff is for the Left Hand (L.H.). Both staves are in 9/8 time. The R.H. part begins with a forte (*ff*) dynamic and is marked with the word *Sua* above it. It features an arpeggiated scale starting on middle C, with fingerings 1, 2, and 4 indicated. The L.H. part also begins with a forte (*ff*) dynamic and consists of a few notes, including a low bass note with a finger number 5. The piece concludes with a double bar line.

Where absolute beauty of tone can be disregarded, much can be allowed. In such cases the pedal can be used in scale passages, and it even renders possible the striking together of adjacent keys, as will be shown further on.

The use of the pedal in scale passages is least allowable when the tones move with but moderate rapidity and equal strength in the middle or lower portion of the piano; with the highest tones it is immaterial whether it be used or not, since the shortest strings of the piano possess no dampers. For this reason the pedal can very rarely be employed in the older polyphonic music, since it generally moves by regular steps of the scale with but little strength and rapidity, its range being also limited to the middle octaves of the instrument. In some compositions of that school which contain broken chords it can be introduced, but generally speaking, its effect in scale progressions is best if one tone—or, what is still better, a full chord—be struck fortissimo. In this case the relationship of tones again plays an important part. In order to show on the more the striking difference between related and unrelated tones,

press down noiselessly the large C with the left hand, and then play the scale of C major fortissimo in octaves with the right hand; *e. g.*:-

R. H. playing.

f

As echo; the chord of C major.

L. H. silent.

Detailed description: The image shows a musical staff in C major, 2/4 time. The right hand (treble clef) plays a fortissimo (*f*) octave scale starting on C4. The left hand (bass clef) is silent, indicated by a horizontal line with a brace underneath. The scale is played in a way that creates an 'echo' effect, with the notes of the C major chord (C, E, G) being emphasized at the end of the run.

After the run has been finished, only the tones C, E, and G, related to C, will be heard. The unrelated tones, F, A, and B, are silent, while the \bar{d} may sound faintly as the ninth overtone. This shows that the free string C, out of the entire scale, has only linked itself to its related tones. This experiment is still more interesting if the scale be played with the pedal and the C isolated afterward; *e. g.*:-

R. H. playing with one finger.

Presto glissando.

L. H. silent.

L. H. silent.
As echo; the chord of C major.

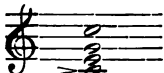
Detailed description: The image shows two musical staves in 3/4 time. The top staff is in C major (treble clef) and features a 'Presto glissando' in the right hand, played with one finger. The left hand is silent. The bottom staff is in C major (bass clef) and shows the left hand playing a single note (C) which acts as an 'echo' for the chord of C major. Pedal marks are visible above the notes in both staves.

From this can be deduced the important rule, that the pedal may be used with scales or ornamented chord passages if at any point one tone or chord be struck with great force. The lower and stronger this tone or chord the quicker and lighter the run, and the higher it lies the better will be the effect; *e. g.*:-

The image shows a musical score for piano and bass. The piano part (top staff) is in C major, 2/4 time, and features a glissando starting on a chord of C major (C4, E4, G4) and moving up to a chord of E major (E4, G4, B4). The glissando is marked with *sfz* and *glissando.*. The bass part (middle staff) is in C major, 2/4 time, and features a chord of C major (C4, E4, G4) marked with *f* and *sfz*. Below the bass staff, a scale is shown with fingerings: 2, 1, 5. The word *Sua* is written above the piano staff with a dotted line extending to the right.

In this case, as in the previous examples, the tones of the scale which are related to the chord, group themselves around it and the unrelated tones die away; not so soon as in the foregoing examples, but in a short time they entirely disappear, while the related tones are sustained. It must be well understood that such a use of the pedal requires the greatest possible fortissimo in the strong tone or chord. Without this, or with mere equality of strength, the passage will sound wild and confused; the related tones will not form themselves around the dominant tone, but scatter, so that it may very well happen that of two players using the pedal alike, one will make a good effect—the other, a bad one.

Players who have the skill to bring the melody out clearly soften many dissonances even without the pedal; the related tones blend with the melody, while the others fade away. An interesting experiment can be made, showing what an influence one strong tone has upon the others. In striking a chord with the pedal, on listening attentively, the tones will also be heard in arpeggio, or in succession, one after the other. This arpeggio always has the strongest tone of the chord for its starting point.

If, in the following chord,  the lowest tone be made

the strongest, the arpeggio is heard as follows:—

The image shows a musical notation for the arpeggio of a C major chord. It is written on a single staff in treble clef, 2/4 time. The notes are C4, E4, G4, and C5, played in succession from left to right.

if the upper tone be made the strongest, it is heard as follows:—



the third and fourth times moving twice as slowly; the fifth and sixth times four times as slowly. It is still more remarkable if seven tones be struck together, the middle one being the strongest, in which case the arpeggio begins in the middle and moves both up and down from that point; *e. g.*:—



This shows that the strongest tone is, so to speak, the focus from which the tone-waves emerge, all the other tones being governed by it.

In connection with the use of the pedal in scales, the question of the instrument comes into consideration. It is well known that upright pianos have a weaker bass than grand pianos. Now, if the composer relies upon the greatest fortissimo in the bass of a grand piano, in order to use the pedal during a long scale, the passage which on such a piano will sound well or at least be endurable, will be ineffective, or sound badly on an upright piano.

There is also a great difference between instruments of the same kind,—not all grand pianos have an equally good bass and treble. The stronger the bass, the longer the pedal can be sustained during scales played after low, strong tones. On a good grand piano much can be executed which otherwise would be considered impossible. The only rule that can be given to decide how far this use of the pedal can be carried, is to depend entirely upon the ear, and to release the pedal as soon as its effect is bad.

Even double scales in sixths sound well with the pedal, provided they are played with the utmost rapidity, and the sustained tones with greatest possible strength; *e. g.* :—

Allegro energico. *f* *8va.....*

8va.....

Low scales can also be played beneath a melody, as in the following passage from Beethoven's Sonata in C, Op. 53, popularly known as the "Storm Sonata." The rolling effect thus produced gives it a peculiarly characteristic coloring.

Allegro con brio.

The musical score consists of two systems. The first system shows the piano part with fortissimo (*pp*) chords and rapid scales in the right hand, and a bass line with sustained notes. The second system continues the piano part with fortissimo chords and rapid scales, and the bass line with sustained notes. The tempo is marked *Allegro con brio*.

Low scales played with the utmost strength and rapidity beneath fortissimo chords, produce a powerful effect, resembling the roll of thunder; e. g., Thalberg's *Fantasia on the Huguenots* :—

Agitato.

The musical score consists of two systems. The first system shows the piano part with fortissimo (*fff*) chords and rapid scales in the right hand, and a bass line with sustained notes. The second system continues the piano part with fortissimo (*ff*) chords and rapid scales, and the bass line with sustained notes. The tempo is marked *Agitato*.

etc.

Under particularly favorable circumstances, even the chromatic scale can be played in the bass if one tone of the scale be brought out with great power, as the C# in the following example:—

Allegro vivo.

In all the preceding cases the effect of the pedal is not a purely musical one, but is particularly appropriate for the imitation of the unfettered powers of nature—storm, thunder, etc. The dissonances resulting from the mingling of the unrelated tones only serve to heighten the idea of elementary conflict, and in all cases where the utmost development of virtuosity is artistically allowable, this use of the pedal is of surprisingly powerful effect.

In orchestral music similar effects are also found. Of these, the finale of the *Tannhäuser* Overture, by Wagner, is the most popular example, and the same master's *Fire Magic*, from the *Walküre*, the most daring. The rich profusion of melodic figures in these and in similarly treated orchestral works is only rendered possible by the sustained fortissimo tones of the melody. A great many compositions for the piano, as well as for orchestra, look almost incredible to the eye, when it is considered what is actually heard at one time, through the sustaining power of the pedal on the one hand, and on the other, by what stands together in the orchestral score. In such cases it almost seems as though the ear were less sensitive than the eye.

