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SCHOOL OF WEIGHT-TOUCH



NATURAL PIANO-TECHNIC

vol. II

C. F. KAHNT NACHFOLGER, LEIPZIG

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MUSI

INSTRUCTIVE WORKS FOR THE PIANOFORTE

EDITED BY C. F. KAHNT NACHFOLGER, LEIPZIG.

<p>Bach, Joh. Seb. Vier Orgel-Choralvorspiele. Bearbeitet von Th. Szántó 2.—</p> <p>1. Aus der Tiefe rufe ich. — 2. Ach bleib' bei uns, Herr Jesu Christ. — 3. Jesu Leiden, Pein und Tod. — 4. Allein Gott in der Höh' sei Ehr'.</p> <p>— Orgel-Fantasie und Fuge. Bearbeitet von Th. Szántó 2.50</p> <p>— Präludium und Fuge, e-moll, für Orgel. Bearbeitet von August Stradal 2.—</p> <p>— Präludium und Fuge, G-dur, für Orgel. Bearbeitet von August Stradal 1.50</p> <p>— Präludium und Fuge für Orgel. Bearbeitet von Th. Szántó 2.—</p> <p>Beethoven, L. van. Leichte Sonaten, herausgegeben von Walter Niemann 1.—</p> <p>Berger, Wilhelm. Op. 89. Vier Fugen, komplett 3.—</p> <p style="padding-left: 20px;">Einzel:</p> <p>Nr. 1. g-moll 1.20</p> <p>„ 2. b-moll 1.—</p> <p>„ 3. a-moll 1.—</p> <p>„ 4. B-dur 1.20</p> <p>— Op. 91. Variationen und Fuge über ein eigenes Thema 5.—</p> <p>— Op. 93. Fünf Capricen komplett 5.—</p> <p style="padding-left: 20px;">Einzel:</p> <p>Nr. 1. c-moll 1.50</p> <p>„ 2. 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NATURAL PIANO-TECHNIC

==== vol. II ====

SCHOOL OF WEIGHT-TOUCH

A practical preliminary School of Technic teaching the natural manner of playing
by utilizing the weight of the arm

Preliminary to Intermediate Grade

by

RUDOLF M. BREITHAAPT

With numerous photographic illustrations, drawings and musical examples

ENGLISH TRANSLATION BY JOHN BERNHOFF

ORIGINAL EDITION IN GERMAN

by

R. M. BREITHAAPT

Die natürliche Klaviertechnik

Band II

Schule des Gewichtspiels



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translated by

E. CLOSSON

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vol. II

La technique de la pesanteur

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by special permission of the author and publisher.

Rudolf M. Breithaupt.

C. F. Kahnt Nachfolger.



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TECHNICAL TERMS

Terms and names to convey the ideas of weight-technic, translated from the German

by

JOHN BERNHOFF.

Übertragung		transmission		
Fortrückung	}	lateral transference, shifting		
Rückwurf			}	of the weight
Fortrollung				
	lateral rolling			
Bindung der Gewichte - - - - -		combination of weights		
Fingerschwung - - - - -		oscillation of the fingers		
Figürliches Spiel- - - - -		figural playing		
Längsschwung des Armes - - -		longitudinal oscillation of the arm		
Grundformen des Gewichtsspieles -		elementary forms of weight-technic		
stumme Übungen - - - - -		silent exercises		
Nullbelastung - - - - -		discharged weight or zero-weight		
Mittelstellung - - - - -		intermediate position, medium pose		
flachgestreckt- - - - -		flat-straightened		
Spielbelastung - - - - -		playing-weight		
parallele Handstellung - - - - -		parallel pose		
gebeugte, gekrümmte Finger- - - -		curved fingers		
eingezogene (gestreckte) Gelenke- -		depressed, sunk (stretched) joints		
Knöchel-(Haupt-)Gelenke- - - - -		knuckle-joints		
Handbock - - - - -		handbridge, arch-set hand		
Rundform (Hohlmuschel) der Hand)	}	hollowed palm, umbrella hand		
Hohl-(Schirm-)Hand - - - - -				
Boden der Taste- - - - -		bed of the key		
Beugung der Hand - - - - -		flexion of the hand		
Buckel- - - - -		humps		
Innendrehung - - - - -		inward position: pronation		
Außendrehung - - - - -		outward position: supination		
Gespannter Büchsenhahn - - - - -		cocked-gun pose		
tiefgestellte Hand - - - - -		low set hand (hand sunk, with depressed wrist, below the key-board)		
Auslösung - - - - -		relaxation		
gebeugt-gestreckter Finger - - - - -		curve of the extended finger		
nach vorn geschwungener Finger -		finger thrown forwards		
Kugelhand - - - - -		hand as if closing on a ball (ball-hand)		
festigen - - - - -		to steady		
Daumenstand - - - - -		erect thumb pose		
den Akkord greifen - - - - -		to grasp (sound) a chord		
Aufhebung des Gewichts - - - - -		releasing the weight		
der Stüttschwung des Armes - - -		the supported swing of the arm		

PREFACE.

Immediate causes are tangible, and, therefore, most easy of comprehension; hence we are apt to confound the sublime with the mechanical. (Goethe.)

In publishing this volume, I am merely fulfilling a promise, made in the first volume of my work entitled: "Natural Piano-Technic". Myself an opponent of all so-called "methods", I undertook the present work very unwillingly, knowing from practical experience how difficult it is to formulate these apparently simple fundamental principles of technic without the aid of practical demonstrations. Besides, am I not adding one more to the already stupendous number of Methods? The Fundamental Principles of weight-produced touch having, however, been laid down theoretically, it became more and more necessary to develop those principles in a gradual manner from practical experience for practical use. Also, yielding to the repeatedly expressed wish to have the substance of my work divested of its scientific encumbrance and reduced to its simplest form, in order to render the ideas clear to all, and the "*new theories*" universal, I have now condensed the work to the present volume, which contains all that is essential and important for the elementary development of a natural manner of playing.

The present volume, entitled: "*School of Weight-Touch*" is intended and must be treated, as a practical supplement to my theoretical work, its object being to serve in public and private instruction as a sort of preliminary School of Technic for the intermediate grade.

Any of the existing good Schools may be used in their practical part for the elementary grades, the easier works of Bach being selected for the intermediate grades. With such a foundation laid, one may go on building up the structure.

I would here oppose the wrong idea that my object is to upset all that has existed heretofore, and to explain music by "psycho-physiology". Our aim is to do away with wrong ideas and to trace back to their real and natural sources the action of our playing members and the effect produced by them.

What we purpose to teach is in itself nothing new: we would disencumber the body and thus assist the playing-members in their action, and teach them to play. Our young musicians shall no longer be tormented unnecessarily with five-finger-exercises, their little hands lamed, stiffened and ruined by performing impossible stretches and exaggerated extensions.

Moreover, we must not forget that "technic" is not all that is required, but that now-a-days, as ever, the chief condition still remains, viz. natural musical talent. Where that is wanting, i. e. where nature has denied the rudiments of physical dexterity

and musical comprehension, it is hopeless to look for success. Let us be candid and confess that all we can do is to train and educate carefully such natural talent as the pupil is gifted with. Our task, in short, is to foster the germs implanted by nature, to cultivate mind and body by natural means and in a natural way, and thus assist in developing the personality (soul, spirit, intellect, general education, habits of life, all that goes to make up a human being), in the manner and towards the goal destined by nature. In the free adaptation of the pupil's natural abilities will be found the solution so extremely simple, and yet so complicated, of all problems involving mastery over, and success in, any branch of art. We are the gardeners, carefully watching and tending the young plants, watering them day by day, and pruning where it is needed. We may prepare the soil, delve and weed, but we must trust to nature to furnish the sap, draw forth the bud, and ripen the swelling fruit. Cultivation can do a great deal, but it cannot replace nature. Talent is innate, not the result of education. The genius is born, not made.

As regards the technical terms and the names adopted to convey certain ideas, they are either borrowed from the latest investigations of our subject or are dictated by practical experience. Wherever it was possible, — and in order to secure greater uniformity — the scientific terminology has been correctly applied (See Dr. F. A. Steinhausen: *Physiological Defects and Reform of Piano-Technic*, Leipzig 1905, Breitkopf & Härtel). However strange and even objectionable the new vocabulary may at first appear to the teacher, the new words will, I am convinced, very soon convey to the mind the sense intended, provided, of course, the reader is not bent upon maintaining an erroneous conception of finger-technic, and confounding cause and effect, but is prepared to think for himself and reject antiquated notions and traditions. May this "School of Technic" assist in shortening the mechanical part connected with the art of piano-playing, and thus enable us to devote our efforts to the culture of the soul and to enter into the spirit of the compositions.

I cannot conclude without expressing my gratitude towards my faithful friend and counsellor Dr. Paul Kraemer, for kindly reading and correcting the work from the medical man's special point of view, and to the publishers C. F. Kahnt Nachfolger, Leipzig, for all the trouble they have taken in bringing it out.

Berlin.

Rudolf M. Breithaupt.



fig. 1a.



fig. 1b.

fig. 1a.

Ideal type of a piano-hand of a little girl aged six, set in a gently rounded natural pose, showing thick regular fingers with powerful knuckle-joints, the rounded knuckles protruding naturally. Thumb and back of hand are broad, the short fore-arm terminating in a massive wrist.

fig. 1b.

The same hand, hanging in a natural intermediate pose, the pendent fingers slightly curved.

PART I.

THE ELEMENTARY FORMS OF WEIGHT-TECHNIC.

CHAPTER I.

EXTERNAL CONDITIONS.

Silent¹
exercises

I. The seat. The height of the seat depends in general upon the individual. It is determined solely by the general size and proportions of the physique, more especially by those of the upper body and the lower extremities. With regard to the

The low seat is indispensable only at the outset, i. e. as long as it is a question of making the joints supple, of maintaining relaxation of the muscles of the arm, of accustoming the arm itself to assume and retain a position of passive suspension and

Adv
low



fig. 1c.

The hand straightened out flat in natural intermediate pose (discharged weight).



fig. 1d.

Hand-bridge with protruding knuckle-joints (hollowed palm or umbrella-hand — discharged weight).

fundamental principles of general technic, i. e. to the natural functions of all the muscles pertaining to the parts employed in producing the tone, and to the relaxing of the muscles of the arm, the *low seat* is the one to be preferred in the beginning, as permitting of the wrist and elbow being held somewhat lower than the level of the key-board.

of developing the shoulder-muscles. Later on, when all these desired conditions have been acquired, the height of the seat will be dictated by the general physical proportions of the individual. Yet the low seat is to be recommended for those with large bodies and long arms, in order to accustom the arm to a passive pose of rest, i. e. to hang free from the shoulder; whereas for the short-bodied with short, thick-set arms, the

¹ i. e. away from the piano, or without sounding the keys. (Tr. n.)

The seat

high seat is preferable. All depends upon the "perception of the weight-transmission". Naturally, the greater the energy displayed, the more the body will straighten itself out. The climax will be attained by direct transmission of shoulder-power, i. e. by employing the key-board as a support for the arm fully extended. (p. 33, fig. F.)

Sit in such manner that in grasping a chord with both hands simultaneously, the key-board shall be so far below you, as to afford a purchase. Bend the body somewhat forward. Sit more upon the thighs than upon the posteriors, the feet resting firmly on the floor. The muscles of the lower body and of

arm: a firm, steady hand-bridge, on which the arm rests like the superstructure of a bridge on its arches and pillars. Hand-bridge

Explanation: Lay arm and hand relaxed, flat upon a table (fig. I c). Then slide back with the fingers (i. e. draw them in a little), raising and hollowing the palm of the hand somewhat, thus obtaining a hollowed palm, the umbrella-hand (fig. I d). The "ball-shaped" hand, i. e. the form, it would assume in clutching a ball, by flexion, is shown in figs. II b, c. Umbrella-hand

We thus obtain the arch-set metacarpus carrying the weight of the arm.

The fingers must either be straightened out (fig. I d) or Fingers



fig. Ie.

Transmission of the weight (the weight transmitted to, and supported by, the middle-fingers — playing-weight).



fig. IIa.

Parallel pose (old school) with curved fingers and depressed knuckle-joints Köhler's "school"-hand; cf. also Riemann, Deppe, Jaëll and others (to be used only to get the effect of the "jeu perlé").

the abdomen must be relaxed, and the body itself free to perform any movement.

The general rules in the elementary stage — to sit opposite the centre of the instrument, at arm's length from the wooden frame of the key-board, etc., — remain the same.

II. The arch-set hand (hand-bridge). There is no hard and fast rule to determine one special way of holding the arms, hands and fingers to suit all cases and answer all purposes. All so-called *normal* positions are to be rejected.

In the beginning one thing is required for weight-technic, i. e. for the transmission, support, and balance of the weight of the

slightly curved, the knuckle-joints protruding and forming humps. Thus posed, the fingers become "stilts", "props" supporting the weight borne by the palm of the hand, arched to form a bridge. This is the first and most important part devolving upon the fingers.

The hand-arch must, of course, not be considered as a rigid hand-pose or one assumed for practising-purposes only. It is merely intended to assist in developing an energetically rounded form of the hand supported on firmly set fingers and knuckles. Later on, the technical difficulties having been mastered, the hand may do as it likes, provided the supports are strong enough and the tone be located in the bones (the knuckles). For it is the hand that must suit itself to the

Adaptation of the hand



fig. IIb.
Rounded hand as if closing on a ball (ball-hand).

Theoretical
figures



fig. IIc.
Hollowed palm, by outward rotation (Supination).



fig. IIIa.
Over-tension of the fingers with stiffened knuckle-joints and wrist as taught by the old schools and methods: wrong.



fig. IIIb.
"Cocked-gun" pose with absolutely stiffened knuckle-joint: wrong.
2*

musical or technical forms, not vice versa. It adapts itself to the instrument, assuming such postures and forms as correspond to its build and its own peculiar (anatomic) structure and proportions. Similarly, and as a natural consequence, the arched hand adapts itself both to the musical and instrumental forms: its shape and pose being modified or determined by the same,



fig. IIIc.

Finger raised, old method, with low-set hand and stiffened wrist: radically wrong.



fig. IIIId.

Natural curve of the extended fingers lightly thrown forward, the wrist being held high or low: good pose.

i. e. *there are as many hand-poses as there are technical forms*. The play of the hands is a constant interchange of contraction and extension, of rise and fall, of tilting, twisting, turning (inward and outward flexions) and rolling, gliding motions in both directions (in and out) of parallel figures (similar and dissimilar), converging and diverging (of both hands), etc. So that *there are as many modifications of the hand-arch as there are physical peculiarities in the build of each individual hand, etc.*

In so posing and shaping the hand, care must be taken:

1. That the knuckle-joints of the fingers do not bend in (fig. IIIa). Over-tension, i. e. the much praised "*full-cock*" setting of the fingers (fig. III b and c) is absolutely *wrong*, when viewed from the stand-point of free weight-produced touch, for we no longer need such exaggerated tension of the fingers; besides, the bending-in of the fingers would

What to guard against:

destroy the bridge and hand-arch, and thus, from the outset, render transmission of weight impossible.

When dealing with weak, too loosely jointed hands with lobulated fingers and unsteady joints, preparatory exercises must be practised, to strengthen and steady each joint, more especially the primary joints, and in such manner, that the fingers shall always be slightly curved and in such curved, contracted pose, each finger shall practise separately on single notes:

Preliminary exercises for awkward hands

1.

Clawing-hand

Hold the hand somewhat low and shape it so as to form, as it were, a claw (fig. IV); *the full weight of the arm* to fall upon the firmly rounded fingers, grasping with the tips.¹

Practise this exercise daily, if possible, until the end is gained, i. e. until the joints have become firmer, stronger and the fingers "acting as props" will "stand" and "support" the weight of hand and arm.

2. The 2nd and 5th fingers particularly — the roots of which constitute the internal and external points of

2nd and 5th fingers



fig. IV.

Low-set hand with the fingers strongly curved inwards in order to steady the first twojoints (and tip). The thumb rests upon the edge of the key-board.

support in determining and in limiting the arch of the metacarpus — must be raised to the height of the middle-fingers, so that all the principal joints shall describe an arched line, slightly curving the back of the hand (fig. I d and figs. III d and VI).

Aim at a natural pose

3. Fingers and hand must retain a natural pose, i. e. the hand must always remain in an unconstrained normal intermediate position (figs. I a, b, and XII a), which is

The object aimed at

¹ This exercise serves merely as a means towards an end, and should by no means lead to the conclusion that a clawing, scratching pose of the hand is what we are aiming at. The touch is produced by the *fall* of the arm, *not* by a tiring action or strained tension of the fingers (as in the Leschetizky-Brée-Melasfeld-methods).

natural to it, without exerting any pressure, while avoiding any tension or spasmodic stiffness.

The *arch-set hand constitutes the typical form* for all fundamental positions and poses; held thus, it is the basis of all our "weight-technic".

This pose of the hand is required only to transmit the weight and support the arm. Later on, we shall recognize only *one* form: the absolutely relaxed, supple hand with loosened joints.

III. The weight of the arm. The full utilization of the massive weight of the arm (which differs as to quantity and

The hand of weight-technic

The v applic



fig. Va.

Hand raised erect (on the 3rd finger). Transmission of weight — play-weighted hand "in erection".

quality with each individual), when combined with the elastic muscular tension of the whole physical apparatus set in motion (shoulder, upper- and fore-arm, hand, fingers), constitutes the fundamental elements of piano-technic. The essential condition of its employment is a clear conception of the various degrees of energy needed — the mental control of the heavy, loose, freely oscillating arm, or *realisation of weight*.

In order to perceive this and put it to practical use, so that it shall be "felt" and "lodged" in the finger-tips, lay the arm, with all its muscles relaxed, at full length and flat upon a table (fig. I c), arch the hand to form the bridge (fig. I d), and, raising the upper- and fore-arm, transfer the weight to the hand and to the firmly set fingers (figs. I e and Va). The arm, hanging loose and inactive in the shoulder-joint, is "supported"

Exper

Arm-transf finger

Importe supporte relax

by the hand or by the fingers (passive bearing, in contrast to active bearing of the arm by the shoulder-muscles — light arm).

After supporting the arm a while, let it fall again on to the table (fig. 1c). Repeat this movement, until the weight is realised in the finger-tips, i. e. until the actual consciousness of weight is awakened. It may be useful to make the pupil practise this exercise with his eyes closed, as owing to the consequent concentration of mind and will-power, due to non-diverted attention, the feeling becomes intensified, while *intermediary senses* (*sense of muscular power, pressure and pose*) are quickened. In place of the table, ordinary weighing scales may be used, in order to determine the weight, and at the same time demonstrate ocularly the amount of pressure exerted, which must be uniform.

The supporting-posture of the hand having been sufficiently practised, follow it up with balancing-exercises, causing the whole arm to perform a pendulous motion, yielding to the tilting action of the wrist, up and down and supporting its weight upon the arch-set hand. This movement and the suspension of the relaxed arm constitute the most elementary forms of *releasing the weight*.

The relaxing of the muscles naturally corresponds to an immediate release of pressure on the key (by weighting the shoulder). The arm thus set swinging in its three principal joints (shoulder, elbow and wrist), may very appropriately be compared to a rope, the transmission of its movements producing a succession of continuous undulations (fig. A).

fig. A.