To give an extreme example of the extent to which this use of the pedal may be carried, the author has written out several measures from which, on paper, an ear-splitting discord would be inferred, but when played with the utmost strength on a concert grand piano are not only endurable, but even produce an almost brilliant effect. It will be seen that the ear supports unexpectedly well, particularly in the third measure, the striking together of five adjacent keys, but only in case the bass be played with the greatest possible strength:—

R. H. two octaves higher.....
Allegro vivo.

The musical score consists of two staves. The upper staff is in treble clef with a key signature of one sharp (F#) and a common time signature (C). It contains a series of chords and arpeggiated figures. The lower staff is in bass clef with a key signature of one sharp (F#) and a common time signature (C). It contains a series of chords and arpeggiated figures, with some notes marked with 'v' for vibrato. The score is written for two staves, with the piano part on top and the bass part on the bottom. The tempo is marked 'Allegro vivo' and the dynamics are marked 'ff' (fortissimo).

Sva......

Such a manner of writing is, of course, only allowable, if at all, in passages where great sonorousness is desired; in all others the effect would be much too harsh. Even the greatest climax should seldom go as far as the above example, which is only given as a curiosity, but passages almost as daring can be found in the modern concert literature. As an example can be quoted the trill of the major ninth which Liszt continues during several pages in the finale of his transcription of Mendelssohn's Wedding March :—

Sva......
Presto.

In an ordinary treatment of the subject, a trill of a major second would have been used, or at most, an octave tremolo, but for Liszt neither of these resources possessed the necessary brilliancy, so he devised the shriller effect of the trill of the ninth. Its use is facilitated by its high position and the fortissimo chords of the melody in the middle portion of

the keyboard. When this passage is played with the requisite degree of execution, the effect of the trill on the ear is that of an octave somewhat sharp.

Such deceptions are not uncommon. A similar one can be produced in the Scherzo from the Sonata in G minor by Schumann. If the first two measures are played with sufficient bravura, as at (*b*), the effect will be the same as in the original, (*a*), provided the \bar{d} and \bar{g} in the right hand are strongly brought out. This arises from the fact that every sharply struck second begins to waver, giving the effect of a trill:—

(a)

(b)

In the examples thus far quoted, the condition has always been made that one strong, harmonic tone be struck, which, by reason of its strength, controls all the discordant elements brought together by the use of the pedal. Under peculiarly favorable circumstances, scales and runs can be played with the pedal, without any such dominant tone. In this way Rubinstein produces one of his finest pedal effects. In rapid, fortissimo scales, either major or minor, played with both hands throughout the whole extent of the piano, he sometimes uses the pedal, omitting it, however, in ascending, as the scale reaches the middle tones and only resuming it in descending when the same point is again reached.

R. H. an octave higher.
Prestissimo.

This effect forms the greatest fortissimo of which the piano is capable, and only the limitation in the use of the pedal in connection with the greatest strength of touch renders it endurable to the ear. The lower tones being the strongest, the pedal is held down while each new tone is struck with sufficient force to overpower the one preceding. In the middle tones, which are not strong enough to overpower the low tones, the pedal is omitted, but it is difficult for the ear to decide just at what point this takes place. During the few tones immediately following its release, the bass strings still sound, and only die away as the weaker tones are reached, and these in turn sound as full as those preceding, since they no longer contend against the roar of the low tones.

The pedal may be used for a short time with double runs, if they are played in the most rapid tempo; *e. g.*, the scale in tenths just before the conclusion of Chopin's Ballade in G minor. This effect should not be continued for too long a time, or it becomes rough and unmusical, and for this reason the pedal can seldom be sustained in playing the chromatic scale, which, having twelve tones in the octave, progresses more slowly than the diatonic scale, which has but seven tones in the octave. The

pedal can only be used with the chromatic scale in short passages, or, if it be desired to use it with a long chromatic scale, or in passages composed of progressions with varying harmony, the foot must be raised and lowered frequently in a trilling manner, in order to avoid a too great confusion. This use of the pedal may at first seem impossible, but as a case in point the chromatic scale in the finale of Chopin's Scherzo in B minor can be taken. Artists always play this passage with the pedal, and rightly so, since only through its use can the despairing passion of the composition be adequately depicted. If such passages are performed with the utmost clearness of touch, their character is lost, and one is strongly reminded of the manner in which Czerny's School of Velocity should be played.

A difference can be found between the major and minor modes; low minor scales sound somewhat better with the pedal than major scales in the same position. A still greater difference exists between ascending and descending scales. If the pedal be used in an ascending scale, all the tones of which are played with equal strength, the effect will be extremely false; but if a descending scale be played in the same manner, the effect will be decidedly better. This arises from the fact that in descending the tones increase in strength, so that each new tone overpowers the one preceding. From this may be deduced the rule that, in descending the scale with the pedal it is not necessary to play fortissimo, but on the contrary, a far finer effect is obtained by beginning the scale *pianissimo* and making a crescendo in descending. The effect is best when it is supported by a corresponding harmonic accompaniment; *e. g.*—

The image shows a musical score for piano and bass. The piano part consists of two staves. The upper staff is in treble clef with a common time signature (C). It begins with the tempo marking "Allegro." and a dynamic marking "pp". The music is a chromatic scale, with notes beamed together. Above the first few notes, there is a marking "Sva....." with a dotted line extending across the staff. The lower staff is in bass clef with a common time signature (C). It contains a harmonic accompaniment of quarter notes. The bass part starts with a single note on a staff, followed by a horizontal line with a double bar line at the end.

The musical score shows a piano part with two staves. The upper staff contains an ascending scale starting on G4 and ending on D5. The lower staff contains a descending scale starting on D5 and ending on G3. A long horizontal line with an arrow pointing right is placed between the two staves, labeled 'rit.' above and 'pp' to its right. The piece concludes with a few notes on a single staff below the piano part.

In this case each tone overpowers the one preceding more readily in consequence of the crescendo. The unrelated tones also die away sooner, because they are not sustained by the tones of the chord in the accompaniment. By skillful management an ascending scale can also be played with the pedal. The effect is somewhat better if the first and third tones of the scale are at the distance of a minor third and the scale be played crescendo, from *pp*, to *forte* :—

The musical score is titled 'Tranquillo.' and is in 3/4 time with a key signature of two flats. The piano part consists of two staves. The upper staff has a descending scale of chords starting on G4 and ending on D3. The lower staff has an ascending scale starting on G3 and ending on D5. A long horizontal line with an arrow pointing right is placed between the two staves, labeled 'p' above and 'ff' to its right. The piece concludes with a few notes on a single staff below the piano part.

Soft descending scales with the pedal produce the most charming effect when preceded by an arpeggio played *forte*, carried up to the highest tone.

Sua.....

Allegro.

f *p rit.*

Sua.....

Adagio.

pp

Even the chromatic scale played in this way sounds remarkably clear and pure:—

Sua.....

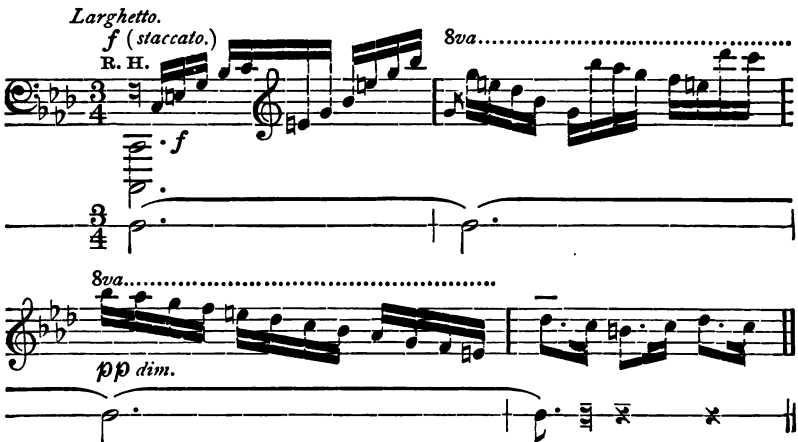
Allegro.

f *p*



In such cases the tones betray no trace of mingling with each other. This is due to a combination of circumstances, all favorable to the use of the pedal: first, the ~~un~~related tones of the scale are in the ~~similarity~~, since every tone of the chord occurs twice in the same place, once *forte* in going up the arpeggio, and again *piano* in coming down, while the unrelated tones of the scale occur but once, and then piano; secondly, the scale descends, which, as we have just seen, is favorable to the use of the pedal. Thus it happens that the dissonant tones are, as it were, swallowed up by those consonant to the harmony.

Many passages might be cited where the pedal may be used in this way; e. g., the beginning of the Concertstück by Weber:—



It is by no means essential that an extended arpeggio should precede the scale. It is only necessary to accent somewhat sharply two or three harmonic tones in the passage before the scale, as in the first measure of the following example—indeed, scales and arpeggios lying rather high can be played with an uninterrupted use of the pedal if, in the passage immediately preceding them, the fundamental tone of the chord be brought out rather more than the others. For instance, the second, third, fourth, and fifth measures of the following example can be played with an unbroken use of the pedal if the D flat, occurring in the right hand, be always slightly accented:—

Chopin: Berceuse.

Andante.

8va.....

p

8va.....

Scales in octaves may also be executed in this way.

In the following passage from Beethoven's Sonata in C major, Op. 53, the veiled effect thereby produced seems to be particularly appropriate :—

Allegro con brio.

Ped. *

One of the most charming effects on the piano is that of the echo. If one calls into the piano when the dampers are raised from the strings an echo is heard returning the call with the characteristic timbre of the voice. The instrument is naturally even more responsive in echoing its own tones.

Every tone figure can be heard as an echo when the damper pedal is sustained. This effect is particularly applicable to tones which lie rather high, and can be used in Liszt's compositions especially in almost numberless instances. The trill furnishes one of the finest effects of the echo. If the following be played :—

Vivo.

ff

the trill is heard as an echo in the second, third, and fourth measures—at first very faintly, but gaining in strength later on. This method is therefore ineffective; if the finger-trill is to blend with the echo-trill the former must at first be played *ff* and diminished to *pp*, when it must be played as softly as possible and finally cease entirely, only to begin again in somewhat slower tempo, *accelerando* and *crescendo*; *e. g.* :—



If this execution be carried out precisely as given, neither the player nor the hearer will be able to tell whether the hammers really strike the strings or whether the pianissimo trill is merely an echo. The player is, of course, supposed to possess the ability to play the trill *ff* as well as *pp*.

Not only the trill but every rapid tone figure, especially when it lies high, can be played in this way; e. g., the thirty-second notes just before the entrance of the theme in Liszt's *Rigoletto Fantasia*, many places in his *Hungarian Fantasia*, etc.

Such passages produce a remarkable effect in concerts, not only because they are beautiful in themselves, but because they seem mysterious to the hearer, who is not able to discover how they are produced.

Another fine effect is gained by playing an arpeggio *ff* with raised dampers; then, after a pause, without lifting the pedal, playing the same arpeggio, somewhat more slowly and *pp*. The *pp* can be still further reduced by using the soft pedal—*una corda*.

Liszt, the poet of sound, originated this effect and applied it in his transcription of the "Spinning Song" from the *Flying Dutchman*; e. g.:



(The second time slower and *pp*; the same in D minor.)

As a consequence of the foregoing rules, it may be stated, not without hesitation and with much reserve, that the pedal may be used momentarily with every tone figure if the tones following its use be played with

sufficient strength. The stronger these are given, the better is its effect. This is particularly the case in major scales where great brilliancy is required; *e. g.*, the C major scale in octaves in Weber's Invitation to the Dance; also, in stormy passages like the following from Mendelssohn's Concerto in G minor:—

Molto allegro con fuoco.

R. H. 

L. H. an octave lower. 

This intermingling of tones can be particularly employed in compositions of a wild and gloomy character, but it should never be allowed to last too long, else the effect becomes harsh and discordant in the extreme.

Where the figure demands a rolling or swelling effect, frequent short strokes of the pedal, resulting in a trilling movement of the foot, are more desirable than too long a pressure at one time.

In the finale to the Sonata in B flat minor by Chopin, and in the Pastoral Overture, Op. 126, by Heller, this method of using the pedal can be employed with fine effect; *e. g.*:—

Heller: Pastoral Overture, Op. 126.

Molto allegro.



It will be observed that these two measures entirely lose their character if the pedal be not used. In this and in similar cases the crescendo thus acquired is a most valuable adjunct in producing a climax. Players

who, like Rubinstein, possess a technic enabling them to steadily increase the strength of tone can sustain the pedal many measures, particularly in the middle portion of the instrument.

In giving as an example of this use of the pedal, the following passage from Beethoven's Sonata in D minor, Op. 31, it must be clearly understood that it is by no means to be considered as a model—it is taken as an extreme illustration to show that what sometimes appears impossible is not always so in reality:—

Allegro.
R. H.
ff Quasi staccatissimo.

L. H. an octave lower.

The pedaling given in this example is favored by the constant recurrence of the \bar{a} , which allows the player to observe the rule previously given, which is to increase the strength of each successive tone.

It would, indeed, be dangerous if such a use of the pedal were to be prescribed in all similar cases and for all players. Critics who admire such *tours de force* by the virtuoso are often the first to condemn the means by which the effect is produced. It must be clearly understood that it is only allowable in passages of the highest excitement, and then

only to those whose endurance and strength of touch are so far developed as to admit of a constant crescendo. The instant that this steady increase of tone is neglected, the sustained use of the pedal becomes unbearable, so that none but players possessing the highest degree of technic should ever attempt such an effect.

In this connection the question of locality comes into consideration. In large halls, virtuosos carry the use of the pedal to a much greater extreme than in small rooms. When the principal tones are brought out with sufficient strength, the unrelated tones soon disappear, and only those essential to the harmony are clearly heard at a distance.

It often seems in large spaces as though a war ensued between the sound waves, in which the strongest tone appears as victor; around it gather its related tones, the others being lost on the way, and thus it occurs that only the strong tone and its relations penetrate to any great distance. Mozart's father, in his violin school, recommends the artist to consider the size of the room in which he plays, and particularly in his performance of the trill. He says: "In playing a solo, one must consider the place where it is played. In a small room, a rapid trill will have the best effect; in a large hall, on the contrary, where there is an echo, or if the hearers are somewhat remote, a slower trill will be better."

Since the tones are only brought into relationship with each other by correct tuning, it is evident that the instrument should be in as perfect tune as possible, in order to secure all the advantage from this relationship.

In this connection it must be noted that there are two systems of tuning recognized by science. The piano is tuned after what is known as equal temperament, so called in contradistinction to natural temperament, the difference between them being that in the latter the relations of the tones to each other are true in only one key, but in that key they are absolutely true, while in the former the intervals are equally true in all keys, but in no key are they as true as in the one key of the natural scale.