Experiment: Take the pupil by the hand as if bidding him a hearty "good day", and shake his arm held at full length. The interaction of the three principal joints, more especially that between elbow and wrist will be realised at once. The same

experiment will enable us at once to detect the least impediment in free action, the slightest spasmodic retention or contraction, i. e. the withdrawal and holding back of the fore-arm.

In all these preliminary studies we must distinguish (with Steinhausen) between:

1. The hand weighted to the utmost, i. e. the greatest amount of pressure together with full muscular power and the whole weight bearing on the keys.
2. Suspension or removal of the weight resulting from the withdrawal of the point of support of the arm, as when the arm is raised from off the table and held, borne by the muscles of the shoulder (active carriage) up in the air, a form of muscular action which takes place even during the shortest pause or rest in playing.
3. The arm weighted "for playing", i. e. the weight of the relaxed arm, or the normal pressure of the bulk of the arm suspended passively or reposing with its full weight, all its muscles completely relaxed.

The gross weight is from three to six pounds or more. The weight of the relaxed arm (i. e. of the arm weighted for playing) is from two to three pounds (1200—1500 grammes¹, that of the hand in repose about $\frac{1}{2}$ a pound (250 grammes).

The weight in *p*- or *pp*-style (*leggero*, *leggierissimo*, *jeu perlé*) only about 5 to 8 ounces, i. e. the weight of the lightest hand.

For practical purposes, we have only to deal with the arm weighted for playing; since the hand weighted to the utmost — the crudest form of touch — has nothing in common with the technic of artistic playing. All dynamic gradations of touch, for the intermediate stages of technic, are between the suspended weight and that of the arm weighted for playing. The other degrees of attack are effected by the velocity, by the backward sweep of the arm and by special tensions of the muscles of the shoulder and back (See Breithaupt, *Natural Piano-Technic*. Vol. I. 2nd edition. C. F. Kahnt Nachfolger, Leipzig).

¹ 1 Kilogramm (1000 grammes): 2.204 pounds.

CHAPTER II.

TRANSMISSION OF THE WEIGHT.

Exercises limited
to a single tone
Stationary arm
supported on
fingers
Transmission of
weight
From silent
exercises
to exercises at
the instrument

Having gone through these preliminary, but indispensable exercises, which, owing to the discordant effect they produce upon the ear, had better be performed inaudibly, we proceed to study at the piano itself.

i. e. that *no conscious muscular contraction* in any way affect or disturb the relaxed state of the arm.

This is most important, for at first with every pupil (even with children) certain involuntary, spasmodic reactions and a

Free osci
without m
lar contr



fig. Vb.

Hand set to take thirds.



fig. VI.

The 5th finger ready to act as a "support". Modern construction with protruding "knuckle" (radical knuckle-joint) to bear the weight of hand and arm firmly.

I. Testing the weight, weight-bearing.

Experiment

The teacher should hold the pupil's right arm, lay it upon his (the teacher's) extended open hand (l. h.), raise the pupil's arm and let it suddenly drop back again on to the pupil's knee. In raising the arm, be careful:

Three chief
features of the
exercise
Weight without
pressure

1. That the arm rest with its *full weight*, yet without active pressure whatever, upon the support afforded by the teacher's hand.
2. That it hang loose from the shoulder and *oscillate freely*,

resistance will be noticed, which it will take time and patience to overcome.

The relaxed state of the arm, as we notice in the case of a child when asleep, or as we may experience ourselves, if we let our arm hang loose over the back of a chair, constitutes in its unconscious, practical application (true technic is free from apparent effort) the starting point of all ulterior development.

The first attempts at free suspension and loose dangling of

the arm, while relaxing the shoulder-muscles will be attended by a slight contraction in the back and a natural tiring of the shoulder; both are, however, perfectly harmless and will disappear in time.

Muscular reaction, contraction, signs of fatigue, of "aching" shoulders, that feeling of being "done up", of exhaustion are the safest criterion for the teacher, as they prove the natural reaction of the muscles and that the movements and actions performed are those required. Intelligent teachers, possessing

symptoms are, of course, felt in the shoulder. They will not last long, however, but disappear in the course of practice. They are felt most, wherever spasmodic tension in shoulder and elbow impedes the reformatory process of training the muscles to assume a state of natural relaxation.

3. That the three chief joints of the arm act and react naturally one upon the other, i. e. that neither the shoulder-joint, which is apt to *grow stiff*, owing to the continually repeated grasping-action, nor the elbow, nor the wrist-joints

Natural pose
of limbs



fig. VIIa.

Modern erect thumb-pose (hand set to take sixths).

some knowledge of physiology will easily detect all this by pressing upon the muscles in question. The absence of these symptoms is positive evidence of detrimental counteractions or impediments and proves that the movement, the action is wrong. The reason for this phenomenon will be found in the simple contrast between: actions required in piano-playing, viz. suspending and relaxing, and those performed in daily life by our arms and hands, viz. in carrying, holding, seizing or grasping. The former constitute actions which the muscles are but little accustomed to. The object pursued by the piano-student exacts a different schooling and practice. Now, as in training those members to assume a suspended position, the shoulder has to bear the whole arm, the first

show any signs of rigidity or inflexibility through muscular tension.

After thus testing the weight, which must be repeated at each lesson, bear the full-weighted arm of the pupil (supported on the teacher's hand) to the key-board, and set it upon the middle-finger placed perpendicular upon a black key ($C\sharp^2$, $E\flat^2$ or $A\flat^2$) (fig. Va).

Test the weight

If the arm "holds" at all, the teacher may withdraw his own supporting hand, and leave the pupil's arm to its own weight (natural balance). In order to prevent the arm from suddenly dropping below the level of the key-board, set the hand firmly, raising the wrist rather high (fig. Vb).

The arm mus
"hold"

Weight 2nd, 4th,
5th fingers
5th finger weak-
est

How to
strengthen 5th
finger

Continue this exercise, bringing the weight to "bear" simi- larly upon the 2nd, 4th and 5th¹ fingers. The last-named finger (fig. VI) requires particular attention, as in most cases, the support it affords will prove too weak, and for months it will bend in and give at the joints, under the arm weighted for playing.

It is advisable so to develop the knuckle-joint of the little finger even at this elementary stage, that on attaining the inter-

with the first joints bent in, as the case required and as the execution suited the fingers. The formation of a firm, rounded finger-tip, for the highest concentration of dynamic power and development of energy, is, nevertheless, to be recommended as preferable (figs. IIa, b, VII b and IXa). But after all is said and done, we must take into consideration the general physique, disposition and habits of the pupil.

Develop a
rounded f
tip



fig. VIIb.

Thumb "crooked" (in grasping pose — over-tension of the thumb). Used for chords, octaves, also in polyphonic playing and in legato rolling.

Theoretical
figures



fig. VIIc.

Hand of a girl-pupil showing a weak middle thumb-joint preventing the thumb from forming a firm arch-pose; the thumb wobbling to and fro and giving way through articular weakness.

mediate grade, the "building up" of that finger may be completed and the joint properly "curved", ready for its new work. The bending-in of the first joint is no absolutely objectionable feature, provided the middle-joint is sufficiently firm. Liszt and Chopin almost constantly played with a more or less flat touch and

¹ The thumb is the first finger. (Tr. n.)

The following exercise will assist in training the 5th finger to act as a support (fig. VI): Let the hand fall upon the thumb (as a prop), allow the arm to hang in the yielding wrist (in low posture), raise the hand from below into a set posture, the knuckle-joint of the 5th finger serving as a base of support. Continue this shifting from the thumb to the 5th finger, progressing thus in broken sixths or broken octaves. This exercise

Experim

may easily be practised on a table, care being taken to straighten out, not curve, the whole finger, else it is apt to give at the knuckle-joint. Fingers with too tender nail-joints or middle-joints must, of course, be trained and strengthened, but not before the preliminary exercises in flexion and contraction have been studied. (figs. IV and IXa). Firm finger-joints are indispensable in higher technic; without them it is impossible to produce the massive power of tone required in *martellato*.

The *thumb* also calls for attention, as its radical joint, mostly stiff and clumsy, requires preparatory training (cf. fig. VIIa). Relaxation and agility of its radical joint, as also its erect pose, are of great importance in forming and training the whole hand.

The flexion of the thumb (fig. VIIc) is mostly due to insufficient tension power of the hand, a disadvantage under which most pupils labour, more especially the young ones whose hands have been strained by prematurely stretching octaves. Considering how prevalent this articular weakness is, it is high time to introduce into all Institutions and Conservatories of Music the instrument contrived by Professor Zabludowski and built by Menzel, which is furnished with two adjustable key-boards, a normal one and a small-sized one with the keys closer together. The general adoption of three-quarter, and half-sized violins pleads in favour of the introduction of small-sized key-boards. Besides, the articular weakness may be overcome by firmly setting the thumb down (fig. VIIa) and by curving the two first joints (see the crooked thumb fig. VIIb).

Too much time must not, however, be given to these matters. They will gradually come about of themselves, so that the pupil need not be taxed with them unnecessarily. Practice will equalise the dexterity of the fingers, and daily exercise in supporting the weighted arm will gradually strengthen the joints and render them fit to do their work with ease. The arch-set hand and its relaxation is the result of practice, of the adjustment by habit to the most elementary purpose of technic, viz. to learn to support and relax the weight of the arm.¹

It is of far greater importance that the teacher should watch and control the weighting (see p.12), which must be done most carefully, especially in the beginning. The free "suspending" and "dangling" of the arm in the shoulder-joint, the equipoise of its own weight, the loosening of all the muscles, the easy relaxing of the articular mechanism constitute the chief object of this exercise, which, for the first year, will require constant supervision and correction. Thus, when the hand is set erect on the

key-board, the teacher's hand supporting the arm, lift the arm up fairly high and then let it sink back again; the teacher should also frequently strike the pupil's arm suddenly from underneath. If the limb is properly relaxed, i. e. if the arm is heavy and limp, falling back naturally and at once, each time it is struck, steadily resting its weight upon whatever finger is at the time supporting it, we may rest assured that all is going on right and is as it should be. The arm must so abandon itself to its own weight that it shall require some exertion on the part of the teacher to move it from its position.

As the weight does not vary, and the muscular sense perceives and discerns the weighting by the resistance which the muscles have to overcome at every movement, no difficulty will be found in testing and determining the same. *The constant weighting will become a habit* with the pupil, and what at the beginning had to be taken in with the mind and practised, will gradually be performed unconsciously: the weighting-act will become *automatic*.

The best way to proceed in transmitting the weight is: to set the arm limp upon the key-board, and, with closed eyes, transfer the weight from bedded key to bedded key *without sounding* them, the fingers weighing heavily and with their full breadth on the keys (somewhat after the gait of plantigrades). The sensation must recall that felt in walking over a moor, the ground giving at every step. The noiseless bedding of the keys and the careful shifting of the weight exact a concentration of mind, which in its turn facilitates and intensifies the realization of weight. The fingers must not be raised, they merely take turns in carrying and transmitting the weight, passing, as it were, the load from one high, curved knuckle to the other.

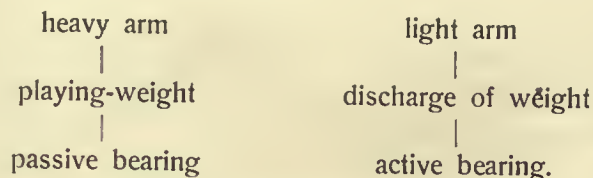
II. Releasing the weight.

This weight-bearing act — *passive* bearing process, is followed by the *removal* or *relaxing of the weight* — *active* bearing process, effected by the pupil's suddenly lightening the heavy (weighted), receding arm, and letting it, while in absolute contact with the bedded key, *rise with the key*. The arm then hangs *active* in the shoulder-joint and is "borne" by it, so that the sensation of weight is transferred to the shoulder.

"Passive" must always be taken as meaning relaxation; for here, as everywhere else, muscular exertion is never entirely suspended.

Exercise: Bring the weight of the arm to bear upon each of the fingers separately, including the thumb, firmly set on the bedded key; then suddenly carry the weight by allowing the finger to rise with the key (the key bearing the finger up).

¹ Gewichtstragung: literally — weight-bearing. (Tr. n)



This exercise: *fall of the weight — relaxation — rising with the key*, must be repeated, until the alternate charging and discharging

contraction or stiffness, every joint, muscle and sinew of the limb being relaxed. The arm should oscillate naturally in the wrist-joint. Notice the perfect spring in the fetlock-joints which gives that elegant grace to the step of a thorough-bred horse, of a stag or a deer.

The pupil should also study playing various forms of accompaniment and chords, at first *without sounding them*. Then, — *sounding them* — he should practise all the exercises with



fig. VIII.

Relaxed, limp hand, resting on the bedded keys, with perfectly loose wrist and suspended arm (state of relaxation).

of the arm, can be performed perfectly and with ease, i. e. without any contraction or muscular resistance, at a moment's notice.

Having succeeded in this, leave the (finger) hand on the key and let the *descent be followed by instant relaxation*. The best way to do this is to relax the arch-set hand and slacken all its muscles: the hand, becoming soft and pliable, rests with only as much pressure on the key as is required to keep it down and sustain the tone (fig. VIII).

Silent exercise

Preliminary exercise: Place the hand upon any interval of a sixth or octave, without sounding it, arm and hand relaxed, oscillating, in natural rise and fall (flexion — tension), up and down, the fingers bedding the keys without further pressure. Every movement must be supple, perfectly free from muscular

both hands, in similar and in alternating action:

right hand high — deep
left hand deep — high

or vice versa.

It will be found excellent practice to allow the "descent" to terminate in a gliding motion, i. e. to make the finger in action glide to and fro upon the bed of the key, the hand lightly resting in the wrist-joint, the arm giving softly and with suppleness to the movement.

This loosening or relaxing of the limb constitutes the most important feature in the whole technic. The solution of the divers problems relating to technic is essentially of an intellectual

nature, consisting, as it does, in the faculty of producing an arm relaxed in its joints, on the mental impulse, at any time, anywhere, and utilizing it, without expending other muscular power than that normally required for the oscillating descent, for the transmission and the removal of that self-same weight.

The mastery of weight-technic, the study of its natural dynamic gradations, with perfect alternation between normal muscular action and muscular relaxation, forms the secret of all technic.

Dynamic study: Bring the arm-weight to bear upon the key (fig. Va); and, moving up and down with it, test all the various dynamic degrees of touch, resulting from the natural weight, as they occur between the arm naturally weighted for playing and the arm released from weight, in the following manner:

In all these preliminary exercises, the object of which is to determine the dynamic intensity of each tone separately, the pupil must be careful to use the broad fleshy part of the finger-tip, which should adhere to the key, as it were, by suction power, until every dynamic degree of percussion enters into the sense of touch.

The object is the culture and refinement of the muscular or tactile sense, concentration of the mental perception of tone, awakening of a keen sense for all that concerns the dynamic value of the single tone, to render the feeling in the finger-tips more acute, and refine the sense of touch, i. e. the harmonic connection between brain and tone.

Tactile sense must become so refined as musically to reproduce every gradation of weight, gauge the weight of the key

2.

decresc.

The same in notes of less value:

3.

decresc.

4.

decresc.

and reversed:

5.

cresc.

and so on.

p to fff

CHAPTER III.

ACTION I. THE LONGITUDINAL OSCILLATION OF THE ARM.

Lateral transference of the weight: martellato — non-legato.

I. The supported swing of the arm.

1. So far, the exercises have been limited to the single tone.

The arm was "set stationary" supported by the fingers. We now proceed to the study of successive tones; to the shifting or lateral transference of the weight: the arm, deprived of its support, left to its own resources to swing off, now oscillates or rather is swung to and fro in the free shoulder.¹

Exercise: Set the weighted arm, supported by the middle-finger upon the middle C (fig. Va). Count sharply and with marked precision: 1 - 2 - 3 - 4, discharging² the arm with lightning rapidity on 4, swing³ it off the key, dropping it with its full weight upon the next key D², and so on, *always on the third finger*. Then using each finger (except the thumb) as a support to the arm, practise the scale of C-major, to begin with — later on, do the same with the scales of D^b-major, D-major, E^b-major, etc.

In practising this exercise, which the author calls "Stützwunschung" (lit.: supported swing), followed by the heavy descent of the arm, take good care:

1. That the muscles of the arm be and remain relaxed, no other contraction taking place than that required to produce the swing.
2. That in relaxing the muscles, previous to the second descent, no secondary, involuntary action take place, i. e. that the arm be not raised *too soon* or too high, — or, worse still,

¹ Abschwung, Aufschwung: These nouns, derived from the verb "schwingen", to swing, and constantly recurring, cannot possibly be rendered in every modification of the original meaning. What the author would chiefly express in using them is a rising and falling of arm (hand), light as the soaring or swoop of a bird. (Tr. n.)

² Gewicht lösen, lit.: to release the weight.

³ We use the literal translation purposely as being the most adequate (Tr. n.)

held suspended in mid-air (instead of being brought straight down), thus allowing a pause to intervene between rise and fall, which would produce the contrary effect to that required. The arm must be raised no higher than is needed to allow of its shifting from key to key.

3. That the descent be effected without the least hesitation, with the full weight of the arm and with precision and firmness (this applies more especially to the "timid" 4th and 5th fingers, particularly on striking the black keys), regardless of slips, misses or wrong notes and resulting dissonances.

The arm — one suspended mass — must descend with the swing of a massive iron hammer, this being the *martellato form of the non-legato touch*.

4. That the descent be followed instantaneously by the discharge of the weight and the relaxation of the joints, so that the arm shall hang suspended, with joints and muscles relaxed, the hand yielding to its own weight, and giving to the action of the wrist.

The *essential part in all these exercises* is that the drops shall succeed each other as rapidly and as unpremeditatedly as possible, in order to prevent any mental or mechanical resistance from the outset, and obviate any movement contrary to the object in view. If properly executed, the short-descent should produce the effect of a "false-step", as if one were suddenly falling down a precipice (cf. the hopping and skipping on stilts). For this reason, the teacher should frequently assist the pupil, taking hold of the latter's arm, and suddenly dropping it, when the pupil least expects it. *It is the sudden, unexpected, unconscious descent that begets what we may call the "brazen rhythmic tread" of the physical organs set in free motion.*

Each finger having been drilled, the pupil may take up the study of double forms: thirds, sixths and octaves, in addition to

touch, or rather the first fall to attack, remain the same, as in the low-fall. Only arm and hand immediately relaxed (the latter yielding passively), sink back into the extended posture below the key-board (fig. B). From this low position arm and hand are projected upward on to the 2nd finger by *extension of the forearm* (fig. C). The exercise should be practised in the following manner: using the 2nd, 3rd, 4th and 5th fingers (excluding the thumb, at first), weight the arm at 1; lower arm and hand (on the 2nd finger) at 2; raise the arm, set on the 3rd finger, at 1; lower

Practise each exercise with *one* hand alone, at first, always beginning with the *left* hand. Begin with

Play each exercise with low-fall and high-fall.

Then play each exercise with both hands at once, in low-fall and high-fall (figs. B and C).