At present the piano is tuned only in equal temperament, which was first introduced in the time of Bach, who, it is well known, wrote his forty-eight preludes and fugues, two of each in every key, for the "well-tempered clavicord," thereby showing his intention that they should be played upon an instrument admitting an equal use of all the keys. It is possible that this lack of tempered instruments impelled both Bach and Handel to write the numerous consecutive numbers of their suites in the same key.

The system of equal temperament is certainly less true than that of natural temperament, but that it is so faulty as some scientists would have us believe is by no means proved. As a matter of fact, the difference is not so great as to prevent the relationship of strings tuned after the tempered scale, as is shown in the sympathetic sounding of the over-tones when one of two related strings is set into vibration. In an orchestra, where possibly the violins are heard in C, while at the same time the B flat clarinets play in D and the F horns in G, the natural temperament would be of no value, especially as no wind instrument is in itself entirely true, and even the most reliable vary in pitch through changes of temperature.

The most frequent fault found with the system of equal temperament is that it renders music characterless, since through its use all enharmonic intervals sound alike. This reproach is, however, unfounded. Even on the piano, where the tones remain wholly unchanged, enharmonic intervals make an entirely different effect, because they appear in different surroundings; *e. g.* :—



The diminished third (2) sounds worse than the major second (7), and the augmented sixth (4) worse than the minor seventh (9). The impression produced by any interval is dependent on the interval which precedes it. The purest consonance can offend the ear if it appear in the wrong place, and this is easily explained: Every interval intersects the air by invisible lines.* When a new interval is heard the air is again divided into lines which correspond to the new interval. If the lines of the second interval show a likeness to those of the first interval, they harmonize and no disturbance results; if there be but little correspondence or none at all, a conflict ensues which strikes the ear unpleasantly. If the interval last sufficient time, this momentary struggle comes to an end, the air adjusts itself to the new conditions, and only then

* This is illustrated and rendered visible by the well known experiment of Chladni, in which sand strewn upon glass plates is made to assume distinct figures, when the glass is thrown into vibration by means of a violin bow.

does every interval sound like its enharmonic interval, so that it can resolve in either way; *e. g.* :—



This is the reason that composers instinctively prolong the interval by which they wish to make an enharmonic change; they hold back its resolution until the ear has forgotten the impression made by its entrance.

In practice a distinction is felt between enharmonic tones, though not in the manner as established by acoustics. A musician feels the difference between dissonances which resolve upward and those which resolve downward and instinctively anticipates the resolution up or down, as the case may be. In this way distinctions occur which even contradict the laws of acoustics: E sharp, for instance, should be lower than F, but in the following example, by the instinctive rising toward its resolution, it is in reality played higher :—



Since Helmholtz acknowledges that Joachim plays the violin in equal temperament and Bach declares that he considers the tone of an instrument tuned after the tempered scale to be the finest, it would appear that the ear can adapt itself to equal temperament to such an extent that what is absolutely correct seems less correct than that which is faulty.

The subtleties of the natural scale seem to be of little avail for practical use, and at present the tempered scale is almost universally regarded as the compromise needed to meet all the exigencies of the different keys.

It often happens in piano transcriptions of organ compositions, as well as in original compositions for the piano, that a low tone must be sustained as a pedal point, while changing harmonies are played by the same hand above; *e. g.* :—

Allegro. 8va.....

The musical score consists of three systems. The first system is for the piano, with a treble clef (R. H.) and a bass clef (L. H.). It features a key signature of one sharp (F#) and a common time signature (C). The piano part is marked with a dynamic of *p* (piano) and includes three numbered measures (1, 2, 3) with various chords and melodic lines. The second system, labeled 'A.', shows a single long note on a staff with a pedal line above it that is held down throughout the duration of the note. The third system, labeled 'B.', shows a single long note on a staff with a pedal line above it that is held down for a short period and then released. The fourth system, labeled 'C.', shows a single long note on a staff with a pedal line above it that is held down for a short period and then released, with a dotted line indicating the continuation of the sound.

If the pedal be used in the ordinary manner, as at A, the passage becomes confused; if it be released, as at B, the tone is not sustained to its full value. The only way to secure a clear performance of the varying harmonies and at the same time to sustain the long tone, is as follows: At the beginning of the long tone, place the foot firmly upon the pedal; if it be desired to use the pedal a second time without breaking the sustained tone, raise the foot slightly, and then bring it down again as quickly as possible. This extremely brief touch of the dampers exercises a different effect on the different strings: The high strings possess less vibratory power than the low strings, so that this action of the pedal is enough to stop their vibration; it is too brief, however, to produce the same effect on the latter, which, while the higher strings are damped, still continue to sound. This can be practically tested by playing the first and third lines of the preceding example, each with the pedaling as shown at C, where this use of the pedal is indicated as follows:—

The oftener the foot is lowered and raised, the more freely will the strings sound—it almost seems as though the stroke of the dampers acted favorably in prolonging their vibrations. If, for instance, in the last three measures of the Nocturne in A major by Field the pedal be used with every eighth note, the low A of the first measure sounds fuller in the end than if it had been used with every quarter note.

— It is not necessary that the tones over the bass should be very high; even tones lying rather low can be silenced while the bass is sustained. The finest example of this is the following passage from Mozart's Fantasia in C minor :—

The musical score is for a passage in Mozart's Fantasia in C minor. It is marked *Adagio* and *p* (piano). The score consists of three systems. The first system shows the treble clef part with a sequence of chords and single notes, and the bass clef part with a more active line. A long horizontal line with a curved top indicates the pedal is held down for the duration of the passage. The second system continues the same pattern. The third system ends with a double bar line and the word "etc." to the right.

The advantage of this use of the pedal is greater than might at first be imagined. It can be employed in nearly all cases in which the pedal point occurs in the bass, where the great majority of pedal points are found. As examples can be given: Brahms, Variations No. 9, Op. 24; Field, close of the Nocturne in A major, No. 4; Mendelssohn, Rondo Capriccioso, at the beginning of the Presto; Beethoven, Sonata in C major, Op. 53, particularly in the beginning of the last Tempo.

Rubinstein employs it with long tones of medium pitch in order to renew (*aufzufrischen*) the tone and also to cause it to vibrate. The first effect he gains by using the pedal as indicated at (*a*) in the following example. It resembles the effect produced by a singer changing his register or the violinist his string during a sustained tone.

In the vibrato the foot must press the pedal lightly only part way down. The strings are alternately checked and freed, and this results in the continual appearance and disappearance of sympathetic tones, and this is also helped by the friction of the woollen threads of the damper

on the strings, which tends to keep up their vibration. In passages of excitement which suddenly concentrate on one tone it is possible by this manner of pedaling to give it an unexpected warmth of feeling and sentiment, resembling the vibrato in the voice:—

Lento.

The image shows a musical score for piano. At the top, the tempo is marked *Lento.* There are two staves for the piano. The first staff has a treble clef and a common time signature. It contains a series of notes: a half note G4, a quarter note A4, a quarter note B4, a quarter note C5, and a quarter note B4. A long horizontal line with a wavy underline underneath it spans the entire duration of these notes, indicating a sustained pedal. Below the first staff, the dynamic markings *sfz* and *rit. pp* are placed. The second staff is a bass clef staff, mostly empty, with a few notes: a half note G3, a quarter note F3, and a quarter note E3. Below the piano staves are two alternative bass line options labeled (a) and (b). Option (a) shows a half note G3, a quarter note F3, and a quarter note E3. Option (b) shows a half note G3 followed by a trill of sixteenth notes: G4, A4, B4, A4, G4, F4, E4, D4, C4, B3, A3, G3.

sfz *rit. pp*

(a)

(b)

In this use of the pedal, low tones are more easily sustained than high tones, but it can be applied even to the latter. The higher, however, the sustained tone lies the more strongly must it be struck, and the more lightly must the others be played. It can even be reversed, so that the long tone lies above the accompanying tones; indeed a high tone can be sustained while a descending scale is being played provided the scale be played decrescendo and the foot trill the pedal. In such a case, care must be taken to sit a little farther than usual from the instrument, since the trill is more easily executed when the foot is somewhat extended.

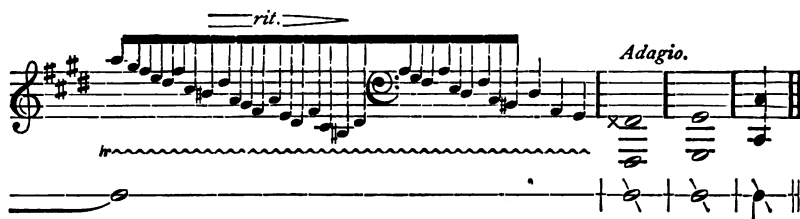
A singularly romantic but appropriate effect can be produced by such a performance of the conclusion of Beethoven's Sonata in C sharp minor:—

Presto.


The image shows a musical score for piano. It consists of two staves. The top staff is a treble clef staff with a key signature of two sharps (F# and C#) and a common time signature. It contains a trill of sixteenth notes: F#4, G4, A4, B4, A4, G4, F#4. The right hand is labeled *R. H.* and *R. H. 3*. The bottom staff is a bass clef staff with a common time signature. It contains a half note G3. The left hand is labeled *L. H.* and *L. H.*. A long horizontal line with a wavy underline underneath it spans the entire duration of the half note G3, indicating a sustained pedal.

R. H. *R. H. 3*

L. H. *L. H.*



In the second and third measures the trill is played with both hands in order to attain the greatest possible strength; in the fourth measure the right hand plays alone *decrescendo* and *ritardando*, while the foot trills the pedal. With a faultless technical execution, the trill sounds from the beginning of the fourth measure until the end of the pedal trill, gradually diminishing from its original *fortissimo*, until at last the bass tones alone are heard, empty and desolate, seeming, like Schubert's Wanderer, to call to us from the depth: "There where thou art not, there is joy."

Since in this use of the pedal the vibration of the strings is not entirely checked, it should never be used where the tones are to be completely silenced. Its improper employment, as, for example, in the case of changing harmonies in the bass, is, together with the common neglect to take the pedal after the tone or chord, the most frequent cause of faulty pedaling. The greatest evil of such a fault is that the pupil, and, it may be added, too often the teacher, does not discover the origin of the confusion. Both often give great attention to using the pedal at the proper place, but not enough to the manner in which it is used. If the stroke of the pedal is to be short, the pedal notes should be provided with staccato signs; e. g.:— . Possibly this manner of performance is intended by the direction, *Pedale grande*, at the beginning of the Finale in Schumann's Carnival Scenes (March against the Philistines).

Here it seems appropriate to mention several changes in the construction of the damper pedal which have in view its increased utility in artistic playing.

Great hopes were at one time entertained of the Kunstpedal (art-pedal) invented by Zachariä, but these were disappointed through its complicated action and want of simplicity. In this pedal the damper-frame is divided into eight portions, each one of which is acted upon by different

movements of four pedals, which can be either used singly or coupled in such a way that all the dampers can be removed from the strings by one stroke, as in the case with the ordinary pedal. Its advantage consists in enabling the player to sustain single tones or even chords in one part of the piano, while at the same time staccato tones can be played elsewhere. It is most effective when used to sustain high tones against lower staccato tones; the reverse is not so successful, because such tones as happen to be overtones of the sustained low tone are also prolonged.

In its use care must be taken to consider the limits of each of the eight divisions into which the dampers are divided, and this exercised an unfavorable influence against it in the eyes of pianists and composers who were accustomed to an uncontrolled sway over the entire keyboard. It may even be claimed that the piano has attained its present high position mainly because the composer is untrammelled as regards compass. Through this freedom it has opened a way for all other compositions, those passages, for instance, which range throughout the entire orchestra; *e. g.*, the motive of the overture to *Genoveva*, by Schumann, the accompaniment to the great aria from *Oberon*, by Weber, "Ocean, thou mighty monster," have their origin in this manner of writing for the piano.

Possibly a greater familiarity with the *Kunstpédal* might have proved its limitations less irksome than they at first sight appeared, but all teachers united in agreeing that its management was too complicated. Since in the use of the ordinary pedal mechanical difficulties are met at every step, still greater must be those attending the use of the *Kunstpédal*, with its four divisions and various movements—hence its disappearance as a factor in the development of piano playing.

The labor of the inventor was, however, not entirely in vain. His is the merit of having drawn the attention of piano manufacturers to the important question of the pedal, and it is to this impulse that we owe the *sostenuto* pedal, first invented by Steinway of New York, and after him, by Ehrbar of Vienna, of which the latter seems to be the more successful. The effect of this pedal is to prolong tones which are played during its use after it is released, thus giving the player the power of playing staccato, while at the same time other tones previously played with the pedal are sustained.

It was designed to give an explicit and detailed account of these various devices for the prolongation of especial tones, but space failing, they can only receive mention in this connection. Should it be desired, a more thorough review of them will be published at some future time.

The last effect of the pedal to be considered is its effect upon the action of the keys.

When a stronger tone results from the use of the pedal, it is not the case merely because numerous related strings vibrate in sympathy with the string originally struck, but also because the string in reality receives a stronger blow. The effect of the pedal is to lift the dampers from the strings, and this produces a lighter action of the keys, since the resistance of the dampers is removed. With the pedal, therefore, the strength of touch is increased by just so much strength of finger as is necessary to lift the dampers, so that it is no imagination that the keys move more easily and the strings vibrate more fully when the pedal is used.

Many manufacturers, in order to secure an easy action, make the dampers too light, and the consequence is a continual confusion of tones, resulting from strings insufficiently silenced.

The mechanism of the dampers is, unfortunately, not equally good in all makes of pianos. The best is that in which they are attached to a heavy frame which falls by its own weight upon the strings. Less efficient is it in those pianos in which this frame is wanting, and many pedal effects will be less successful on such instruments than on those possessing it. The poorest arrangement of all, however, is that in the upright piano of the old style. In this the dampers are pressed sideways against the strings by means of a spring, which by continued use, loses its elasticity, thus failing to press the dampers closely to the strings. When this is the case, since the dampers move horizontally to the strings instead of vertically, they do not fall upon them by their own weight, so that a complete cessation of the vibration is not effected. This is the cause of the extremely imperfect action of the pedal in almost all old upright pianos.

When, however, an instrument has a faulty action of the pedal, it becomes unsuitable for the player, and is particularly injurious to the student. Not only does the ear become vitiated by continual dissonances, but the technic suffers, since there is no guide for the correct performance of the legato, staccato and legato having the same effect when the strings are insufficiently damped. The scant favor which upright pianos receive from teachers as instruments for practice can therefore be ascribed not alone to its weak bass, but also to its imperfect damper action.

It must be said, however, that modern manufacturers of upright pianos have largely remedied this defect, in that the damper frames are now so constructed that each damper has its individual spring.