In order to train the hands to play independent of each other, advanced pupils may practise the low-fall and the high-fall alternately, with both hands together, either in the following order:

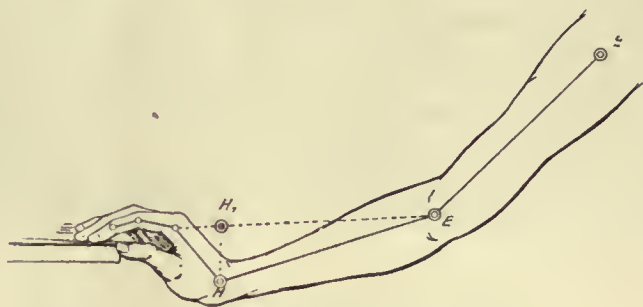


fig B.

S: shoulder. E: elbow. H: wrist.

it at 2, and so on. In all these *first exercises*, the fingers are *not raised*.

For the time being, it is a matter of minor importance, whether the finger falls upon the very tip or on the more fleshy, softer part of that joint. The chief object is to retain the arch-set pose of the hand, and that the weight remain in the *knuckle-joints* of the fingers.

All five finger exercises are *first* to be practised *ascending* (8) and then *descending* (9), and transposed into all the major and minor keys.

How to practise all five-finger exercises: in contrast to the old system



fig. C.

S: shoulder. E: elbow. H: wrist.

Left hand: low-fall — flexion of fore-arm (fig. B).

Right hand: high-fall — extension of fore-arm (fig. C).

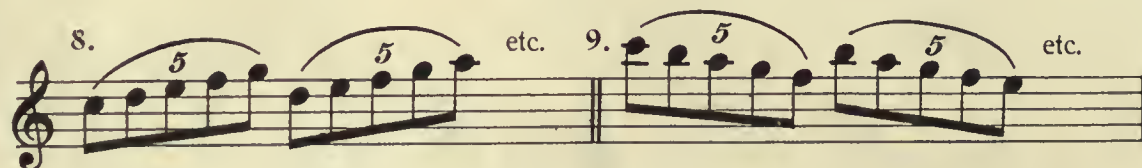
or reversed:

Left hand: high-fall — extension of fore-arm (fig. C).

Right hand: low-fall — flexion of fore-arm (fig. B).

Each exercise must also be practised with varied rhythm.

Exercise:



Practise in this manner: 1. In groups of three (10), 2. In groups of four (11).

Exercise:





fig. IXa.

Rounded or "clawing" ball-hand for small intervals (d'Albert, Carreño, etc.).

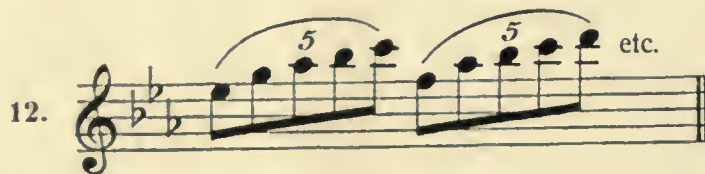


fig. IXb.

Modern style of holding the hand, somewhat resembling the shape of a bunch of grapes (for scales and passage-work).

In conformity with the conditions set forth, regarding the free descent of the weight, the simple five finger exercises are to be followed up with:

1. The various extended forms of the primitive figure:



2. All the broken chords of the triad and four-part chord, as far as they may be developed: Broken chords



3. All forms in double notes, thirds, sixths, octaves and chords:



modulate into all the keys, in this manner. Small hands, unable to stretch an octave, should practise triads only (omitting the octave).

or in notes of less value, with longitudinal oscillation of the arm — *tremolo* or *vibrato*.

15.

Daily exercise. The hands to remain on the keyboard.

These latter formulæ emanate, without exception, from the low-fall or high-fall of the arm swinging as one mass, in *non-legato*. Contrary to the ordinary academic method, in which

elements subject to, and producers of, the whole complex movement: swing (oscillation) — descent, weight-bearing, and weight-removal (charge and discharge).



fig. IXc.

Old style of wrist-tension. The hand is thrown back into the wrist-joint, the fore-arm remaining rigid: radically wrong.



fig. IXd.

Grasped or arched octave pose (cock's step). Motion of the fore-arm only, the hand, shaped as if to claw or paw, strongly arched in the wrist; the thumb set at right angles to the fore-arm. The tone is rough, being produced by a sharp, angular attack and hard, dry pointed touch. Available only in accentuation and for sforzati.

they are set at the end, they must follow immediately upon the exercise on low-fall and high-fall upon single fingers, for they constitute the very best, the most efficacious means of loosening the arm, of strengthening the requisite muscles in a natural manner, thus early cultivating and utilizing all those forces, those divers

As the swinging motion of the arm is the principal function of technic, the weight projected from the shoulder, *the brachial mass itself, is the source of all simple energy.*

The normal state of muscular relaxation, i. e. the *natural equilibrium between a momentary tension and relaxation, consti-*

The adv
tages o
natural

tutes the supreme advantage and benefit of a natural, free automatic technic. Each dynamic gradation (potential muscular energy) has its source in central impulse (power of imagination, musical feeling, temperament, etc.), physically dependent upon a greater sweep of the arm and accelerated motion (See p. 12).

Active strength of the fingers — active strength of the wrist are erroneous, misleading ideas, for which we must substitute those of natural and efficacious energy: energy of the shoulder, of the muscles of the upper-arm, and the weight of the whole arm.

Technic is in reality not much more than alternate up-swing (high-fall) and down-swing (low-fall) of the weight, so that there can no longer be any special rules governing musical figures of double notes: thirds, sixths, octaves and chords are "secured" by the finger-tips, i. e. they are "felt", before they are sounded, without specially raising the fingers.

Thirds, sixths and octaves are generally executed in the low-swing only, or in plainer words, "in the descent" (fall or drop); whereas in mixed positions (when both black and white keys are used, for instance in E-major or chromatic scales), the hand — or rather the arm — follows in the high-swing. Chords may, however, be executed in either manner. If in the latter, they are, as it were, lifted off the keys.

All thrusting, pushing, knocking, percussion of any kind — through the intermediary of any single part of the physical playing-apparatus, fore-arm or hand — must be avoided.

The so-called wrist-stroke must be abolished.

All active "isolated" backward bending (over-straining) or tension, and all striking "from the wrist" (fig. IXc) is wrong, being *irreconcilable* with the principles of a free natural technic, as such wrist-action involves the use and exertion of the wrong muscular power to a no less wrong end, generating from a wrong

source and resulting in useless and unnecessary fatigue. The attack with isolated fore-arm must also be avoided at first; being an angular partial-motion (fig. IX d). Later on, it is allowed in emphasizing and in sforzati.

The octave is taken in the free fall of the brachial member oscillating as a whole and unimpeded in the shoulder.

The weight falls upon the firmly set arched hand and upon the supporting fingers 1 to 5 : C²—C³ (middle-octave of the key-board), and is then swung off on to the next octave (D²—D³), and so on. Later on, the octave is formed on the key-board itself. The hand is set lightly upon the said octave C²—C³, then the arm is suddenly released, the weight falling upon the bed of the key, the hand yielding or giving in the wrist-joint, the arm assuming its relaxed, pendent position. The fingers never leave the keys. When the speed is accelerated, the arm simply shifts towards the next octave.

In half-tone progressions from the white to the black keys and vice versa, the hand (and arm) glides in a curved zig-zag motion from the bed of the white key to the bed of the black key, thence to the next white one, and so on.

All spreading of the fingers, all grasping, binding with finger-pressure is prohibited.

Small hands, unable to stretch an octave, should limit the practice to sixths and to smaller chords in close position. The substituted fingering 1—4 : 1—5, applicable only in series of octaves played legato, of a melodic character and in slow-time, must be reserved for a later stage of development.

In quick tempi the accelerated alternating of "fall" and lateral downward "swing" of the hand results in, and is performed by, the **whole arm** vibrating in the shoulder and elbow, and yielding in a supple manner to the wrist-action. (See next chapter.)

CHAPTER IV.

ACTION II. EXTENSION OF FORE-ARM.

I. Participation of the fore-arm.

The extension of the fore-arm has already been mentioned as being one of the conditions in erecting (setting) the hand (high-fall). As this is, however, the second of the four most important actions: *Swinging — extension of fore-arm — rolling of fore-arm — free oscillation of the fingers*, it calls for special attention and special study.

Extension, or straightening-out, of the fore-arm means the *jerked extension of the fore-arm*, proceeding from shoulder and

an absolute relaxation of the wrist-joint is a certain consequence of the action. The action of the fore-arm, in straightening-out, resembles the motion of the piston-rod on an engine.

Exercise (silent): Lay your hand upon the key-board, and so extend the fore-arm, that the hand shall be (passively) straightened out. In other words: Let the hand fall (drop) against the panel. This used to be called: "bending-in", and was prohibited. Of course, one does not actively bend the hand in,

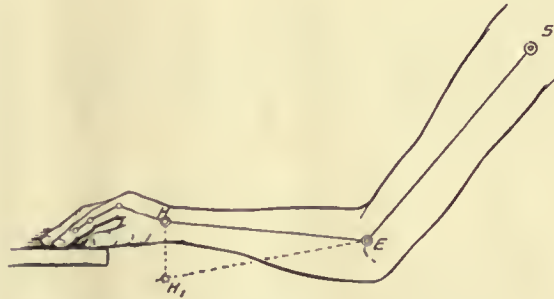


fig. D.

S: shoulder, E: elbow-joint, H: wrist.

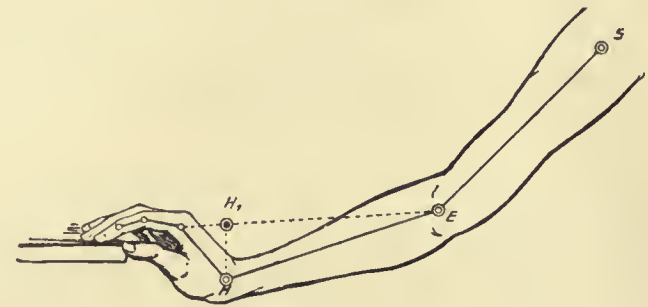
S E H: normal parallel pose, S E H₁: emphasized extension.

fig. E.

S: shoulder, E: elbow-joint, H: wrist.

S E H: posture of the hand *after* fore-arm-extension (lowered wrist).

Passive extension of the hand

upper-arm and *producing a passive extension of the hand.* The extension of the fore-arm is equivalent to a stretching-out in the elbow-joint. The important object of this action is in the first place to remove the habitual stiffness and limber the elbow-joint. The constant practice in jerking the fore-arm forward tends to stretch the elbow-joint and render it flexible, thus counteracting the static fixation produced by our daily grasping and bending actions and gradually paralyzing the same.

In the second place — and this is the *experimentum crucis* —

it is automatically bent in, i. e. it is *passively* straightened out, owing to the fore-arm being extended (figs. D and E.).

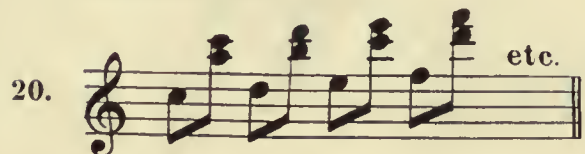
Practise the straightening-out with as *much ease* as possible. The hand, with all its joints perfectly *relaxed* (supple), is lowered, the wrist sunk. The bending-in must be effected automatically with ease and flexibility.

As soon as the mechanical part has been learnt, begin practising single tones, thirds, sixths, triads, octaves.

Special exercise:



Special exercise:



From the low position of the hand (thumb) to the high position (5th finger) by extension of the fore-arm (cf. for instance *Liszt: La Campanella* and also the whole finale of the *D-minor concerto* by Rubinstein which contains many similar forms).

Mendelssohn: Variations sérieuses, Var. 16.

Allegro vivace.

21.

3. In all terminations of numerous scales, passages, arpeggi:

22. III

very short and quick, with a vigorous jerk of the fore-arm and raising of the hand on the 3rd, 4th or 5th finger.

Brahms, Sonata, op. 5 (scherzo).

23.

Rubinstein: Concerto D-minor (finale).

24.

The bracketed notes with a vigorous extension of the fore-arm.

Here the straightening-out and rolling (next chapter) actions combine to give power and brilliancy to the finish.

4. In all *vibratissimi* and *staccatissimi* of thirds, sixths, octaves, chords.

25.

IV

3 3
1 1

5 or 5
1 or 2

5 5
3 or 2 & 3 4
1 1 2 2

26.

Liszt: Rhapsodie VI.

etc.

p

Chopin: Etude op. 10, No. 7.

Vivace.

27.

etc.

II. Alternate rise and fall — vibrato.

The alternation in rise and fall (of the arm, of the weight) is already imperceptible, scarcely more than a slight vertical oscillation of the hand, a vibration which must be executed as gently and in as rippling a manner as possible, so that in fact the hand is at last supported, as it were, by the keys, rising and falling with them, i. e. abandoning itself entirely to the repeating-action of the instrument. This vibratory action, performed by the lightest possible touch (Kraemer calls it: *Schlagzittern* — per-

cussion-tremolo) of the oscillating member in its descent, is quite sufficient for the performance of any musical passages of the kind taken at any normal speed.

The extension-vibrato, i. e. the *extension of fore-arm and hand worked up to a vibrato*, is the action producing the octave-execution of the virtuoso, the so-called "lightning octaves" with the greatest velocity in the fastest tempo.

This is the key to the *passive* action and absolute relaxation in wrist-vibrato, a key which we are the first to discover.

Practise in the same manner:

I. Octaves in quick time: (28—30).

28.  etc.

29.  etc.

30.  etc.

II. Figures of accompaniment in form of chords:

31.  etc.

32. Tremolo or Vibrato (with "drooping" hand).
Beethoven: Op. 53.



See also:

- Beethoven: Op. 14 No. 1 (beginning with the left hand)
- Beethoven: Op. 7 (beginning in the bass)
- Beethoven: Op. 26 (1st movement, var. II, octaves)
- Beethoven: Op. 31 No. 3 (Scherzo — staccato — vibrato).
- Chopin: Prelude No. 17. A \flat -major.
- Schumann: "Faschingsschwank".
- Schubert-Liszt: "Erkönig".
- Grieg: Lyric pieces (Song of spring).
- Mendelssohn: Capriccio in E-minor.

Mendelssohn: Variations sérieuses, Var. 3.

35.

Piu animato.



Mendelssohn, Variations sérieuses.

34. Var. 5.

Var. 12.

Agitato.

p legato con espressivo

f

35.

Liszt: Petrarca-Sonetto V, 104.

ff *vibrato *)*

ff

Instances of the grand style vibrato occur in:

- Beethoven: 32 variations, C-minor.
 Chopin: Polonaises C \sharp -minor, A-major, F \sharp -minor, A \flat -major, and Sonata B \flat -minor (Scherzo).
 Schubert: Fantasia C-minor.
 Schumann: Toccata C-major.
 Liszt: Dante-sonata.
 Rubinstein: Etude C-major (staccato-vibrato).
 Brahms: Paganini-Variations.
 Liszt: Rhapsodies I—XV; Paganini-Caprices; Mephisto-waltz, etc.
 Alcan: Etude E-major, op. 35. (octave-vibrati).
- Also in the grand concertos by Beethoven, Weber, Schumann, Mendelssohn, Chopin, Brahms, Liszt, Rubinstein, Saint-Saëns, Grieg, Tchaikowsky and other modern masters.

*) Liszt's notation. The vibrato on the piano (trembling) has nothing in common with the "vibrato" in violin and violoncello-technic which corresponds to the "rolling" of the (left) fore-arm.

CHAPTER V.

ACTION III. ROLLING OF FORE-ARM.

Lateral Rolling¹ of the Weight.

I. Absolute Rolling Motion.

Rotation of the cubital (elbow) joint.

Natural rotation

The form of propulsion with which we have hitherto become acquainted, consisted in a lateral shifting or displacement.

The second chief category of motion consists in rotary or rolling action, emanating from the rotary joint of the elbow.



fig. Xa.

Hand and (fore-)arm turned in: Pronation.



fig. Xb.

Hand and (fore-)arm turned out: Supination.

All the movements were the result of the free vibration of the arm relaxed in all its joints, and they bore the character of vertical motion of the whole arm and of its parts (rise and fall — flexion and extension of the hand).

Just as the former motions emanated from the arm oscillating (vertically) freely at full length, so the latter are produced exclusively by *rotation of the fore-arm*.

Rotation
fore-arm

By rotation of the fore-arm, we mean the fore-arm turning

¹ The German word "Rollung" has no exact equivalent in English. The latter is not always the exact rendering of "Rollung". (Tr. n.)

We have chosen "rolling" purposely and not "rotation" for the heading, as

naturally on its own axis, the hand *passively* following the movement. So that this movement, in which the hand participates passively, is not generated in the wrist (as is maintained by the old methods), but in the cubital joint.

We may add: the outward twisting of the fore-arm together with the hand, showing the palm turned upwards, is called "*supination*" (outward rotation, fig. Xb), the corresponding term for the reversed position, i. e. of the hand turned inwards, being

5. All ascending five-finger exercises.
6. All scales, passages, arpeggi, etc.
7. A large number of the most usual forms of accompaniment in the right and in the left hand.

In all forms of the *tremolo*, one of the most important features is: the *distribution of weight*.

The mean weight (equilibrium), produced by the concentric pressure of the arm brought to bear upon the hand and fingers,



fig. XI.

Hand turned down, open by fore-arm rotation. This figure demonstrates one phase of the motion; rolling-pose, tilting of the hand in rolling, in executing tremoli and other balancing movements on terminating scales, passages, arpeggi, etc.

"*pronation*" (inward rotation, fig. Xa). The motion of the hand in boring with a gimlet, a corkscrew would be counted under "outward rotation or supination"; whereas unscrewing a corkscrew, etc. would come under the list of movements headed "inward rotation, pronation".

The commonest and most frequently recurring forms of the above movement consist in the *tremolo*, and the other analogous technical elements, such as:

1. Broken thirds, sixths, octaves and chords.
2. Triads and four-part chords, broken by a lateral movement.
3. Shakes (trills) and all their derivative forms.
4. All figures connected with the erroneously so-called "lateral-stroke".

is transferred laterally to two fingers alternately by fore-arm rotation (balance of the weight, equilibrium).

The process of the motion is analogous to that of *see-sawing*: a plank laid and oscillating across a raised form. The motion is simply and naturally called: "see-sawing" — rolling.

When accelerated, this motion results in a *vibration of the hand* which, to distinguish it from a trembling or vibratory percussion produced by the free descent of the arm (fall and rebound through tension and flexion alternately of straightened fore-arm and hand), we shall call *rolling-vibrato* or shaking, as the effects thus obtained appear to be shaken out of the arm or out of the sleeves.

In tremoli, etc., the thumb remains *relaxed* and *passive*; the

thumb-action is mostly combined with the rolling action of the elbow. The feeling of fatigue, experienced by almost all players in tremolo-technic, has its origin partly in more or less violent cramp produced by the incessant exaggerated straightening action of a thumb generally stiff to begin with, — partly in the fact that the figures instead of being broken (rolled) on the bedded keys, are rapped out with the fingers rising and falling, in which case, those muscles which effect the rolling add to the useless labour of those which have to hold the arm in the air and to support it (in the shoulder), — hence the fatigue. In no other playing must the arm be more loosened in the shoulder and set with greater surety and "quiet" upon the key-board, than in rolling tremolo figures.

The tremoli of artistic virtuosity naturally exceed the rolling of the fore-arm. In powerful gradations the rolling of the upper-arm assists and replaces it. The arms are set firmly upon the key-board on erected hands, the elbows slightly turned outwards and the tremoli, shaken chords and double trills are executed with all the muscular power of the shoulder, assisted by a rolling of the *upper and fore-arm* swinging far out. (See p. 36, under II: Combined rotary motions; and also specially p. 47.)

We may add that all forms of shakes (tremolandi, trills, etc.) and other varieties should be practised *daily*, as they really drill and cultivate the rotary joint. This advice holds good all the more, as nine-tenths of all pianists consider such exercises superfluous.

The term: "lateral stroke" is wrong; lateral stroke of the *hand* is even a nonsensical expression, as the hand simply and passively follows the rotary movement of the fore-arm. What we term its lateral stroke is nothing more than the natural effect resulting from the vibratory or oscillating power peculiar to the rotary joint (cf. the anatomy of the elbow with the construction of a wheel and axle).

Preliminary Exercises:

1. The rotary joint must be perfectly loose, i. e. the fore-arm must be flexible and move with ease.
2. The muscles must remain in a state of relaxation secured by suspension of the weight.
3. Until the above condition is attained, preliminary exercises must be gone through, first with the arm suspended free and hanging heavy from the shoulder, and then rotating in the air, the evolutions being gradually accelerated to the utmost

possible speed. These exercises will facilitate the study at the instrument.

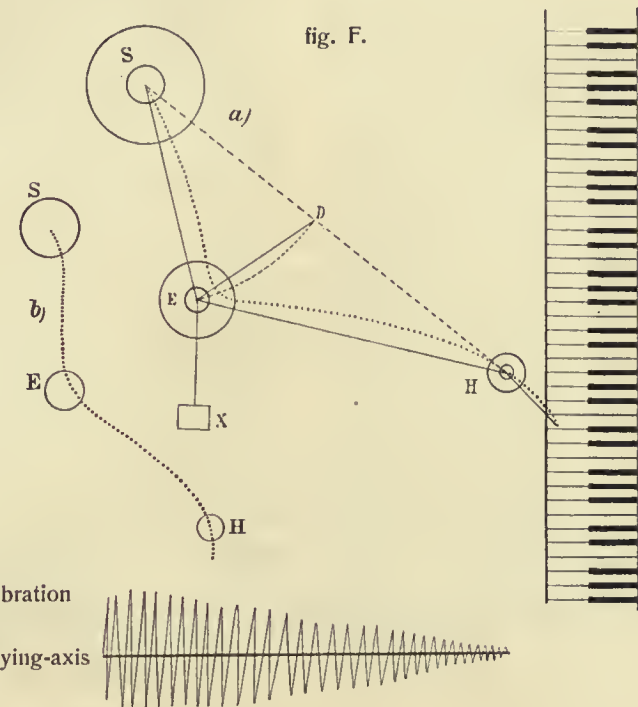
Principal Exercise: Let the fingers fall on the sixth, C^2-A^2 (centre of key-board), raise the arm, arch the hand and bring the full weight of the arm to bear on the slightly raised wrist (fig. IXb). Then with a slow see-sawing motion of the hand, and *without leaving the keys* or raising the hand, roll from the thumb to the 5th finger (fig. XI). This is the rotation with erect fingers (and bedded keys), the hand raised on the key-board, rolling or rocking to and fro, following the rise and fall of the keys. The essential condition is again to retain the arm *relaxed and yet heavy*. The arm must feel as if a weight suspended at the elbow were weighing it down (fig. F).

Practise shakes every day

There is no lateral stroke of hand

Rotation

Away from the instrument



S: shoulder E: elbow, H: wrist.

- a. S—D—H: direct transmission — straightened arm.
E—D: diameter of the fore-arm-extension.
E—X: dynamic direction of the weight of the shoulder and upper-arm.
- b. Free oscillation of the arm, hanging loose and yet weighted (swinging rope).
- c. Graphic representation of **vibrato**: alternate raising and lowering (flexion — tension) of arm and hand (in vertical sense) with increasing velocity. (See pp. 24 [closing part] and 25, etc.)

The same with the other fingers in divers combinations, thus:

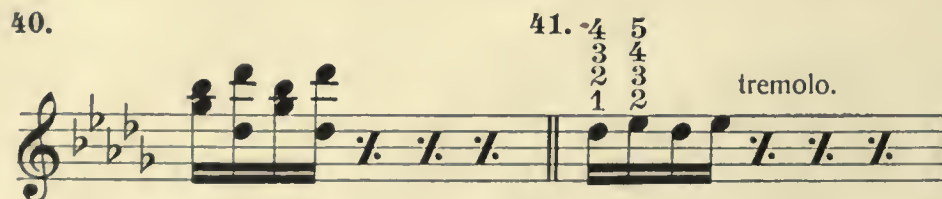
- 1—4, 1—3, 1—2,
2—5, 2—4, 2—3,
3—5, 3—4, 3—1,
4—5, 4—3, 4—2, 4—1, etc.

suiting the exercises to the *natural* stretching capacity of the hand (spreading of the fingers).

It will be noticed that the greater the diameter or the axis on which the hand rocks, the easier and more perfect will be the motion; the smaller the diameter, the more difficult will it be to distribute the weight.

Hence it is that the various forms of the trill present the most difficult forms of rotation, i. e. all such forms in which the weight is to be shared by two adjacent fingers: 1—2, 2—3, 3—4, or 4—5.

The most convenient position for rotary motion is that corresponding to the interval of a sixth, or, for large hands, that corresponding to the octave. The best fingers for rocking are the outer ones: 1—5, 1—4, 2—5, 2—4, as they afford the hand the firmest support (examples 36—41).



support the weight and must accordingly be held as naturally as possible. Later on, in the free action of the fingers (cf. chap. VIII) they participate slightly in the attack, being raised but very little. Some virtuosi perform the shake with an almost imperceptible rise of the fingers, apparently, simply by a rocking motion of the fore-arm.

Special exercises of shakes may be taken up later on. At first, all the forms of rotation are practised with set fingers bedding the keys (without leaving them), then with *raised hand* (the finger leaving the keys, fig. XI).

There are three kinds of rotations:

1. High rotations, with curved hand (high-arched hand and wrist).
2. Rotations on a level with the key-board (the hand straightened out flat).
3. Low rotations with low-arched hand (the arm suspended from a relaxed wrist).

These three forms are constantly occurring in every variety, and their execution depends upon individual disposition, habit, upon the anatomy and build of the hand, and the nature (position and intervals) of the passages in question. It has been determined by objective observation and testing, that:

1. In trilling with the outer fingers 4—5, or 3—5 and 3—4 low rotation answers best, and
2. In rotations on a level with the key-board, it is best to turn the hand slightly *inward*, towards the thumb (fig. XII c).

Requires no special exercises

Rotary movements, (continued)

It follows that the *shake* is chiefly the result of the rocking motion of the fore-arm and *not* of the rise and fall of alternate fingers, which, so far, do not participate actively in the motion required by the various forms of the "tremolo". They merely

3. In all these movements, the fingers more naturally touch the keys with the tips, than with the flatter soft fleshy parts, for the sake of obtaining both technical precision and a sonorous quality of tone.

The finger-tips touch the keys

ake proceeds
m fore-arm
from fingers

Figs. XIIa—c are of a theoretical nature, showing the various lateral (horizontal) twistings of the hand, movements which in innumerable forms continually combine with the rise, fall (flexions—extensions) and rolling of the hand. The typical position for technic is the natural intermediate one (fig. XIIa), because, of all positions it is the one least constrained and best suited

to *for a moment*. A forced and continual outward bending of the wrist is just as fatiguing as a forced inward bending; it is, indeed, even dangerous, as it distends the tissues, and the resulting friction frequently produces inflammation of the wrist-joint. As to the outward bending of the hand, which is required only in "legato"-rolling (See chap. VI and fig. XVI), it must be employed

Middle-position of hand is the typical one, not the hand turned out or in

How to stretch broken etc.



fig. XIIa.

Natural mean pose of the hand.



fig. XIIb.

Hand in drawn-off pose, turned out (abduction).



fig. XIIc.

Hand in drawn-in pose, turned inside towards thumb (adduction).

to the natural build of the hand (fig. 1b). Neither the position with the hand turned outward (fig. XIIb), still preposterously advocated (notably in the "celebrated" Piano-Method by Lebert & Stark and others) nor that with the hand turned absolutely inward, upon which the Deppe-Caland system is based, are natural or appropriate as studies of position. Such postures of the hand may serve temporary purposes and should only be resorted

with the greatest suppleness of wrist. The whole art consists in never remaining in these extreme positions longer than is necessary, and in restoring the hand to its natural intermediate pose as soon as possible. In difficult and dangerous passages, in which upper or inner parts have to be sustained, (e. g.) in polyphonic playing, in chords with large intervals, arpeggi requiring long stretches, etc., our advice is always to let go immediately

the notes that strain the hand, and, after stretching the interval, to restore the hand to its normal pose with a supple turn (chap. IX). In the case of chords with large intervals which one hand cannot stretch, the rule applies to let go the too large interval immediately after taking it, or to break it imperceptibly.

"Stretches" à la Leschitzky-Brée (cf. the numerous useless figs. illustrating the chord-positions in those works) are perfectly nonsensical both for individual and for physiological reasons. The same principle of letting-go applies equally to the rolling of broken triads and chords of four notes. Hence, away with rigid "normal positions and postures"! In all progressions of broken triads, for instance, the hand "follows", i. e. it does not execute stretches shifting according to position along the key-board, but rolls without tension or distension from finger to finger, always maintaining the unconstrained form or a medium position and of loose, not wide-spread, fingers.

Exercise: Practise all forms of broken triads and four-part chords "quasi arpeggiando", releasing the intervals (thirds, fourths, fifths and sixths) instantly, after they have been sounded (i. e. rolling over them), the hand rising on the 5th finger (fig. XI) or simply swinging off from one part of the key-board to another.

Fundamental rule: All spreading or twisting of the fingers must be but of the shortest possible duration: the movement must be resolved with lightning rapidity. Hence, each finger immediately after attacking the key, must release it, the moment the next interval is sounded, provided, of course, that the tone is not intended to be sustained or prolonged. A player who can roll the figures as successive sounds, will never be tempted to play broken triads or four-part chords (chords of the sevenths) with a spread hand, shifting by a series of angular movements, from one part of the key-board to another: he would find it far too tedious a process. Play with relaxation of the extended hand-posture.

II. Combined rotary motions.

A. Rotary motion of fore-arm combined with extension of fore-arm.

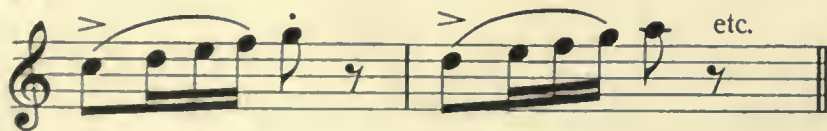
Explanation: The rolling-motion in extended position resembles the winding motion of a screw (the twisted part of the corkscrew) or screw-driver, or the lines in the barrel of a rifle, or cannon.

I. Preliminary Studies.

After the pupil has practised the rotations sufficiently and is able to utilize in a practical manner to some degree the loose rotary joint of the elbow, he should follow up at once with the extended five finger exercises: roulades (florid passages).

In the roulades:

42.



the following movements are of importance:

1. The fall of the arm upon the thumb: C².
2. The transmission by rotation of the weight from the thumb to the other fingers: 2—3—4—5: D²—E²—F²—G² (from key-bed to key-bed, without raising the fingers).

3. A short, jerked extension of the fore-arm towards the 5th finger (chap. IV).
4. The light rise and swing of the arm or of the hand on to the 5th finger, preparatory to its again falling on to the thumb: D², etc.

The transmission of the weight from one finger to another by means of five successive attacks, as described in chap. III, now becomes one single rotary action. Instead of executing 5 swinging and falling movements or 5 rises and 5 falls, one rotation (as if driving a gimlet) of the fore-arm in the elbow-joint suffices to cause the weight of hand and arm to bear, or rock upon the five participating fingers, or upon the five keys (fig. XII d).

The fingers themselves do not take any essential, active part, for the time being. They need neither rise nor fall, as the actions required (about 10 in number, viz. 5 rises and 5 attacks), even though executed with the greatest possible dexterity and lightness, would cause a loss of time and waste of muscular energy, which were better saved. The simple rotation of the fore-arm in one single rotary action renders the other actions superfluous.

The rotations from the thumb to the 5th finger are the ascending or outer rotations, those from the 5th finger to

the thumb, the *descending* or *inner rotations*.¹ They may all be executed either by a direct attack of a rotary form — or by passing from the low pose of the hand (the arm “hanging” in a loose wrist) to the high pose, according to individual habit and the position on the key-board, of the figures to be executed.

Spherical shape
of hand

It is important, however, that the weighting remain the same and that the hand assume the spherical shape (over firm protruding knuckles and firm finger-tips) by curvature in the vibratory

II. Exercises preparatory to the Scale.

This leads up logically to the solution of the problem of the “change in the position” of the hand, i. e. to the mechanical part of the scales, passage-work, arpeggi, etc.

The *scale* consists of two roulades, a shorter and a longer one (i. e. one roulade with three, and one with five fingers), instantly joined one with the other by rotation of the fore-arm, each time

No more
passing-
and over
the thumb
fingers

Figure XII d is also of theoretical nature, although peculiarly demonstrative. It shows that in executing *roulades*, the hand progresses on its five fingers like a wheel, assisted by rotation of the fore-arm, the fingers not only not being raised, but acting as spokes, i. e. bearing the weight of the hand or arm and following the movement (and sinking into the keys). Since the *roulades* are concealed beneath the hollowed palm of the hand,

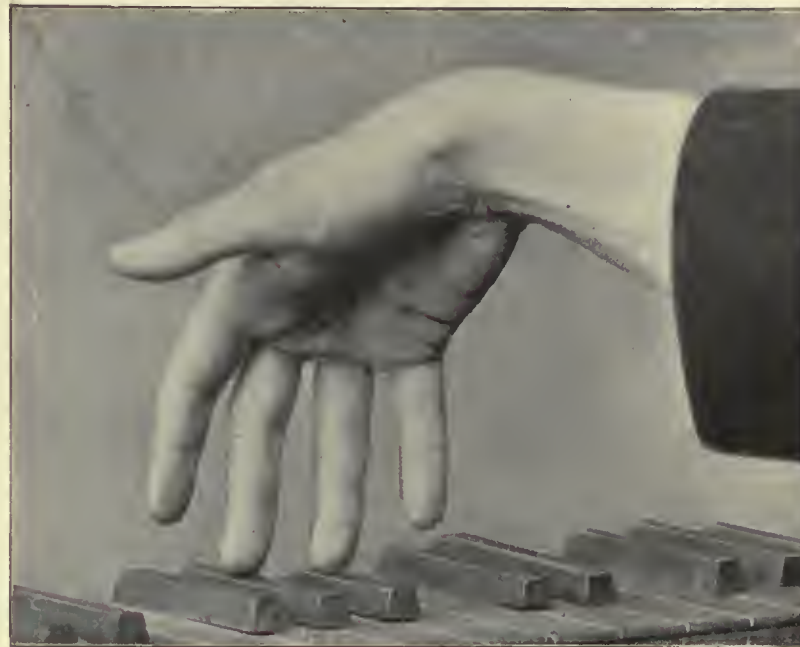


fig. XIId.

Spread hand: wheel with (fingers as) spokes.

and but very few persons have the right idea of its rotary functions, the hand is here depicted, erected on its fingers, performing the rotary movement (a revolution) like a wheel. It is very easy to observe in a practical manner this rotary function, by watching the hands of a pianist (playing in a natural manner) from below. For this purpose we would draw attention to the elegant rotary curves executed by d'Albert or Teresa Carreño when playing.

motion. If the elbow is inclined to be stiff or awkward in action, the rotary stroke with five fingers should be preceded by exercises in *straightening the fore-arm* by jerks, such pressing through of the joint will suffice to render it supple.

The five-finger rotation exercises should be followed up by broken triads and four-part chords executed on the same principles (examples 43, 44).

¹ The author always refers to the right hand. (Tr. n.)

a passage requiring a “passing-under” or a “passing-over” of the fingers occurs.

This means: *doing away with the old style passing-under of the thumb, as also with the passing-over of fingers 3 and 4 (and 2 and 5) and with all nonsensical special studies.*

A lateral shifting or removal of the hand *without* rotation or extension of the fore-arm, as taught by the old school-methods, is *inadmissible*. As a model exercise we would select the B-major



scale, not the C-major scale, as, for reasons to be given later on, the latter is by far the most difficult scale and can only be mastered by "finished" hands.

So the C-major scale shall be taken up last.

The scales best suited to the rotation of the hand are: F \sharp - or G \flat -major, B- and D \flat -major. Then follow A \flat - and E \flat -, E- and A-major. Finally the remaining major and all the minor scales.

Superferences
Subterferences
Effected by cu-
bital rotation,
not the result of
finger-action

The superference and subterference¹ (the passing of the thumb under the other fingers, or the other fingers over the thumb) is performed by rotation of the longitudinal axis of the fore-arm,



fig. XIIIa.

Old style of passing-under: the thumb is forced into the hollowed palm of the hand, with set or rigid elbow: very bad.

the finger over or under which another passes, acting as pivot. In other words, in *subterferences*, the hand, tilting inward, is swung off the 2nd, 3rd or 4th finger, as the case may be, to fall back and roll on to the thumb (the adjacent key) (figs. XIII b—d), whereas in *superferences*, the hand is swung over the supporting thumb and glides in a curve (circular motion) above the key-board (figs. XIVa—d).

Figs. XIIIa—d and figs. XIVa—d illustrate moments in a single movement executed with lightning rapidity. They serve solely to explain the rotary functions which originate in and

Rotation: from
elbow.

¹ Untersatz, Übersatz: As these neologisms convey the idea expressed in brackets, thus serving the purpose required, we have adopted them. (Tr. n.)

proceed from the elbow-joint; the object being, to prove that *superferences and subterferences are not the result of finger-action*, but that all lateral progression of the hand over or under the fingers is effected by cubital rotation. Hence the illustrations of the rotary action of the hand and of the greatest curves, to show clearly where (above or below) the rotation takes place and *what* it really is that rotates. Practically, superference and subterference are the action of *one single moment*, and it would, therefore, be absurd to try to divide this movement into the three moments depicted, which are only intended to assist the teacher. Arms and hands instantly sweep on. The fact is that

Super-ferences
Subter-ferences
they are not
finger-
action

They are
reality
but the
action of
one
moment



fig. XIIIb.

1st Pose of hand preparatory to passing the thumb under; the thumb placed on B¹ (B-major scale):

in subterferences it is not a question of forcing the thumb under the hand, the point lying in the instant *removal* of the 2nd, 3rd, 4th or 5th finger, under which the passing takes place, — in superferences, in the instant *removal* of the thumb, over which the hand rolls with a swing on towards the next keys.

Fundamental rule: If a supporting finger is withdrawn from under the hand, the latter falls naturally upon the next support afforded it. So that in superferences and subterferences each finger in turn relieves the previous one in bearing the weight. We would also add, as an important feature, that the sudden extension of the fore-arm, assisted by rotary action of the same member, constitutes of itself an exceedingly elegant execution of both movements.