The action responds more readily if the pedal be used before the key is struck. This can be done with good effect when a pianissimo chord is played after a pause. The final chords of the Adagio from Beethoven's Sonata in F minor, Op. 2, can be given with much more delicacy by using the pedaling (b), instead of (a) :—

Adagio. pp

(a) ———— $\frac{3}{4}$ x | ———— | ———— | ———— ||

(b) ———— $\frac{3}{4}$ ———— | ———— | ———— | ———— ||

Thus far, in speaking of the pedal, only the damper, or so-called loud pedal has been understood. The second pedal to the left of the damper pedal, commonly known as the soft pedal (*Verschiebung*), remains yet to be considered. In grand pianos its effect is to cause a slight movement of the keyboard to the right, in consequence of which the hammer strikes one string, or sometimes two, instead of three, thus, with the same strength of touch, producing a softer tone. It is to be used when the player wishes a softer tone than his fingers alone are able to produce. The character of the tone is also somewhat altered, since the string which is not struck, being of the same pitch as the others, vibrates slightly in sympathy, lending the tone something of an harmonic character. Stavenhagen, the virtuoso, avails himself frequently of this means of expression, and by it produces charming effects in compositions of an elegiac character, *e. g.*, the Prelude in D flat major by Chopin. Employed too frequently the effect is cloying.

The use of this pedal is generally indicated by *una corda* (one string); sometimes by *due corda* (two strings); its discontinuance by *tre corde* (three strings). During its use care must be taken not to play *forte*, since the single string cannot bear as strong a blow as the three.

Still another mechanism of the soft pedal draws the hammers closer to the strings so that the latter cannot be struck with so much force, thus producing a softer tone. By this construction of the pedal the harmonic timbre of the tone is lacking, but its mechanism is more precise than that of the older appliance by which it not unfrequently happens that the

keyboard is carried too far, so that two tones instead of one are heard, since the hammer strike the strings of the next tone as well as its own.

A still softer effect is produced by a third pedal, the old *pianissimo* or flute pedal, which has recently been revived by the piano manufacturer, Ludwig Bösendorfer. This is placed in the middle between the two other pedals.

Its effect is to shove a strip of flannel attached to a frame between the strings and the hammers, so that the latter strike the strings through the flannel, which greatly diminishes the strength of the tone, the string being damped at the moment of percussion. This pedal is found in very old pianos; Adam, in his *School for the Piano*, designates it *Pedale celeste*. In these old, lightly-strung instruments, however, this kind of damping acted so powerfully that the quality of tone was immediately changed, which is probably the reason that artists of that time seldom used it and that it was finally omitted, especially as the altered construction of the instrument arising from the introduction of iron frames rendered it difficult of application.

To Herr Bösendorfer belongs the merit of having practically applied the *pianissimo pedal* to the modern piano in spite of mechanical obstacles, and in such a way as to entirely obviate the former change in the quality of the tone. It has been repeatedly used in concerts with such success that no uninitiated hearer suspected the employment of any especial contrivance; the character of the tone was so little altered that one and all ascribed the extreme *pianissimo* effect to the skill of the player.

In case its use is desired for any length of time, it has been so arranged that by a side movement of the foot it can be brought into position and suspended, thus requiring no outside pressure of the foot to prolong the effect. This is of particular advantage for students, since by its aid all monotonous but necessary exercises, such as scales, chord passages, five-finger exercises, etc., can be practiced *fortissimo*, with but comparatively little annoyance to the student's sense of hearing or that of his neighbors'.

This pedal can be used frequently in compositions which require the utmost delicacy, as, for example, the *Berceuse* and *Barcarolle* by Chopin, and the first movement of the *Sonata in C sharp minor* by Beethoven.

Besides the damper pedal, the old pianos frequently possessed others; e. g., one which imitated the bassoon; another, the great drum,—which was effected by a blow on the sounding board; a bell pedal; one to imitate cymbals and other such infantile contrivances, now happily obsolete.

CHAPTER IV.

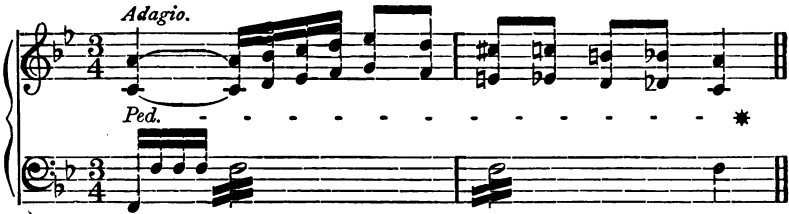
The question as to when the pedal should be used would be a very easy one to answer if we were to say, with the old Schools for the Piano: "The pedal is always to be used when indicated, and never where the proper signs are wanting."

This rule, for several reasons, is by no means satisfactory: first, because some composers, taking it for granted that those who play their compositions possess sufficient intelligence to manage the pedal properly, fail to give directions for its use; secondly, because even the best composers do not set down the signs with sufficient care; and thirdly, because the signs themselves are not adapted to indicate with exactness a precise use of the pedal.

Where no signs at all are given the student is indeed without a guide, but their total lack is not so dangerous as erroneous directions, since where they are wanting the player is obliged to reflect and supply their place by his own ingenuity, but their presence implies the necessity of observing them. It requires a great deal of independence to act willfully against the composer's express directions. Schumann's practice of placing "Pedal" at the beginning of many of his compositions as a direction that it be used at the player's discretion is much safer than that of many composers, who fill their compositions with numerous but faulty signs for its use. It is not difficult to discover the cause of this imperfect notation of the pedal. The writing down of the signs for its use, as well as those for style and expression, is the last task of the composer. When, however, this stage of his labor is reached, the composition has generally become burdensome to him, so that frequently in haste to finish his task, the most delicate part of his work, the signs for the pedal and for expression, are written down with lamentable inaccuracy. Too often the care bestowed upon beauty of melody and correctness of harmony is rendered of no avail by the false pedaling of the author himself. Another common fault is to write down these signs at the desk, possibly without having tested them at the instrument. If the pedal is to be noted exactly as the author wishes, he should first play his composition in the proper tempo, marking in pencil from measure to measure his own use of the pedal. Then it should be played again, this time without interruption, to verify the correctness of the signs, after which they may be written down in ink. Both times the proper movement must be observed, since the pedal can be used much more frequently in slow tempo than in quick

melody suffers or not under this want of discrimination. This inconsiderate rule has been the cause of much confused piano playing. The most satisfactory manner of performing a melody is to give it the effect of being finely sung. If, however, the pedal be sustained during several successive notes of a melody they will sound together, which necessarily destroys the singing effect, since no singer possesses the power of singing several tones at one time. If the melody is to be sung by the instrument, the pedal must be used for each note the value of which is great enough to admit of being sustained while the foot is lowered and raised; in case of short notes, it can, after due consideration, either be omitted or retained, since the fault is not so perceptible in short tones.

An almost countless number of examples could be given to show how careless composers have been in allowing the singing effect of their melodies to be spoiled by a want of thought in noting the pedal, and even those of the highest rank are by no means free from this reproach. If this unbroken use of the pedal were applied only to tones of the same chord it would at least be bearable, since, at all events, they accord one with another. Far otherwise is it when melodies moving by regular degrees of the scale are thus played. For an example, the following passage from Mozart's Fantasia in C minor is taken from an edition of Mozart's Sonatas revised by Moscheles:—



It must be acknowledged that such a use of the pedal is far less allowable than the one in the third chapter, in the case of Beethoven's Sonata in D minor, and there given as an extreme example, only to be used under exceptionally favorable conditions. The rapid tempo, in connection with the fortissimo touch of a virtuoso, alone renders possible such a sustained use of the pedal, and only the highest excitement can justify the mingling of tones which thereby results. Here, however,

Moscheles, in an edition expressly prepared for purposes of instruction, recommends the same use of the pedal in a passage especially characterized by quiet and repose.

The many sins in this respect which occur in this edition may be the more readily pardoned when it is considered that Moscheles' own compositions have received no better treatment at his hands. It may, however, be confidently asserted that so finished an artist as Moscheles never used the pedal as he himself has noted it. Not only he, but nearly all composers, have erred in like manner. No less an authority than Rubinstein declares most of the pedal signs in Chopin's works to be unreliable.

Even composers who can hardly rest at night for fear that their compositions may be criticised for want of clearness write down with the greatest complacency the most absurd pedaling. If, in many cases, the pedal be used as they themselves have prescribed, the effect to the ear is like that to the eye when a wet sponge is passed over a pencil drawing or when one writes with ink on blotting paper.

As a model of bad pedaling the Largo from Beethoven's Sonata in D major, Hallberger Edition, may be quoted,—the following passage in particular:—

Largo.

Ped. * *Ped.* *

ff

The pedal should be used thus:—

The image shows a musical score with two staves. The upper staff is in treble clef and contains a melody with dynamic markings *f* and *p*, and a *Ped.* instruction. The lower staff is in bass clef and contains accompaniment with dynamic markings *fp* and *p*. Below the staves is a horizontal line with a single note and several vertical tick marks, likely representing a pedal timing diagram.

The present signs fail to show with exactness when the pedal is not to be used, and also fail in the contrary case, to indicate its prolonged use. In passages where they are wanting the player generally feels free to make his own use of the pedal, unless the composer interfere with a categoric "senza pedale." This, however, only shifts the difficulty, since who is to decide how long the direction holds good in case the author fails to raise the ban thus laid upon it? An unbroken use of the pedal can be similarly indicated by the direction "sempre pedale," but here again the difficulty is to determine how long the "sempre" should be observed. Thus, for instance, there is a continual dispute among pianists as to whether, in the concluding measures of the first movement of the *Fantasia in F sharp minor* by Mendelssohn, the "sempre pedale" should hold good to the end or not. Some insist that the pedal should be changed in the second measure because a new chord is introduced; others contend that it must be held steadily to the end, maintaining that the misty blending of tones thereby attained produces a characteristic effect peculiarly appropriate at the end of this ballad-like composition.

The following manner of performance is suggested as a compromise between these two opinions: After the left hand has played the \bar{a} of the melody, press down silently the octave \bar{F} sharp, *F* sharp, and then release the pedal, still holding down the octave, as follows:—

Andante.

Silent.

Ped. $\frac{2}{4}$

The following passage from Beethoven's Sonata in F minor, Op. 57, near the end of the first movement, can be played similarly:—

dim.
rit.

$\frac{12}{8}$

The image shows a musical score for piano and organ. The piano part is written on two staves (treble and bass clef) in G major (one sharp) and 4/4 time. The tempo is marked 'Adagio'. The piano part begins with a melody in the right hand and a bass line in the left hand. The organ part is written on a separate line below the piano staves, with notes marked with 'x' and '7' to indicate specific pedal effects. Dynamics include 'pp' and 'p'.

In this way the pedal effect is preserved and yet a mingling of unrelated tones avoided.

It may be more positively asserted that the "sempre pedale" at the conclusion of the sixth Song without Words is not intended to be observed as there indicated; Mendelssohn certainly never wished it to be played as he wrote it.

The method of noting the pedal by means of notes and rests upon a separate line, used in this work, was devised by the author and was recommended to general acceptance as long ago as 1863 in Zellner's *Blätter für Musik*, and later (1864) in Bagge's *Allgemeine Musikzeitung*.

Experience has convinced him that it is the only reliable way to express clearly the intention of the composer. It has been objected that it renders the reading of the notes more difficult. This objection would be reasonable if the composer had only to consider the convenience of those who cast aside a piece after having once played it through. Those, however, who wish to really study a work always welcome as an aid every exact indication of the composer's meaning. Organists read three staves at once—two for the hands and one for the feet; expert score readers read even twenty staves at one time so that a single additional line should prove no undue difficulty to the pianist. Neither is it necessary at first to study the pedaling; only after the fingering has been mastered is a precise use of the pedal desirable, and this precision can only be attained by means of the new notation.

Refinements such as are noted by N. B. in the two following examples, can only be indicated in that way:—

Schmitt, Op. 15.

Mendelssohn, Lied Nr. 22.

The image shows a musical score for two pieces. The first system contains two staves: the top staff is for the right hand and the bottom for the left hand. The first piece, Schmitt, Op. 15, is marked 'Allegro' and is in 2/4 time. The second piece, Mendelssohn, Lied Nr. 22, is marked 'Adagio' and is in 9/8 time. The second system shows a close-up of the left hand for Schmitt's piece, with a 'N.B.' annotation above it.

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All the different actions of the foot can be clearly represented, as already shown, by musical signs; *e. g.*, \dots , *tr*, \dots , etc. Its use, especially in works of an advanced elementary and middle grade would be of great service to the student, since it does not require him to understand harmony, nor yet to possess the esthetic feeling which would instinctively impel him to abstain from using the pedal where, otherwise, the laws of harmony would allow it. He need only know the correct value of the notes—the rest is the care of the composer.

When, however, the highest degree of finish has been attained, an arbitrary use of the pedal can be as little prescribed as an arbitrary fingering; arrived at that stage, every artist orders his fingering as well as his pedaling in such a way as to correspond to his own individuality. Those, for instance, who possess a more than ordinary strength of touch can go to greater extremes than others in sustaining the pedal. Just as habits of correct fingering are formed by a long and constant

study of prescribed models, so, by a similar study in playing from examples provided with a proper notation for the pedal, can the habit of using it with freedom and correctness be formed.

Even in the most advanced stage it is sometimes desirable to prescribe the pedal as well as the fingering with exactness. Liszt is by no means a pedant, yet he does not hesitate in special cases to give an exact fingering, thereby earning the gratitude of all who perform his works, since they find, almost without exception, that his own fingering has a characteristic effect in view.

In the highest grade of piano playing, therefore, the old signs for the pedal might be retained, the new notation being reserved for passages where precision is required; still more serviceable, however, would be the following characters:— $\underline{\quad}$ or $\overline{\quad}$ for *Ped.*, the horizontal line being extended to the right as far as the pedal is desired, $\underline{\quad}$ or $\overline{\quad}$ instead of \ast for the release of the pedal, the line being similarly extended to the left, and \square or \sqcup for short strokes of the pedal.

However simply and practically the use of the pedal may be taught by means of the new notation, it avails but little at present, since the old method is still universally employed.

The inconvenience and inexactness of the old method are so pronounced that the great majority of teachers do not attempt to teach the use of the pedal. Many, in this connection, adopt the principle of *poeta nascitur, non fit*, like the deceased piano instructor, Horzalka, who said: "My plan with the pedal is the same as that for the trill: he who makes a good trill or uses the pedal well must be born to it, and for that reason I attempt to teach neither."

One thing is sure: that by the present signs for the pedal, its proper use is no simple mechanical function; the player must possess in an equal degree with the composer a full understanding of the effect to be produced—indeed, in a certain sense, he must often possess more intelligence than the composer, since he is frequently obliged to make good at the piano what the former has failed to do, or done wrongly, at his desk.

For this reason, the minuteness of the foregoing study will be seen to be no less advantageous to the player than to the composer.

In addition, the player must be warned not to use the pedal merely on technical grounds, *i. e.*, to make the action lighter or to gain a support for the foot. Since the heel alone rests upon the floor and the fore part of the foot is held over the pedal in readiness to press it down, the foot,

particularly if it be small, is apt in time to become fatigued, and instinctively seeks a support.

This is especially the case in performing compositions which abound in changes from one end of the piano to the other. Not only the foot, but the entire body seeks support, and this is but too often found in the pedal. The danger is greatest when the player is nervous and the action of the instrument heavy. A common result of nervousness is to diminish strength, and if in addition the action of the instrument is heavy, the trembling player still more ardently desires a support. When his wearied foot involuntarily sinks upon the pedal, he finds with relief that besides gaining a rest for the foot, the keys move more easily; it is but small wonder that the pedal appears to succor him in time of need, or that he unwillingly abandons such a welcome assistance, especially as it covers all gaps resulting from notes passed over by sustaining the sound of those which are played. On this last account the pedal is always a welcome resource for those whose fingers are not sufficiently trained.