Rule

Extension of
fore-arm



fig. XIIIc.

2nd Pose of the hand with the thumb passing-under. Turning of the hand (by rotation of the fore-arm), the 3rd (middle) finger on $D\sharp^2$ acting as pivot. The thumb glides towards E^2 describing a curved line on the key-board.



fig. XIIId.

The largest curve in passing-under. Maximum rotation of the hand (including thumb) from $D\sharp^2$ to about C^2 .



fig. XIVa.

1st Pose of the hand preparatory to passing-over. Thumb used as a supporting finger on B^1 (B-major). First action.



fig. XIVb.

Hand passing from B^1 to $A\sharp^1$ over 4th finger by rotation around the thumb acting as pivot. Second action.



fig. XIVc.

The passing-over or rotation completed, the 4th finger supporting the weight. Rotation from D^2 to Bb^1 (Bb -major triad). Third action.



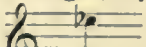
fig. XIVd.

Rotation in passing-over from B^1 to $D\sharp^1$: Maximum circle (of rotation).

Be careful:

1. That the arm hang loose,
2. That it remain in weighted pose.
3. That the off-swing and descent be performed with perfect ease and steady assurance,
4. That the rotary action of the fore-arm be utilized to the utmost, and that the pupil banish any feeling of timidity leading to involuntary, unnatural contraction of the muscles, impeding the free rotary action of the cubital joint and nullifying the effect of weight and relaxation.
5. That simultaneously with the subterfuge, the fore-arm be extended forwards with lightning rapidity. The jerked extension it is that enables the hand to continue its flight proper.
6. That the thumb be loose and remain relaxed when in action, avoiding stiffness or cramp.

Off-swing, inward tilting, curved glide, fore-arm-extension, descent succeed each other so rapidly, as practically to occupy but *one moment*.

Preliminary exercise: 1. Place the 3rd finger, supporting the whole weight of the arm (fig. XIII b), upon  with an arch-set

hand slightly raised, tilt hand and arm inwards by rotation of the fore-arm, the finger in question acting as a pivot (figs. XIII c, d). The thumb is thus most easily and most naturally brought into the new pose required. Any movement or action performed with the object of gliding the thumb between or under the other fingers, *without participation* of the rotary action of the elbow is *radically wrong and must be rejected* (fig. XIII a).

Perform the same exercise (inward rotation) with the 4th finger used as a pivot, also on $A\sharp^1$ — Bb^1 [$A\sharp$ — Bb and Eb — $D\sharp$ furnish each a fulcrum in the keys of $F\sharp$ or Gb -major, B -major, E -major, Db -major, Ab -major, Eb -major, Bb -major, F -major; $C\sharp$ — Db and $F\sharp$ — Gb in the keys of G -major, D -major, A -major; $G\sharp$ — Ab in the scale of A and E , etc.].

2. Proceed similarly with the *superferences*, i. e. set the thumb, supporting the weight of the arm, on B — Cb or on E — Fb (for the scale of $F\sharp$ - or Gb -major), the arch-set hand raised high (fig. XIV a), tilt arm and hand describing a circular motion, the thumb (posed on its tip) acting as pivot (figs. XIV b, c, d).

These preliminary studies (the mechanical part of which The actual stud may very easily be demonstrated on the surface of a table) are

to be followed up by subterferences and superferences varied by the free fall of the weight combining the rotary action with a light rotary swing of the hand.

The thumb

Bring the weight of arm and hand to bear upon fingers 3 and 4, set upon any suitable point of support, swing off suddenly and fall with the weight of arm and hand on to the thumb, which for the time being must hang perfectly passive, being at the moment of transition, neither doubled under the hand, nor yet stretched towards the key it is about to fall upon. It must mechanically follow any movement of the hand, and fall, as it were, accidentally, upon the key. This is important. In tilting, it describes a circular line, — a segment (fig. XIII d), effected solely by the rotary action of the elbow. Its active participation is limited to assuming and bearing the total weight of arm and hand. At the moment of the rotary swing, arm and hand “shift” or rather “leap” towards the next position. That is the time for the thumb to be “at its post”.

Follows the movement of the hand

Describes a segment

How to practise:

what to guard against, what to observe.

After swinging off, guard against the arm being raised aloft, and thus losing its weight, — a common fault with all be-

ginners and amateurs. On the contrary, weigh upon the key to the very last, in order (as in jumping off a spring-board) to gain thus a firm and sure purchase and swing-off. In falling back upon the thumb, the arm should regain the key-board, by the most direct way, not by describing a large curve. The pupil should eventually forget the old-fashioned notion of passing under and over altogether, and with a free swing of the “weighted” arm fall upon the key aimed at.

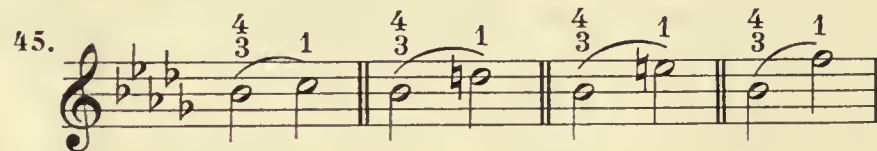
The rotary swing, with extension of the fore-arm permits of the notes of any interval being connected (examples 45—51).

A slight swing-off from the “pivot” will suffice to carry, or rather impel the arm to any point on the key-board. There is no need to fear that it will not regain its position, or that hand and fingers will miss their aim. Their own weight is a sufficient guarantee for sureness and precision of the attack. Even subterferences on the black keys can be executed without special preparation or difficulty. Thus the pupil should practise:

Natural a guarant the atta

Subterferences: (45—48).

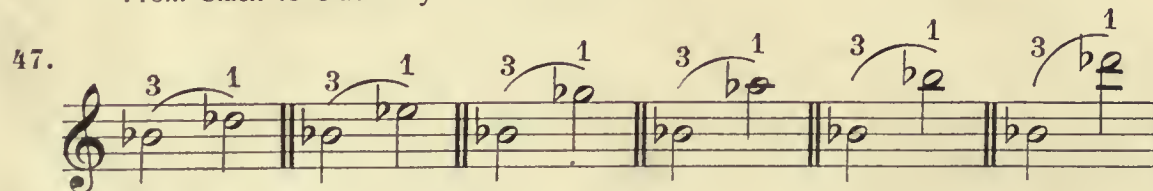
From black to white keys:



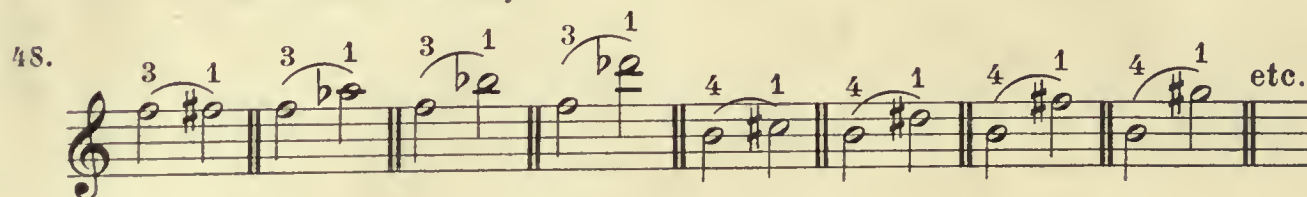
From white to white keys:



From black to black keys:



From white to black keys:



Practise also rotary swinging off from the pivot, in combination with double forms, etc., from thirds, sixths, octaves, triads on to the thumb, finally from a third to a third and from a sixth to a sixth. These latter exercises constitute the *basis of scales in thirds and sixths of a non-legato character: f and ff* (49/50).

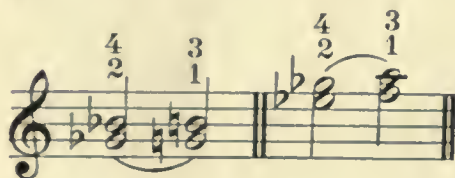
If possible, follow this up with scales in thirds and sixths, especially in chromatic succession, even though non-legato and

however unfinished in execution, to begin with, the object being to give steadiness to arm and hand.

Whatever applies to the right hand, applies, of course, equally to the left.

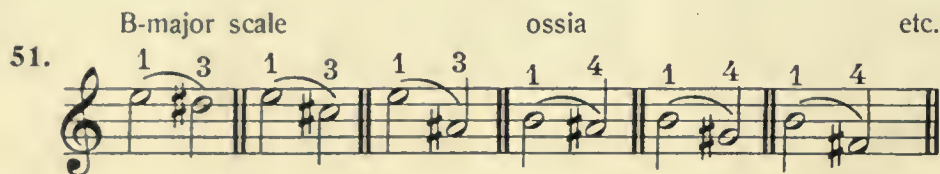
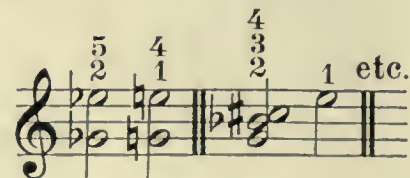
Practise the superference in a similar way, i. e. first from white to black keys, then from black to black and finally from black to white keys (51).

49. From black to white keys:



in the same manner from white to white keys
in the same manner from white to black keys.

50. Sixths: Chords of the seventh:



In the same manner are executed rotary swings of thirds, sixths, octaves, triads.

We would draw attention to the fact that in all these simple forms of swinging-off, the practical rule applies that in the case of subterferences, it is advisable to *sink into the hanging position of the absolutely relaxed hand i. e. with lowered wrist*, thus enabling the latter to intercept the descending weight, — whereas in the case of superferences, it is well, at first, to swing arm and hand off from the hanging position, i. e. with lowered wrist, to raise the arch of the arch-set hand high.

III. The Scale.

After these somewhat extensive preliminary exercises, which, however, it will not take long to master, we pass on to the rolling¹ of the scale itself, which will now present no difficulty.

We shall take B-major for our model (52).

¹ Rollung der Skala, rendered by rolling, however strange at first, is quite in keeping with the style of execution, and we have therefore adopted it. (Tr. n.)



Execution: Fall with the weight of the arm on to the thumb: B¹, then roll it (by rotary swing-off, the 3rd finger: D^{#2} acting as pivot) directly on to the thumb: E². Now add directly the second part (coda) of the scale by a simple lateral (outside) tilting of the hand determining the successive touch of the five fingers by one single action (fore-arm-extension) and without striking.

Pupils experiencing any difficulty in executing this, should begin by practising three and four-finger exercises with subterferences, taking care, at the moment of transition, to straighten out the fore-arm with a short jerk, thus securing at least the "on-sweep" of arm and hand: the difficulty in rolling is generally due to the fact that the pupil is apt to stiffen the fore-arm too much, thus impeding its rotary action (examples 53—56).

Relax the elbow-joint and extend the fore-arm with a sudden jerk, (like a bullet leaving the barrel of a rifle) in the direction

Experiment

How to overcome difficulties

Straighten out fore-arm

Guard against stiffening fore-arm too much

of the 5th finger. This straightening-out of the fore-arm, performed with lightning rapidity, steadies the hand, when executing the scale with the utmost velocity (chap. IV).

Turn the octave with one rotary swing

Once these various points have been mastered, "turn", as it were, the whole octave B¹—B² with one rotary swing and as if in one piece.

When playing the last 4 or 5 notes of a scale, passage, etc., straighten out the fore-arm very suddenly, especially in crescendo-scales.

These exercises and these rotary motions with extended arms render all the old-style special scale-studies superfluous and furnish the key to the problem of "velocity".

These exercises are key to v

55.



and so on, in every key:

54.



* Also by jerked straightening-out of the fore-arm; thus: fall on to C² (thumb), then straighten the arm and set the hand for a moment (after quickly removing the 3rd finger, etc.) on the raised thumb: F², etc.

In the same manner:

55.



following up with D^b- and D-major.

56.



* Easy, with a rotary swing

This progressive method of daily practice:

Practise this fundamental scale, embracing one octave, every day, in every key with the same (C-major) fingering throughout,

till a rapid and brilliant execution is attained, in the following manner (57):

Secures brilliant execution

57.



Training of hand

In playing the C-major scale, slightly contract the fingers, and transfer the weight more to the finger-tips, to prevent contact with the black keys. This modification, slight though it be, of the naturally straightened pose of the hand, combined with the concentration of the fingers upon the narrow space representing the surface to which the curve is limited, renders C-major the most difficult scale, the study of which (in contrast to the old-style school-idea) must, therefore, not be taken up, until the pupil has learnt to roll B-, D^b-, G^b-major, etc., from the fore-arm, with ease.

Hands with *long fingers* of *very unequal* length, and *short thumb* will experience greater difficulty. The only thing to be done is to curve the hand in such a manner that it shall resemble a "bunch of grapes", drawing in the fingers to about the length of the thumb (fig. IXa).

How to awkward hands

Having perfectly mastered the rolling of one octave, the pupil should take up the second octave, first adding part of the second octave to the first, and then the other part, finishing up with the execution (in all the keys) of both octaves in one sweep (examples 58—61).

Master of octave first

58.



59.

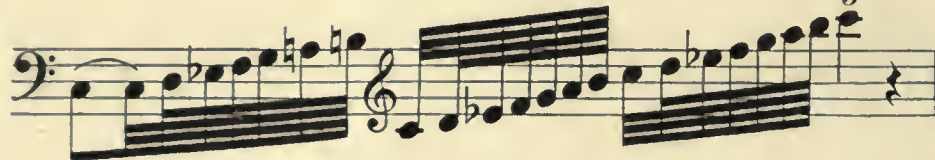
In two roulades.

As one group.



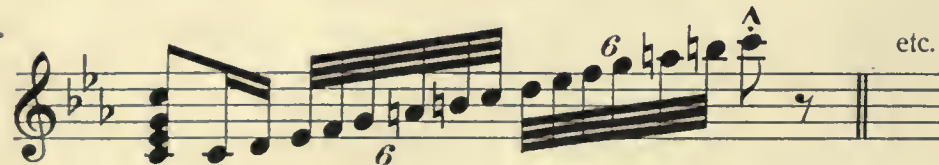
Mozart: Fantasia IV, Finale.

60.

or $\begin{pmatrix} 1 \\ 4 \\ 1 \\ 5 \end{pmatrix}$ 

Beethoven: 32 Variations. (Var. XVIII).

61.



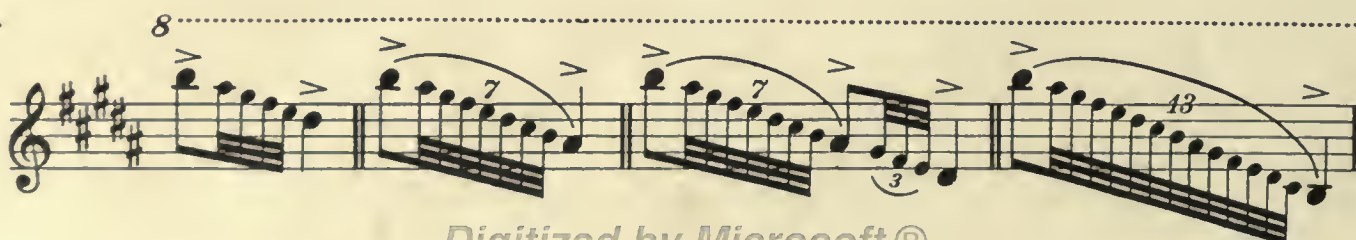
etc.

The treatment of the left hand is exactly similar (descending scale).

The "progressive" method holds good in superference-roulades (inward tilting, with regard to the thumb). First of all,

rolling and rotary swing on to E^2 : thumb, towards the adjacent $D^{\sharp 2}$ (1st point of support in the B-major scale), then on to $A^{\sharp 1}$ (2nd point of support in the same scale), finally, "complete roulades" $B^2 - B^0$ (62).

62.



In superferences, and immediately after balancing over the thumb, pupils with supple hands and gifted with an innate grace of motion, may glide the thumb rapidly off the key, drop it and allow it to hang relaxed below the level of the key-board (fig. XV).



Ab. XV.
Thumb drawn off, hanging free (in inward roulades).

An excellent technical study consists in the isolating of superferences and subterferences, which may be said to constitute the *frame-work of the scales*: (63). An ex-
study



Chromatic scales

All *chromatic scales* (in reality, nothing more nor less than a *succession of broken semitone intervals*) come under the forms executed by rolling or gliding of the fore-arm. The same applies to chromatic thirds. But chromatic and diatonic thirds are often executed by a graceful oscillation of the wrist

up and down (flexion—tension). The same applies to diatonic and chromatic scales in sixths, octaves, etc.; but thirds and sixths are executed with loose fingers (*leggiero*) just as often as by means of "*vibrato*", especially in *forte* (*con bravura*) (p. 56).

Similarly:

2nd position: D^b-major, A-major, etc. up to C-major.

3rd position: D-, A-, B^b-major, G-, C-, F-, B^b-minor, C-major.

Exercises in chords, octaves (Chopin: Etude in G^b-major, Liszt, etc.).

Combinations of
4 part chords

By adding major, minor, or diminished sevenths, and interpolating fourths and fifths, we obtain the numerous combinations of four-part-chords, chords of the seventh and others of the same kind, which, in their innumerable variety and inversions, furnish the material for all ascending and descending passages.

The execution of all these different forms is based upon the same principles.

Thus: transmission of weight, steady and sure balance of the weight, no exaggerated raising of the fingers (they passively follow the movements of the hand), securing points of support, correct off-swing and attack by rotation of the fore-arm.

In simple ascending scales, arpeggi and passages, the last roulade of 5 notes must be rolled with one single action by a simple outward rotation of the swung fore-arm (See pp. 27/28).

B. Rotary motion of fore-arm and upper-arm combined.

In descending forms something new enters:

68. *ossia:*

etc. etc. *) * With a swinging arm, as in rowing.

Schumann: Fantasia C-major. Op. 17.

69. l. h.

etc.

Beethoven: 32 Variations (C-minor) Var. XXXI, XXXII.

70. l. h.

pp etc.

Chopin: Etude A \flat -major, Op. 25 No. 1.

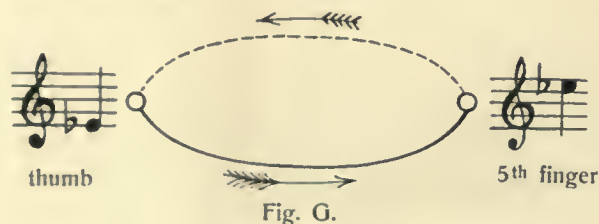
Allegro sostenuto.

71.

In the "return" E²—E³ (example 68), the whole arm from the shoulder, describes a large *curve backwards* counteracting, by this elastic oscillation, the too acute angle determined by the movement in question which might compromise the general equilibrium. Thus, the arm describes a very arched curve, backwards, like a sower casting seed, or a mower's backward movement of the right hand. This back curve of the arm is essential, especially in very rapid passages, to secure a purling, liquid flow and elegance of form, and affords the most natural solution of many a difficult passage, etc.

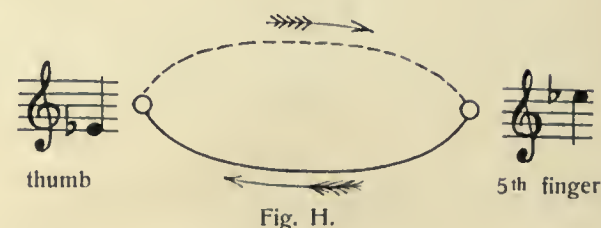
Physiologically this form of movement is nothing more than a combination of upper and fore-arm-rolling.