Happily, there are not many teachers like the one who gave his pupils the judicious counsel to use the pedal at the beginning of every difficult passage, and not to release it until the difficulty had been passed. Unfortunately, even well-trained pupils become confused when they fall under the power of nervousness, that evil spirit of the concert room. When this fault arises from such a cause it is indeed a difficult one to remedy.

As embodying the result of the preceding study of the pedal and its effects the following concise rules are added, affording a résumé of the foregoing chapters :—

The pedal is *indispensable* in all cases where the fingers must leave the keys before the prescribed value of the note has been attained; *e. g.* :—

1. With skips that must sound legato.
2. In a succession of chords which are to be joined.
3. With extensions beyond the reach of the hand.
4. With the notes of a melody which cannot be sustained by the fingers, owing to the hand moving to a distance in playing an accompaniment.
5. In pedal points which cannot be sustained by the fingers.
6. In playing long tones which are interrupted by accompanying tones of the same pitch.
7. When the liberty is taken of shortening the touch :—(a) to gain fresh strength; (b) to prepare the touch; (c) or to rest the muscles.

The pedal is *desirable* as a means of beautifying the tone. For this reason it must be used as often as the value of the notes allows; *e. g.* :—

1. (a) With every note long enough to allow the dampers to rise and fall during its continuance.

(b) With the longer notes when the long and short notes of a melody are mingled.

(c) With very short notes when they are separated by sufficiently long pauses.

2. As a means of strengthening the touch.

3. As an aid in procuring a *pp* touch.

4. In producing echo effects.

In the first of the following cases of broken chords the pedal is entirely allowable; in the latter ones it is somewhat less so, but it can still be admitted :—

1. With arpeggios in the middle and upper part of the keyboard when the tones of the arpeggio harmonize.

2. With arpeggios which begin low in a "wide position" corresponding to the harmonic order of the overtones.

3. With arpeggios which begin low but which begin with a minor third, especially if the movement be rapid; the best effect of such arpeggios is that of the diminished seventh.

4. With arpeggios which begin with a major third or a perfect fourth, played rapidly and accompanied by strong harmonic tones.

5. With all other kinds of broken chord passages if the composition admits of a stormy character.

In the first of the following cases of scale passages the pedal is entirely allowable; in the latter ones it is less so, but under certain conditions it is still admissible :—

1. With soft descending scales which are preceded by a loud ascending arpeggio.

2. With scales beginning high and played crescendo to the middle tones while a suitable harmonic accompaniment is played.

Its use is more daring when the scale lies low, but even then it can be employed for a short time if it be played *pp* while a harmonic tone be struck above—or if it be begun *pp*, then rising *molto crescendo* into the middle tones, if at the same time it be sufficiently supported by harmonic tones above. Still more daring is its use with double scales; in these the

pedal is only admissible when the scales are played *presto* in connection with sustained *ff* tones. The most daring use of the pedal, and which is only allowable for a short time in *presto* by a virtuoso, is to retain it during unaccompanied scales. In such a case the pedal must be released in an ascending scale as soon as the middle tones are reached; in descending it can be retained throughout. Minor scales played in this way sound rather better than major scales; the chromatic scale sounds worst of all.

Finally, players possessing the highest degree of execution can use the pedal momentarily in rapid playing with any tone-figure, in order to attain more brilliancy in major keys and more passion in minor keys.

Such players can even retain the pedal in playing rapid tone-figures as long as their strength of finger is sufficient to make a steady crescendo, so that each tone overpowers the one preceding, but this is only allowable in moments of the greatest excitement, and even then must not be carried too far.

In large rooms more can generally be ventured upon than in small rooms, taking it for granted that the principal tones are struck with sufficient force.

The construction of the instrument has also an influence upon the use of the pedal.

The pedal is not allowable in the following cases:—

1. With tones which are to have a staccato effect.
2. Likewise after slurred notes.
3. To prolong the duration of notes separated by rests which are intended to receive their full value.
4. With the slow notes of a melody when they belong to the same chord.
5. With slow scales and ornaments—also, in rapid scales if the player's fingers be lacking in strength.
6. In quick tempo in decrescendo passages.
7. When the finest possible piano is required.
8. In slow practice, especially in such passages where the pedal is only allowable in quick tempo.

The pedal is of almost no effect in passages confined to the highest tones of the piano.

The pedal must be used anew with every change of harmony, save that in the highest tones alone it can be retained during changing harmonies if a music box effect be desired.

The pedal must be taken after the tone in the following cases :—

1. With every low tone which is joined by the fingers to one preceding in order to avoid dissonance.

2. In joining tones which the fingers are obliged to play staccato.

It is not allowable with an extended chord which is to be sustained and cannot be held by the fingers.

The pedal must only be partially released in the following cases :—

1. With pedal points which the hand cannot sustain.

2. When it is desired to renew the tone.

3. When the tone is to be vibrated.

The foot must trill the pedal when a pedal point occurs in connection with rapid scales or ornaments; or when it is desired to use the pedal with tones not harmonically related.

The partial release and the trilling of the pedal are allowable in no case where the tones are to be completely silenced; nor, generally speaking, with changes of harmony in the middle and bass tones.

The foregoing rules are particularly recommended to those preparing to teach. Such will do well to memorize them, each one in connection with its particular illustration, so that in teaching they may have both the rule and its reason at hand, instead of an empirical direction to the pupil to do so and so merely because the teacher wills it.

Many teachers are of the opinion that the use of the pedal should not be allowed to young pupils, and since in any case its study is difficult, they generally postpone it indefinitely.

It seems, however, hardly reasonable to limit it to any definite age; a child who is intelligent enough to learn to play well can also understand how the pedal should be used. A certain tact should be observed by the teacher; no rule should be given but the one appropriate to the passage in question, and as different cases arise different rules can be applied until the child gradually masters the varying uses of the pedal.

Very young children have the disadvantage of not being able to reach the pedal with ease; in the effort they make to place the foot upon it the body is thrown out of position, so that a correct manner of playing is impossible. To obviate this difficulty the author has devised a pedal stool. This consists of an ordinary stool with two holes in the upper board, the space between them corresponding to the distance between the

two pedals; through these holes two pegs are passed, which rest upon the pedals. For greater convenience the pegs are capped, in order to present a broader surface to the foot, and to prevent all unsteadiness they pass through similar apertures in a second board below. In these boards notches are made corresponding to the pedal wires so that they can be brought close to the lyre. A practical experience has proved that by means of this simple contrivance the use of the pedal is rendered practicable to even very young pupils.

Without accurate signs for its use the study of the pedal is at first inevitably tedious to all pupils, both young and old. It may not, however, be denied that it can be taught even under such a disadvantage, as experience has shown, but it certainly demands a more than ordinary talent to use all the refinements of which examples have been given. This is by no means tantamount to agreeing with those who say: "He who has talent uses the pedal well; he who has none uses it badly." Talent alone does not suffice in gaining a complete knowledge of all possible pedal effects. Even the most gifted cannot of himself exhaust all the possibilities of his art; genius itself develops more rapidly when it assumes the experience of others as its birthright,—or, in other words, seeks instruction. The artistic use of the pedal can certainly be taught, and that this work may largely contribute to this end is the earnest hope of the author. The pupil should possess not only talent but zeal and industry as well; talent is not the only factor which leads to the goal.

Therefore, instead of saying, "He who has talent uses the pedal well," let us say, "He who uses the pedal well has talent."

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