All these rotary motions describe a curve from the outside to the inside: (example 71)



The elbows are extended outwards.

But there are rotary motions in the reversed direction, from the inside to the outside, (the elbows being turned in towards the body) (inward curves):



In performing the former rotary motions (outward curves, Chopin: Etude A \flat -major) the hand is set high and pivots on the 5th finger (pronation).

In performing the latter rotary motions (inward curves, Chopin: Prelude E \flat -major) the hand executes inward rotations and swings (with a rolling motion) towards the thumb.

These rotary motions afford excellent practice for small hands with limited stretching capacity.

This completes the second principal group of the various forms of movement, comprising those having their origin in the rotation of the fore-arm.

For other details see next chapter No. VI under "Legato". We would merely add that all scales, arpeggi and passages may also be rendered "non-legato", i. e. in the first form of the fall of the weight (lateral displacement) by alternate rise and fall (arm-vibrato). The massive fall *ff* is also to be included in these forms, and must be diligently studied and practised daily together with the rotation, rolling, balancing and tilting exercises.

CHAPTER VI. COMBINATION OF THE WEIGHTS (TONE TO TONE).

Legato.

Viewed physiologically, *legato* is the result of fore and upper-arm rolling combined.

The connecting of the various tones of a consecutive series proceeds, properly speaking, from the rolling of the fore-arm.

The natural transfer of the weight from key to key, the finger-

(straightening-out) of upper and fore-arm. This constitutes a shifting of the whole arm in the relaxed shoulder, the arm approaching the body in descending roulades (ascending in the left), and moving away from the body, in ascending roulades (fig. XVI).

Legato, how produced



fig. XVI.

Hand, posed as a wheelbarrow: turned in, to roll legato scales by rolling of the upper-arm.

tips remaining constantly and closely in contact with the same, — produces of itself a natural “legato”. And yet the legato thus obtained rather constitutes a rapid non-legato, a relative legato. A strict connecting — absolute legato, necessitates a further movement: the inward or outward rolling of the upper-arm, i. e. the rolling of upper or fore-arm combined with the extension

Rapid non-legato and absolute legato

This action of the arm (which in its curvature somewhat resembles the typical form of a sabre) recalls the action of “sawing” as naturally performed by a professional joiner (i. e. the arm oscillates from a free shoulder, *not* through active muscular tension, the fore-arm curving and straightening out alternately) (fig. J. p. 50).

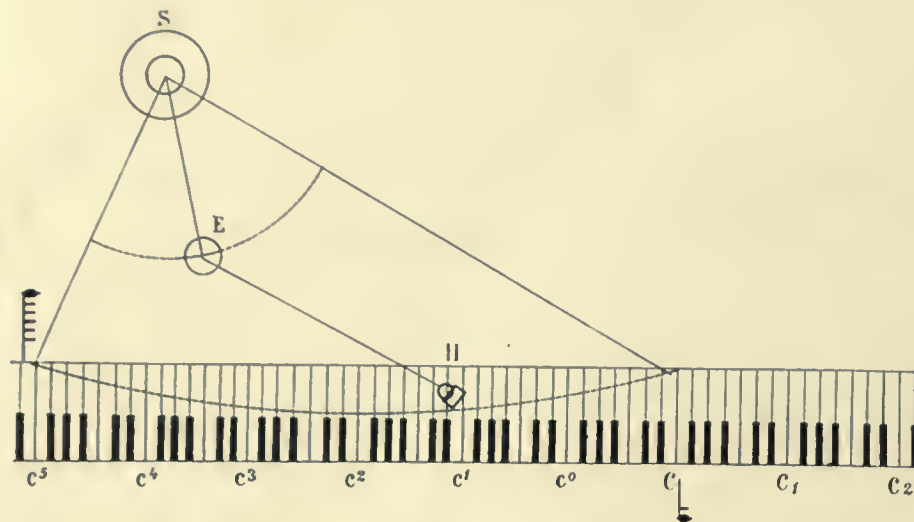


fig. J.

S: shoulder, E: elbow, H: hand.

Brachial pendulum, the diagram showing the greatest flat playing-curve (C^5 — C right hand) which it is possible for the arm to describe, by means of rotary action (flexion — tension) or displacement of the upper-arm and by gliding of fore-arm and hand.

Roll the weight

A series of tones how connected

The arm, as it were, rolls the weight, or its own weight, before it, thus suggesting the handle of a roller (the hand), rolling or unrolling, as it is pushed or drawn. The arm pushes a scale (downwards) and draws it out (ascending)¹. This rolling and unrolling or gliding of the hand by means of rotary action of the fore and upper-arm, constitutes the fundamental principle in connecting a series of tones. Real *legato*, a legato aesthetically and technically perfect, depends upon the equality and the purling, smooth flow of the series of tones to be played, and is obtained with the aid of the movement in question, i. e. by the rotary action of upper and fore-arm, combined with the extension of upper- and fore-arm. We must reject the idea of connecting the tones by independent finger-action consisting in pressure and over-stretching — which is wrong.

Useless practice now done away with Gain of time rapid progress

Mechanical practice in changing keys, entailing that nervous watching for the correct moment at which to release one key and strike the next, is a thing of the past, involving superfluous and useless labour. All conscious pressing with the fingers, holding down the keys, all spreading, seizing, clutching exerted by digital power, with the object of connecting two tones, exhausts energy, strength, wastes time, and is therefore *wrong*. In reality, neither hand nor fingers connect tones, this connecting is effected

by a uniform, steady and sure gliding of the arm over the key-board. *This fact must constantly be borne in mind.* Provided the playing member or members be uniformly weighted, such weight being equally distributed in the rotary action, the change of key and finger must follow as a natural result. The weight being balanced, rolls from key-bed to key-bed, the sound continuing as long as the key is weighted. The only thing to be guarded against, here, as in legato playing, is the too early releasing of the weight.

Guard against too early release of weight

Experiment

Exercises: "Roll" scales, passages, arpeggi, etc., first descending (with the right hand, i. e. ascending with the left). In order to demonstrate the action called integral displacement of the arm, let the master take hold of the pupil's elbow (by the coat-sleeve), and push the latter's arm, as the scale is unrolled over the key-board. The hand is to remain turned in, maintaining as uniform a position as possible (figs. XV and XVI), and remaining perfectly passive. The same with the fingers, which, (without being lifted more than is necessary) rest with suppleness on the keys and, in tripping over them lightly as if on "*tip-toe*", press them down almost furtively. The pupil should now proceed similarly to practise "unrolling" the same forms.

Gliding

The gliding action will be most clearly grasped and executed in passages in which the change of position is only really practicable by participation of the upper-arm, for

¹ The author refers to the right arm. (Tr. n.)

72.

or better still:



* The octave supports the arm better.

Finger, hand,
arm — one mass

In all analogous figures, the arm must “fly along” with the hand. The figure is simply “drawn out”. The arm, as a whole mass, glides with suppleness over the keys, pushing the broken chord in front of it, as it were, and drawing it out again in one action.

The upper-arm
participates in
all forms of Legato,
Cantilena-playing
and in declamatory
style

The flexible and rounded action of the entire arm may be said to dominate in all melodic and harmonic connections, facilitating the execution and determining the character of the same. All legato playing of an aesthetically superior order, i. e. all forms of pure legato and all particular, characteristic effects relating thereto: the cantilena of the classic style, the purely expressive tone-connecting, the graceful curves and lines mentally conceived, and the grandest extensions, finally all passages requiring the grand declamatory style of rendition, depend every one upon the participation of the upper-arm, the whole arm hovering lightly over the keys.

This requires an assured feeling of *general equilibrium*, and we must not lose “footing”, as it were. The hand must descend and bed the keys at the right moment, to proceed, or hover on, quitting its support on the key-board, with a light oscillation of the arm.

This arm-action corresponds, relatively speaking, with the bowing in technic of violin or violoncello. As in the latter, the species of motion: “bowing”, at once and absolutely determines the quality of the tone and secures the “quiet” and equality of harmonious legato-effects, the ethereal flow of the melody, so, on the piano, the pure, ideal legato, expression of sentiment, emotion can only be obtained by harmonious action in the circular sweep of the whole arm. Hence, the well-known axiom in violin-technic: “economize the bow” holds equally good of piano-technic.

True legatissimo, the ideal connecting of tones, the “grand line” both in slow movements, and in those of a more lively character, is in reality a purely mental process. It is the outcome of musical feeling and has its origin, psychologically, in that perfect concentration of the mind bent upon avoiding the smallest angles or any break in the continual flow of sound. The *artistic* legatissimo presupposes a musical intelligence of extreme sensibility, and a most delicate touch. It is the outcome of innate grace and emanates from refinement of soul.

CHAPTER VII.

THE NATURAL REBOUND OF THE WEIGHT (ARM OR HAND).

Staccato.

When an elastic body falls to the ground, it rebounds, i. e. it is thrown back in the reverse direction, until the power of impulsion (throw, shock or fall) is exhausted. This faculty of rebounding it is that distinguishes elastic bodies (india rubber ball, glass globe) from solid bodies. The more elastic the surface, the more elastic is the rebound.¹ And the greater the velocity (energy of the impulse), the more powerful will be the effect, i. e. the quicker, more violent and more lasting will be the rebound, — and vice versa: the lesser the velocity of a falling body, the lesser and slower will be the rebound. From the above facts we may deduce the following practical points: If we let the compact mass of the arm (arm, hands, fingers) descend, with a free swing upon the key-board, and rebound naturally, we obtain a tonal effect corresponding to a sharp and short *martellato* sound. The greater the precision and rapidity of the fall, the greater will be the precision and rapidity of the rebound, and the sharper and shorter will be the effect of the tone produced. The *drop-staccato* is a *non-legato*, shortened both as regards attack and duration of sound.

Hence, that tonal effect which we call *staccato*, is, mechanically speaking, nothing more nor less than the rebound of the striking mass. The more rapid the fall, i. e. the more intense the impulsive muscular tension is, the sharper and shorter will be the staccato effect. In rapid movements, the *staccato* closely resembles the *tremolando* (quick repeat of the key) (cf. chap. III), so closely, indeed, as to have led to the erroneous conclusion that staccato is produced by wrist-action and is

¹ A drum-stick striking the tightened drum-skin (playing the cembalo) rebounds faster than a ball thrown upon the pavement. Besides the natural condition of the ground or the base struck, the elasticity of the falling mass striking the base, naturally, exerts a telling influence.

classed and taught as such. But in ordinary staccato, with the natural rebound of the whole arm, as one mass, released, neither hand nor finger participates actively in the movement: *With this fact falls the old-style wrist-technic.* Still to admit it, is to mistake cause and effect. The hand rebounds, trembles, shakes, because the whole arm is set vibrating. An isolated motion of the hand in the wrist-joint *does not take place.* The shoulder-joint and elbow-joint participate in the slightest oscillatory motion (whether flexion or tension) of the hand. *To jerk the hand back without the participation of the said other joints, i. e. with set or rigid fore-arm (fig. IX c) is as harmful and injurious, as any attack, stroke, or percussion with the hand thrown back is ugly, from an aesthetic point of view.* Staccato is not the result of wrist-action, but of the whole arm oscillating in its three principal joints. The "*tremolando*" of the hand in *staccatissimo* is the result of a free vibration of the arm, *not* the cause (See chaps. III/IV).

We would add that *the greater the physical apparatus set in motion, the more delicate* ("feinschlägig" [Kraemer]) *the effect* or rather the percussion. The most elegant staccato is produced by the arm. A finger-staccato (cf. chapter VIII) is possible, but not indispensable and is not nearly so delicate nor as reliable as an *arm-staccato*.

When we speak of finger-staccato, of course, we do not mean the nonsensical method of the old school that taught raising the fingers to strike the keys from the "full-cock" position, thus hammering out an unmusical, hard, *detached* tone. We refer to the natural rebound of a loose, swinging weight-produced touch, the free-descending fingers followed instantly by the weight of the rebounding hand, as explained in detail in chapter VIII. When executed perfectly, it sounds like so many padded cembalo-sticks "rebounding" on the strings (cf. Chopin: G^b-major Etude by Teresa Carreño).

Rebound of weight

Staccato is the result of the whole arm oscillating; it is not produced by wrist-action: neither hand nor finger participates actively. The arm-action resembles a drum-stick rebounding

Harm done by the ugly old-style wrist-technic

Special staccato exercises are no longer required

The greater physical apparatus set in motion, more delicate the effect

Finally, "brilliant" play depends upon the staccato-effect, i. e. upon the rapidity of the descent and the rebound produced. This species of tone, sharp, clear, of metallic ring, sounded and stopped with absolute precision is the result of a sharp, short stroke of the arm (with hand) of a non-legato quality, produced by an exceedingly rapid impulsion instantly followed by the repulsion. The brilliant tone is the non-legato — staccato style.

Hence, special finger-staccato exercises are no longer required. The pupil only needs to study the fall of the weight (chap. II, III) with the repulsion, i. e. let arm and hand rebound quickly and suddenly. This movement in combination with the stretch-action of the fore-arm must be performed automatically, the fore-arm alone executing the staccato, the hand drooping and dancing *passive* in the wrist.

Change from sudden weighting to sudden relaxing

The change from a sudden weighting of the arm (in its descent on to the key produced by a swinging movement) to as sudden a relaxing of the weight (when the arm rebounds) must be made with lightning rapidity, without the least interruption or hesitation.

Let the weight from finger descend to wrist

After practising the free descent of the lifted hand, take up the study of staccato starting from the key, i. e. cause the weight assumed by the finger forcing down the key, to descend suddenly into the wrist, the hand (i. e. the weight of the arm) then instantly rebounding just as suddenly and lightly. Then *reverse the action*: Touch the finger to the key, and suddenly lift arm and hand with a quick movement (lifted staccato). This latter variety (pizzicato) produces the most perfect effect, but is only suited to passages of a definite character in slow tempo, for instance:

Pizzicato

Beethoven: Op. 7. Largo

73.



among other works, consult more especially
Op. 14. No. 2, 2nd movement,
„ 28. 2nd movement,
„ 31. No. 3 (Scherzo).

The player must have the sensation, as though he were furtively pressing on the ivory button of an electric bell, the tone being, as it were, drawn out of the key, produced, not, as in reality it is, by pressing down, but by raising the finger from the key. (Chap. X under "Touch").

The effect is similar to that erroneously called *portato* (a term borrowed from vocal technic), generally produced by the hand (or by the arm) gliding off the key, in a manner resembling the action of "wiping" or „sliding". (Chap. X under "Touch").

If the staccato occurs in passages requiring a rolling of the fore-arm, i. e. in scales, runs and similar figures, we only need accelerate the impulsion in rolling the same, and the arm will of itself follow the action of the hand in the superferences and subterferences.

Staccato in thirds, sixths, octaves and chords is subject to the same rules. (Chap. IV).

CHAPTER VIII.

ACTION IV. FREE OSCILLATION OF THE FINGERS.

I. Finger-oscillation.

Finger-Oscillation

So far, the fingers have scarcely been spoken of, their "active" part having been limited to *passively* supporting a weight. This once mastered, arm and hand having been trained to fall upon loosened, relaxed fingers, or to roll on upon them, etc., — the fingers may participate in the general oscillation of the

Participation of the fingers

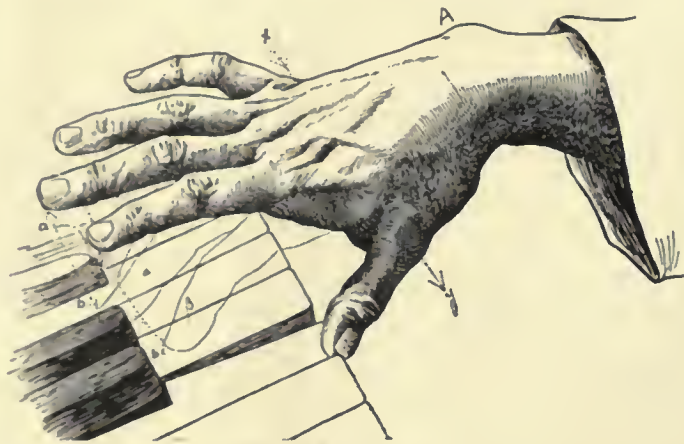


fig. K.

Natural pose of hand in motion supported on thumb in repose, the four fingers straightened out.

Lightly thrown fingers (without curve): straightened finger-touch.

a—b, a₁—b₁: shortest way of motion described by each finger.


A: raised wrist.

x—y: parallel plane of touch.

a—β: projection.

organs of percussion. They should now be thrown lightly forwards and allowed to co-oscillate in their knuckle-joints.

Experiment

Exercise: Set the weighted arm with raised hand on the middle finger: E² . With the arm in repose, count sharply: "one", — "two"; at "one" swing the relaxed 2nd finger lightly forward, and at "two" let it descend upon D², instantly and simultaneously transferring to it the whole weight from the 3rd finger: this is the transfer of weight by means of

Transfer of weight by oscillation

free oscillation of the finger and descent of the arm. Do the same with the 1st, 4th and 5th fingers and finally with the thumb, practising the usual three, four and five-finger exercises on the before-named principles, i. e.: thumb on C², swing of the 2nd finger and instantaneous descent of the brachial weight on to D², rise of 3rd finger and instantaneous descent of the

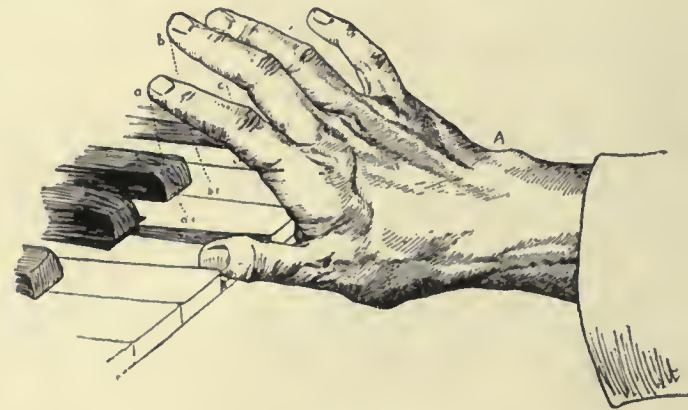


fig. L.

Low posture: the fore-arm hanging in low position. Weight resting (reposing) in the sunk wrist (A). The loose fingers thrown in the same way as in fig. K.

Oscillation of the fingers in the joints.

a—a₁, b—b₁, c—c₁: projection.

The tone being produced by playing with soft finger-tips, the fingers passively thrown falling with their own weight, i. e. with that of the hand, arm or of the whole brachial mass, on to the keys. Models: Paderewski, Carreño, Busoni and others.

weight of arm and hand on to the 3rd finger on to E², rise of 4th finger and descent on to F², rise of 5th finger and descent of weight on to G², and so on.

Remarks:

1. The rise of the finger must resemble a light "soaring", upward swing, a sudden tilting, an elastic jerk, the motion of the fingers themselves resembling that of arrows darted from the string of a bow. The greatest mistake is made regarding the height to which each finger should be raised.

It amounts to about one inch (2—3 cm) from the surface of the white keys and to $\frac{1}{2}$ — $\frac{3}{4}$ of an inch (1—2 cm) from that of the black ones. In medium tempo it is about $\frac{3}{4}$ of an inch (2 cm), but is reduced to a minimum in more rapid tempi. The fingers rise to the greatest height, when simply straightened out to their full length.

Curved pose
of fingers at
first

It is wrong to start training the fingers from a strictly curved position. A free, natural style of movement or action can only be acquired from a free, natural pose (exempt from any strain) of the hand, and from a natural curve of the naturally *straightened* fingers. Long, flexible fingers having the natural swing in extension and flexion may with impunity be “curved” in playing, but not the other way about. Our experience, at least, has been that (with pupils taught on a wrong method) the curved pose paralyses the fingers and prevents their free co-oscillation.

Raise (oscillate) each finger with ease and let it descend in the same manner, just as the natural movement requires (figs. K and L).

Law of friction

The fingers are to be raised (straightened out) only to such an extent as to cause *the least possible* friction (internally and externally), according to the law of friction. Only in a few exceptional cases, as, for instance, in *con bravura* passages, or to produce certain accents, may they be raised higher.

What to avoid:

2. Any active tension of the fingers in the shape of the cock of a gun or pistol which still haunts the minds of master and pupil (figs. III b and c), is *prohibited, as infringing the law of friction*, for, besides the loss of time, waste of energy and the wrong and pernicious muscular exertion which results, the realisation of the most important feature of the whole movement is rendered impossible, viz. the free, loose swing of the fingers and the unimpeded descent of the weighted brachial mass. The tension must only be a *momentary* one, like that of the bow-string.

1. Gun-cock
pose of fingers

2. Cramping,
stiffening

3. The swing of the fingers (tension—flexion) must in no way impede the flexibility or action of wrist or elbow-joint, i. e. it must not in the least interfere with their relaxation; *therefore the joint or member must not be stiffened or cramped.*

3. Too early re-
lease of weight

4. The weight bearing upon one finger *must be retained until* it is assumed by the next finger; which means that the weight *must not be released* simultaneously with the rise of the finger. Or, to put it practically: If the weight rests on the thumb: C², it is retained on C², until the swung 2nd finger, descending, beds the key D², and is able to relieve the thumb of its weight, as it were, and assume it itself. So that the combination of the attacks in passing from one key to another must also be observed in the unimpeded swing of the fingers. *One weighting succeeds another.*

5. The rise, swing-off (extension) and descent (flexion) of the finger must be condensed into one single movement, the whole forming *one undivided action*. Great care must be taken, however, that the upward movement of the extended fingers, and the alternate action of two fingers be executed perfectly, and with the utmost precision. A slight oscillation of the hand responds to the rise or swing-off of each finger.

4. Stud-
cial ex

After the finger has fallen and struck the key, the weight must be *released* at once. The muscles of arm, hand and finger are to be relaxed instantly, the key being weighted only just as much as is required to keep it down and sustain the tone.

All active spasmodic pressing down or crushing of the key is prohibited, as infringing the law of friction and relaxation. The whole secret of finger-action consists in instantly relaxing hand and finger, i. e. releasing them of any exaggerated pressure, tension, etc., the moment the tone is sounded.

II. Finger-action with weight.

We may further emphasize the fact, that, contrary to the old style of beginning with the active raising of the fingers (a perfectly wrong conception), that exercise (raising the fingers) must not be taken up until after studying the free descent of the weighted arm upon the set, not upon the raised, passive fingers; as first of all, arm and hand must be taught to remain supple and loose and learn how to assume and transfer the weight, every detail and development of which must have been studied and thoroughly mastered.

If strength is needed, relax the arm in the shoulder and let the hand fall into the keys. If much strength is required, lift the arm a little higher in the shoulder, or descend with greater rapidity.

The descent of the weighted member with the swing of the fingers always produces a *non-legato*.

The *legato* style can only be obtained by a soft pressing down of the keys with the fingers weighing upon their surface. But the sharp or sudden rebound of the mass, the swung finger having fallen, may thus produce a *staccato*.

If, when the fingers descend, we allow the hand to tap the keys vigorously, i. e. to strike them with a thrown action or motion of the hand, we obtain what is called the “*con bravura*” style.

If we allow the hand and fingers to rest or remain steady and cause the weight of the hand to sink lightly into the key, producing tone by tone with firmly set finger-tips (without raising the fingers), the result is: “*jeu perlé*”.

If, on the other hand, we allow the “*swung*” fingers (sponge-

headed or not), to descend and rebound like, and with the rapidity of, drum-sticks, the effect produced is that of the short staccato (in scales and passages) which we call "*leggiemente*".

Nothing is here employed but the natural weight of the fingers, that of the hand (from a loose wrist) lightly following the descent. This free and natural "play of the fingers" (very difficult, to carry to perfection), however, belongs rather to a higher grade of study than to the elementary exercises. Nor does it belong to the rudiments of technic, properly speaking, but rather constitutes a special part of technic (a technical "nuance"), the study of which had better be left to finished hands.

The *leggiero* style, produced by a very light descent of the hand and fingers in repose, rather resembles the style known as "*jeu perlé*".

The pupil must not, however, gather from the above that finger-exercises are henceforth to be done away with.

The contrast between: finger-action and weight-produced touch (weight-technic) owes its origin to a perfectly wrong conception of matters. We have to choose between:

Finger-action **without** weight, which is altogether wrong, as it tires the fingers, and

Finger-action **with** weight, which is the only correct action.

To what extent **active** muscular tension shall participate, depends upon the technical requirements and difficulties of the composition, and must be decided by the individuality of the player who knows what he is capable of doing.

What must be discarded, as absolutely wrong, is: excessive tension and faulty manner of holding the arms and hands, stiffening of the joints, exaggerated extension of the fingers, obstinate and continual drilling of each finger separately, resulting in a complete or partial stiffening of the wrist or elbow-joint, which while it unnecessarily wastes muscular energy, impedes the free, natural oscillation of the arm by preventing its utilizing its natural weight. He that commands a loose arm and can "*play with weight-touch*", may use the fingers as much as he likes and whenever he feels they are required — no matter where. As long as the fingers participate in the oscillation of the whole arm and hand, they may do anything; but the moment they perform their movements without participation of arm and hand, *everything is wrong*. Finger-action, finally, becomes a question of dynamics, or aesthetics.

This question is, however, a very important one. Finger-action **without** weight, i. e. the old style, produces a thin, wooden, sharp, dry tone, very different from that of weight-produced touch, which embellishes the tone rendering it full, sonorous and round, enabling the artist to put expression and power into his playing, never dreamt of by the old school (See chap. X. under "*Touch*").

III. Various methods of weighting.

The following is a recapitulation of the various free and natural technical formulae, so far developed, and of their different modifications:

Free weight-produced-touch.

I. Descent of the full brachial weight in oscillation upon the high arched hand (on one or several fingers: thirds, sixths, octaves, chords).

Effect: **martellato touch**.

II. Fall of the brachial weight from the surface of the key to the bed of the key, viz.

1. On to the lowered wrist, yielding to the weight (hand resting on the key-board, wrist sunk below the level of the key-board). *Low-fall of weight*.

2. On to the arched hand raised, thrown upward (erected pose of the hand): Erection or *high-fall of the weight*.

Effect: **non-legato**.

III. The passive hand-extensions and weight-produced descent: **vibrato — vibratissimo — staccato-vibrato — staccatissimo**.

IV. Bearing and rolling of the brachial weight, by rolling of the fore-arm.

Effect: **non-legato**.

V. Lateral rolling of the brachial weight by rotary action of the fore-arm alone or in combination with the upper-arm.

Effect: **legato**.

VI. Natural upward jerking of the brachial weight.

Effect: **staccato**.

VII. Sharp descent of the weight with natural rebound: *rebounding hand — rebounding arm*. With greater or lesser erection of the fingers.

Effect: **con bravura (brilliant)**.

VIII. Rolling of a light weight of the hand over firm-set finger-tips, with great precision in the arresting of each tonal vibration, short, precise descent of finger or key. Light, loose style, i. e. the fingers resting naturally on the keys (not swung and without active rising) with the least possible weighting of the keys. Action limited to pressing down the key, p. or pp.

Effect: **jeu perlé**.

IX. Loose, jerked action of the thrown (*shung*) fingers, descending upon the keys and rebounding like drum-sticks, the hand following the descent of the fingers or retaining its pose.

Effect: **leggiero — leggiemente — leggierissimo**.

May employ only the natural weight of the fingers followed by that of the hand

6. Excessive tension

7. Constant drilling of each finger

8. Independent finger-action

PART II.

FORMS APPLIED.

CHAPTER IX.

PLAYING WITH BOTH HANDS SIMULTANEOUSLY: POLYPHONIC AND FIGURAL PLAYING.

I. The so-called independence of the hands.

The foregoing principles applied

Both hands (arms) used in polyphonic playing etc.

Conditions

The application of the foregoing principles presupposes an equal and completed training of both arms. The independence of the "hands" — an erroneous idea as conceived by the old school — is nothing more nor less than the faculty, acquired by practice, of utilizing each arm in all its functions and with its integral weight. As soon as the left arm (hand) has been trained to hang, to weight itself, to descend with an elastic swing — as soon as a supple, relaxed cubital joint enables it to "roll" freely and (by virtue of its own weight) to move steadily and smoothly with assurance, like the right arm (hand), it will, in the course of its natural development, soon acquire that independence which it requires, and the faculty of relying upon its natural weight and elasticity in every position, form, movement or action.

This means that the *retention of weight in every gradation* (from the discharged to the play-weighted member) *constitutes the fundamental principle of two-hand, or rather of two-arm-playing.* So that the object is to abandon each arm to its own weight, and to interfere in no way with its movement or action.

But that is more easily said than done. Two-hand-playing presupposes the combination of innumerable similar and dissimilar movements, the contrast of which is often so great, that at first the arms experience the greatest difficulty in performing their respective movements naturally, without impediment and constraint.

Impediments to natural playing

Such impediments are chiefly due to nervous hesitation, which prevents us from allowing both arms perfect freedom to

do as they like, without contraction, pressure or cramping of hands and fingers, all caused by wrong and detrimental muscular tension, their immediate effect being to impede the transfer and rolling-on of the weight; — *sympathetic, intermediary and secondary movements* or action, the outcome of imperfect habitude and insufficient intellectual discipline and training. The latter defects (secondary action) are particularly dangerous, as they not only take up time, but will often impede the simplest and yet most indispensable movements.

In playing with both hands, great care must be taken that: What t

1. Each arm transfer and balance its own weight independently and naturally, etc.
2. Each arm rise, fall, roll, etc., independently and naturally.
3. No wrong muscular tension be produced, which — whether it be the result of nervous timidity or of voluntary movements or action — may interfere with the natural relaxation of the brachial muscular system.
4. Each arm perform only those movements, which, though simple, are essential, i. e. movements leading by the shortest and quickest road immediately and unconsciously to the achievement of the technical object in view, and that with the least possible amount of physical exertion.

This presupposes the exclusion of the aforementioned elements, that detrimentally affect or impede progress, such as: What t

Sympathetic movements: For instance, when one arm or one hand is executing such and such a movement in a certain direction, the other imitates it unconsciously and unnecessarily.

Single chords may be taken in low-fall, or with the erection of the hand. The same refers to: figures in thirds, sixths and octaves. In quick movements *tremolo-action* (*vibrato*) predominates.

Beethoven: Op. 2 No. 1. Final movement.



c. All broken chords of three or four notes, such as (75), proceed from the rolling of the fore-arm.

e. Bro
chords

So also: all five-finger "roulades", figures in scales, florid passages and arpeggi for instance: (76)

Chopin: Prelude. Op. 28. No. 3.



Here one must carefully avoid stretching the hand or spreading the fingers, the intervals being taken with a light skip or greater extension of the (upper) arm.

In certain figures the arm executes a "rowing" motion, describing an ellipsoidal figure, moving to and fro or up and down.

d. All skips are executed by a free swing and descent of the arm (and of the hand), connecting tone with tone as closely as possible, in passing from key to key.

This movement must be performed with boldness and decision, i. e. allowing the hands and arms "free fling".

All groping, fumbling for, and striking between the keys must be avoided. The notes must be connected immediately, one with the other, by one principal movement (curved projection of the arm), excluding any intermediate or secondary movement of the hand.

With this object in view, the passages in question must form the subject of a special preparatory study for the hand (arm) executing them.

3. Dynamic gradations, more especially the three principal styles of playing: *non-legato*, *legato*, *staccato*, are to be rendered by each arm or hand in a manner absolutely independent of the functions and movements of the other arm or hand; the equilibrium of both hands and both arms must in no way be affected by any change in the manner of playing or the style of interpretation.

Non-legato always means: free fall of the weight.

Legato: steady lateral displacement, steady gliding of the arm and rolling of the fore-arm.

Staccato: natural rebound of the arm and hand as a whole. These various points must never be lost sight of.

The training of each arm separately to execute its divers functions, independent of the other arm, constitutes at once the most essential and most difficult part of piano-technic. It is of the utmost importance that each hand — or each arm — shall accomplish its task, allowing nothing to interfere with its free action. Thus, for instance, if one hand has to play *legato*, the other *non-legato*, each hand (or arm) must execute the functions and the movements required of it, *with absolute independence*; i. e. while the one "rolls", the other must really "descend", etc. (See Bach: Short Preludes and Fughetti No. VIII. Two-part Inventions, among others, No. VIII F-major).

All further ulterior technical development is based upon this training of each hand to independency of action or movement, and the teacher must attach the greatest importance to the freedom and the independent motion and action of each arm; he must not tolerate the least deviation from that which is correct, nor allow anything to pass which the arms and hands do not execute with the utmost surety and in the most natural manner.

The unconscious mastery of all technical and musical contrasts, of action and motion is the key to technical *automatism*

Rowing motion
of arm

f. Skips
how executed
what to avoid

g. Dynamic
gradations

Train
to ind
action
sis of
technic
develop
the key
nical a
matisn

and to the development of individual freedom of rendition and execution.

The number of possible combinations is legion.

The *three* principal manners of playing furnish of themselves, in the interpretation of one figure (a scale, for instance), nine different combinations:

<i>left hand</i>	<i>right hand</i>
non-legato	non-legato
legato	legato
staccato	staccato
legato	non-legato
non-legato	legato
staccato	non-legato
non-legato	staccato
staccato	legato
legato	staccato

which, combined with the other forms of movement: rolling, tremolo, gliding, skips, and applied to the various pianistic forms: chords, octaves, broken triads, render possible a fabulous number of combinations, without any change being made in the few "norms" which govern the whole technic.

The essential condition consists in a steady, uniform motion, retention of "weight" and flexibility of the joints.

III. Sustaining the tones, leaving the keys down.

The interpretation of a *polyphonic composition* presupposes a *sustaining, holding of tones*, which, as it "monopolises" the fingers, and forces the hand to remain in certain positions, is only too apt to handicap the arm in its movements or action.

Hence the following injunctions should be strictly observed:

1. Tones are sustained (held) by the weight of the hand in light repose. Rest the relaxed, limp hand, therefore, lightly upon the bedded keys.

2. The execution with one hand of two or three polyphonic parts must also emanate from the arm, by lowering and raising (tension — flexion) of the hand (and of the arm) or by rolling of the fore-arm (in broken forms, roulades, lateral turning, etc.), as the case may be.

3. The movements of arm and hand must follow a regular and steady course (with participation of the weight), and the sustaining of any part whatsoever must in no way affect their suppleness and rounded pose.

4. Any active pressure and spasmodic holding down of the keys with the fingers is inadmissible. The fingers should repose

relaxed, with just as much weight, and only as much as is necessary to bed the key, i. e. in keeping with the requirements of the composition and the laws of euphony. The note having been taken by the descent of weight, the hand reposes lightly upon the key. *The fingers remain inactive.*

As any constraint of the fingers by active muscular tension impedes their action, affects the weight and causes fatigue, it must be treated as *harmful* and *ruinous* to the hand and is therefore to be *discarded once and for all.*

5. All binding and active tension of the fingers is *prohibited.* All intervals, however large, must be taken with the aid of appropriate and supple action of the hand (alternately rising and falling, etc.), the arm participating, but *without* over-extension of the fingers. All spreading of the fingers, distension of the tissues, spasmodic extension of the hand, or worse still, practising of stretches with stretched hands must once and for ever be *discarded.* Should the interval to be taken or the progression of the parts exceed the stretching-capacity of the hand, the latter must at once, and regardless of the musical effect, release the notes intended to be held down (as they interfere with, i. e. impede, the natural action) and play only those parts (or that part) that come within its normal range. Abnormal extensions are non-sensical and must be tolerated no longer.

Small hands may resort to the following expedients:

- To the free swing (balance) of the arm.* Swing the hand towards those keys which are beyond its reach, or else swing out the arm, describing a large curve,
- To a light imperceptible arpeggio or breaking (rupture) of the parts (by rotation of the fore-arm), simultaneously releasing the sustained tones impeding the action or movement; finally:
- To the pedal, whenever its use does not interfere detrimentally with the musical effect. When using the pedal, release the sustained tones hindering the action, and "break" the chord imperceptibly and quickly, so as not to clash with the other part or parts.

These last suggestions apply, of course, *only to the period of development* and not in the same degree to trained, experienced hands, which, even in taking extended intervals, are able and accustomed to relax and release. The *normal* functions of our organism and the physiological purpose which the various members serve, must ever be borne in mind: our arms, hands and fingers were intended to oscillate freely and naturally, — to "play", not to be paralysed by forced distensions and contortions

Avoid:

Avoid:

Observe:

Avoid:

Small hands
their period
development
may resort
three ex-
pedients:

Observe:

Avoid:

Combinations

Five important
points:What to
observe:

Avoid:

Observe:

of hands and fingers which are only too apt to do the members permanent injury.

Examples: 1. A sustained note with figured bass.
a. For the outer fingers (4 or 5) (77).

Cramer-Bülow: Etude No. II. etc.

77.

cf. Schumann: "Bittendes Kind", "Glückes genug" (from "Kinderszenen").
Beethoven: Sonata C#-minor. Op. 27, 1st movement.

Observe:

In this instance, begin with the low-fall — lowering of the hand: let the weight descend on B^1 on to the wrist bent in under the weight, and take the figuration, while the hand rises, executing a gentle rotary motion: low—high, the hand not awkwardly tilting, but carefully retaining its equilibrium; the sustained tone B^1 must not be pressed nor held down with too much strain by the little finger.

Avoid:

The note B^1 being taken in low-fall, the tension of the hand must be released at once, the same resting relaxed on the 5th finger, i. e. weighting the key B^1 just sufficiently to hold it down and sustain the tone. (So that we change from the full playing-weight suddenly to the least playing-weight.)

Observe:

b. With the inner fingers (1 or 2) (78).

Cramer-Bülow: Etude XVI. etc.

78.

Execution: low-fall on to the thumb: D^1 , light rotary motion from the straightened (low) position of the hand to the raised or curved position. The thumb must not press on the key, but merely support the light weight of the hand, without in any way impeding its action.

See also Bach: Short Preludes and Fughetti (Peters-Ruthardt) No. 4 part. I, No. 4 part. II.

Note: To steady the metacarpus by setting the outer fingers 4 or 5 generally necessitates an inclining (lowering) of the hand towards the thumb-side. The sustained tones held by fingers 4 and 5 (example 77) may, however, also be taken by raising the hand (erection).

Setting of the inner fingers 1 and 2 must, however, always begin with low-fall, although, in certain cases, it is better and more convenient to erect (raise) the thumb. This must be determined by the musical context and by individual habits.

Avoid:

Observe:

Observe:

The same principles hold good with the left hand. (79).

Left h

J. B. Cramer: Etude VII (Bülow). (sustained notes held with the outer fingers)
79.

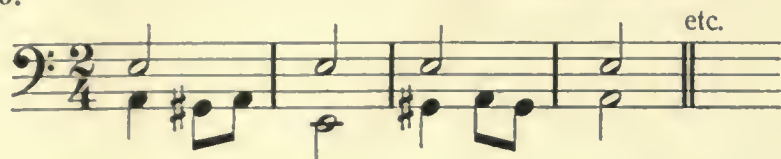
l. h. etc.

Here, for instance, we may begin either with low-fall or connect (bind) the four \downarrow s in each bar with the sustained tone D^b , by one raising action.

Whereas, when the thumb is set, (80) the low-fall also constitutes the simplest and most usual method.

With s

J. B. Cramer: Etude III (Bülow) (sustained notes held with the inside fingers)
80.



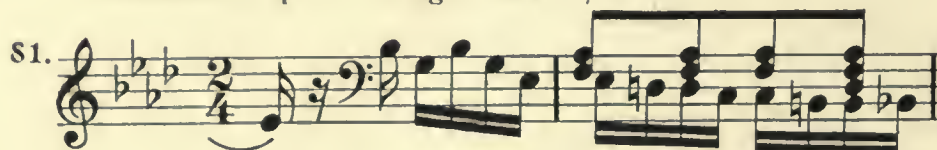
We would add that in slow time, in *andante* and *adagio* movements, whenever it is a question of sustaining a tone with the inner or outer fingers, the accompanying notes (changing-notes, passing-notes, figurations, etc.) may be played with a steady hand alternately falling and rising (low-fall—erection) or vice versa.

In sustain
tone and
accompan
it:

2. Two sustained notes with figured accompaniment or with chords (thirds, sixths), etc.

a. With the outer fingers: (81, 82).

Beethoven: Op. 13. Adagio: bars 23/24



or bars 27/28.

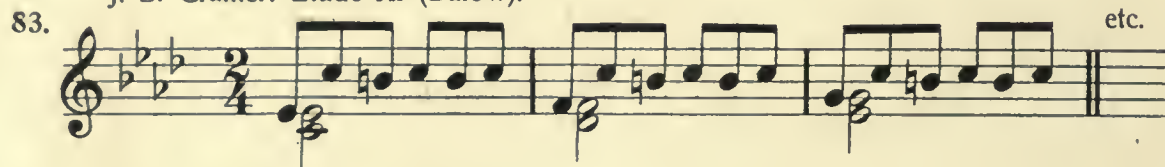


Numerous analogous passages will be found in Bach, etc. The passages in question can only be rendered perfectly by alternate lowering and raising (tension—flexion) of the hand with

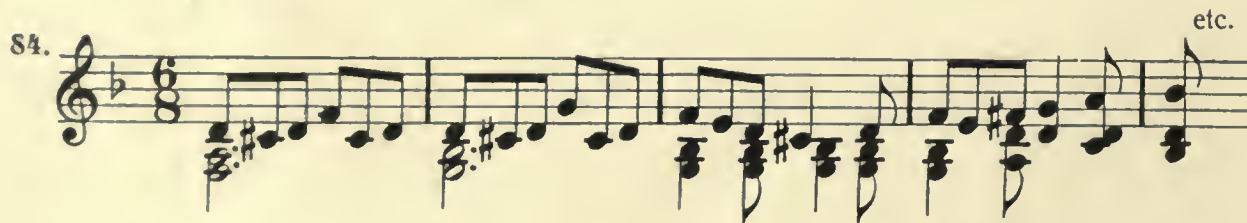
the arm oscillating, never allowing the fingers to “crush” the keys, the hand, set lightly, holding down the thirds.

b. With the inner fingers: (83, 84).

J. B. Cramer: Etude XI (Bülow).



Beethoven: Op. 10, No. 3.
Largo e mesto



cf. also Op. 14 No. 1, 2nd movement.

In the first example the low-fall is followed by an alternating motion (rise—fall) or, if preferable, by a rolling-action.

(1st bar), G¹ (2nd bar), etc., fingers and hand resting lightly on the keys held down. The double notes (thirds, etc.) must not

No crush

In the second example the hand is lightly raised on to F¹ be “crushed”

3. "Gliding-notes" upwards are taken by "rising", downwards by "lowering" the hand.
4. Double appoggiaturas, in alternate rising—falling, or vice versa, according to form and position.
5. "Turns" beginning with note above or below are "rolled" with a sweep of the arm and a supple, elegant curve of the hand starting from the low or the high position, according to the position of the hand or the musical forms, etc.

In *polyphonic movements*, the *sustained notes determine the motion*, i. e.:

Suppose the thumb or 2nd finger has to sustain a note, and the outer fingers 3, 4, 5 have to execute the figure, then the sweep of the arm will afford the best and easiest means of execution.

Whereas, if the outer fingers are "set", the thumb, the 2nd and 3rd fingers must execute the figure in alternate rising—falling;

6. The "transient" shake, "mordente" and all similar forms of shakes are subject to the rolling-action of the forearm, i. e. their execution is related to that of the tremolo (pp. 33/34).

The same holds good of figurations in form of shakes in connection with one, two or three held notes, and also with prolonged shakes (chains of trills with or without notes of complement). The examples under Nos. 1 to 5 (appoggiaturas to turns) are also to be executed with the assistance of the rolling-action. (See "Natural Piano-technic", vol. I. 2nd edition, Supplement I. No. II. pp. 186, etc.)

Sweep of arm in connection with a sustained note

CHAPTER X.

DYNAMICS. AESTHETICS. TOUCH. RHYTHM. FINGERING.

I. Dynamics.

Dynamics, how determined
 Piano-dynamics are determined by contact of the living organs of percussion with the inorganic material composing the mechanism of the hammer-repetition-work: on the one hand, the instrument, its construction, resonance, mechanism, etc., on the other, the form of action and contact of the organs of percussion and the velocity imparted to the key.

The tone analysed
 How formed
 The instrument produces a tone "ready-made" in the construction of the instrument, the volume of which depends upon the vibrating capacity of the whole sonorous body of the instrument as also upon the form of the vibration (upper partials).

("Timbre")
 How modulated, graduated
 It also possesses a peculiar "timbre", more or less uniform, determined in each instrument by the qualities of the vibrating body and mechanism, which varies only according to the respective volume of tone in the different registers (bass, tenor or treble). The modulatory capacity of the tone is dependent solely upon its power of gradation; so that in speaking of the "formation of the tone" and "timbre" on the piano, where the tone is already made, we can only refer to a graduating of the tonal intensity; for we cannot really speak of a diversity of "tone-colour", and of "forming a tone" which is already formed. In admitting "tone-shading", we can only refer to such "nuances" as result from the vibration of, or the form of contact with, the playing-body, i. e. from the different degrees of *weighting the keys* or from the greater or lesser intensity of pressure and from the velocity imparted to the key. *All forms and manner of percussion* (touch), without exception, *differ only in intensity*, i. e. in the force applied in the percussion (touch), which again results from the product of rapidity and weight. (pp. 12 and 24.)

Tone-colour
 Nuances
 Touch: the product of rapidity and weight
 Hence every "stroke" and every *tonal effect are dynamic products*: all tonal effect corresponds to a certain degree of dynamic intensity. Generally speaking, the modulatory capacity of the tone is determined by the grades of touch proceeding from the discharged arm up to the weighted arm. All other effects depend upon the rapidity of the stroke or upon particular muscular

All tonal effects are the dynamic products of discharged and weighted arm

tension, upon the development of more or less accentuated force, upon the sweep of the arm, involving the instant transfer of shoulder-power to finger and key.

As, moreover, every form of motion, action (percussion) of the living organism has its origin in a mental impulse, it follows that *all instrumental dynamics respond to the mental capacity and the spirit of each individual*. The richer, the more varied or graduated the psychological scale of sentiment or emotion, the richer and more varied will be the dynamics of the tone diversified by the most delicate gradations and shadings. Mental capacity and sentiment, quantitatively and qualitatively speaking, limit and qualify the touch of the individual in those respects. Instrumental dynamics, as such, are of no importance. The touch becomes or proves expressive, is full of emotion of the soul or is meaningless, void, becoming mere outward show, according to the predominance of spiritual depth or external sensuality. See further on „Touch“ pp. 68, etc.

Indigence of colour or of singing quality in the touch does not invariably indicate poverty of emotion of mind or of musical ability and feeling, any more than richness of tone and colouring necessarily presupposes a superabundance of soul or sentiment. *Every tone is, in fact, the product, the expression of a mental and moral effort of emotion* — passing through a sensory apparatus extremely complicated in its coarser or more delicate elements (sense of pressure, muscular sense, sense of position, action, motion) and necessitating the co-ordination of muscular functions not less numerous.

Hence it will be admitted that, — the moment "percussion" has taken place, i. e. the key or keys have been played, there is no further means of affecting the tone or tones sounded, — except by the pedal. The tone continues as long as the key is held down or is sustained by the pedal, and ceases, the moment key or pedal is released.

From a practical point of view, the following points may be deduced herefrom:

1. All degrees of tonal intensity accessible to individual capacities must be tested and determined with a view of training and refining muscular sense and sense of touch (pressure) (p. 17).
2. The greatest importance attaches to the sustaining and prolonging of the sound, as long as the damper permits, and not, as hitherto, to the mechanical hammering (percussion) with the fingers, preceded by their "preparation" so contrary to nature and purpose.
3. Having limited all dynamic shading or grading of tone to time and action between release of weight and weighting, all modifications of the normal attack can only be determined or diversified by the amount of weight employed.

From the description of the mechanical structure of the instrument it is evident how absolutely useless it is to *crush* the bedded key. If it is true (and true it is), that it is impossible to affect the tone in any way, once it is sounded, it is nonsensical to continue pressing the key, and holding it down with the finger. For, what good can the continued pressing do, if nothing is attained thereby, the tone being in no way affected? Away then with the strength-robbing, tiring "*pressure-tone*" and with the foolish idea of "*after*" pressure — when there is nothing to press.

Let us now determine the various degrees of dynamic intensity in their relation to the forms of playing, treated of in the closing words of Chapter VIII:

- a. Natural weight of the fingers: *leggiero*, *leggierissimo*, *jeu perlé*.
 - b. Weight of the hand: *non-legato*,
 - c. Weight of fore-arm and hand: *non-legato*,
 - d. Total weight of arm: *martellato*.
- All these weights may be:

Preliminary Pedal Exercise:

count:

S9. 1 2 3 4 1 2 3 4 etc. etc.

2 Pw. * Pw. 2 * Pw. * Pw. 2 Pw. * Pw. * Pw. * Pw.

Practise octaves and chords in the same manner.

II. Aesthetics.

The aesthetics of tone also largely resolve into a question of weighting. Beauty of tone results as a natural, inevitable

- a. Applied with or without swing of the fingers,
 - b. Applied by means of fore-arm-rolling and rotation of the upper-arm above the keys, to effect binding: *legato*,
 - c. Made to rebound: *staccato*, and
 - d. Thrown with a sharp, short jerk upon the key: *con bravura*.
- The "*crescendo*", both in single-tones and in a series of tones depends upon:

1. The gradual increase of the weight (weighting degree by degree).
2. The rapidity (acceleration of the time).
3. The greater sweep of the arm, i. e. upon the participation of upper-arm and shoulder.

The same, in inverse sense, refers to the "*decrescendo*" or "*ritardando*".

Weight and velocity need not exclude each other, even though weight-produced touch is based upon relaxation of the muscles, while accelerated velocity presupposes tension of the muscles. The greater the velocity, the greater the tension, the less the weight. True! — But just as true: that the whole secret, the art of our technic, in spite of these facts, consists in following up the laws of inertia and retaining the weight (though reduced), even in the highest degrees of velocity — our motto being: *never lose the weight nor relaxation!*

One fundamental principle in cultivating dynamics requires that *the fingers shall remain in constant contact with the keys and that every tone shall, as far as possible, be formed upon the key itself, and not with the arm suspended in the air.*

All the various degrees of tonal intensity may be considerably modified, i. e. reinforced or softened, with the aid of the loud and the soft pedals. In all elementary grades, the pedal must not be put down until the key is played.

consequence from the faculty to transfer and *roll the weight* (i. e. every degree of weight) wherever, and whenever, it is needed.

Essential conditions being: swinging action or motion of the whole physical organism of percussion, soft and round

action of the hand (i. e. the exclusion of any and every action or movement contrary to the object to be attained at the time), delicate touch, instant relaxation of muscle the moment the key is struck, a flowing, smooth action of hand and arm, and uniform velocity.

A general error: It is an almost universal error to believe that to play with the arm produces a hard, dry, a non-aesthetic tone. The very opposite is the case. Nothing lends the tone (with however much power it be struck) so much sweetness, fullness and roundness as the swinging (elastic) fall of the whole weighted mass with fully relaxed muscles and loosened joints, moderate or little velocity being given. The finest tone is produced by action of the larger members, *not* by that of the smaller ones. *All partial action is harder* and more angular than that of the whole arm, since the velocity imparted to the key by smaller and more agile members is involuntarily greater. Thus, for instance, the softest velvety, mellow chord is struck in the descent of the swinging arm, the whole upper-body participating in the action by a gently swaying motion. Active partial-motion (finger, hand, forearm) of single parts must be discarded, on principle, both from an aesthetic and from a dynamic point of view. If the motion of great velocity is short and violent, all raising of the fingers, all tension of wrist or elbow, impeding the free action of the arm, produces an unpleasant, inaeesthetic tonal effect. Besides, as the tone can only be obtained by tap, stroke, percussion of one of the *parts* (joints) in question, one cannot help hearing the unpleasant noise accompanying the drop of the mass of joint and bone. Whereas any and every secondary material effect is precluded by the fall on to the key, owing to the very fact that, instead of first tapping or beating upon the key, the hands at once sink *into* the same with the descent, pressing it down, thus combining in one movement (action) that of hand and key.

Avoid:

It is just as wrong to condemn the full, lever-like action of the arms, from a plastic point of view, for is it not an admitted fact, that in the arts of acting, dancing, gymnastics, skating, rowing, fencing, etc. the full movements are the most beautiful, the grandest, as being the most natural and most appropriate?¹

From our practical point of view, all this simply means that: the tone is "beautiful", when the rhythmical action producing it, is a correct one, i. e. a natural and an appropriate one. The

¹ How tastes differ, and how little importance is attached to the development of aesthetic movement (action) in the human body! Speaking personally, we cannot help shuddering at the sight of the "cocked" finger and the "beautiful" (sic) wrist-action.

action is correct, when the whole member (the arm) is allowed to swing loose and free, descending with its full weight, rolling the weight with perfectly relaxed joints and extension of the rotary muscles, etc., the factor of the intended velocity being given.

Principal Axiom:

The musical form sounds the more beautiful, the rounder, the more perfectly its technical form is adapted to the "action". We consider a scale, a passage, an arpeggio flowing and elegant, when their execution seems bound up with the action producing it (natural "oscillation", rolling, etc.). Hence the popular expression: "to do it from the wrist" probably derived from piano-technic, and which really means: to play so lightly and naturally, that it shall "appear" as though one were witnessing a feat of sleight of hand.

If the free fall is correct, the arm is enabled to bend and straighten itself in a natural manner, i. e. it can perform the rise and fall, balance and weight itself instantly, thus producing a fine, uniform *non-legato*.

The combination of fore-arm-rolling assisted by the action (propulsion) of the upper-arm, with an equal distribution of weight, produces the most perfect *legato*, the sound being sustained as long as the damper permits.

The natural rebound of the arm furnishes the *free staccato*.

If raised (from the key) "as a whole", the result is a "portato", which effect it is also possible to produce, by what the old method terms: "wiping", i. e. by means of a gliding motion.

The *leggiero*—*leggerissimo* touch, or "jeu perlé" is nothing more than the result of the fingers falling or sinking loosely (entirely *détaché*) into the keys (without active rise); the least amount of weighting, being just enough to press the key down, in addition to the natural weight of the finger plus speed.

The *con bravura* is determined by the rapidity of the fall, i. e. by a sudden, sharp jerky transference of the respective weight to the arch-set fingers or hand, followed by instant retraction of the impulsory force.

If the fingers participate in the swing, care must be taken that the attack actually producing the tone emanate not from *them* alone (which would be isolated action), but also from the simultaneous vibrato of the hand.

Hence it follows that *unity of movement and weight produces dynamic and aesthetic unity*.

III. Touch.

1. The psychical elements of a beautiful, grand and soft singing expressive tone constitute a part of *human nature* in general. Man himself is the sound emitting and expressing

his own personality, his human and his musical character, the emotions, and the temperament of his artistic nature.

Generally speaking, we might say: energetic characters possess a well defined, energetic tone, individuals of a gentle, lyric nature are gifted with a soft, sweet tone, and so on. The gentler the nature, the deeper the character is of the individual, the richer and deeper will be his power of expression. The real source or origin of touch (attack) must be sought for in the individual's gift, ability or power of mentally conceiving sound, i. e. in the highly developed *feeling* for, and appreciation of, the grand, the powerful, the beautiful, the soft, colouring and intensity in expression, a feeling educated and cultivated by association and practice. Before being sounded, the tone must be perfectly cultivated and developed as a living stimulus or as a latent sense of colour in the mind of the player.

Hence the whole art of musical education must be directed towards, and concentrated upon, the culture of the musical personality in man and upon its mental development and enrichment, as also upon the refining of the mental conception of sound (*sense of tone*) and upon his taste (idea of style, aesthetic and critical mind). An essential condition of every style of touch is the physical ability of the individual to strike the key in such a way, as to produce an ideal tone. The ultimate and highest finish in his art the pupil will learn, not through abstract contemplation, but solely through the medium of his sense of tone, of so-called timbre. The effects of tone-colouring penetrate so deep and are so lasting, that many a talented person has solved the problem and secret of touch by listening, not by practising. The same holds good of certain peculiarities of rhythm and dynamics, of refinement in phrasing and style. Perfect models and noble masters, both as artists and men, and frequent hearing of good music perfectly rendered are essential conditions.

II. Physiologically speaking, the technic of touch, and touch itself, depend upon:

1. A certain disposition of the nerves. Mental ability, bodily constitution (full-bloodedness, anæmia, red or white blood, thick or thin blood, etc.), nourishment, climate, weather, indisposition or disposition, inclination or disinclination certainly affect the execution.

2. A certain mental concentration upon the executive, playing, and leading organs, which must be under absolute control, and the player must be able to employ them and put them to use singly, or as a whole in the manner needed for the touch, to produce the exact effect required.

3. The weight which is used: whether it be finger-, hand- or arm-weight.

4. The momentum, rapidity with which the key is struck.

The manner and form in which hands and fingers touch the keys is immaterial, in as far as only their own velocity, and the velocity imparted to the key determines the tone. It makes no difference in the world, whether the key is struck with a soft hand, or with one of a certain, thick-set form — with long, loose fingers, or with curved, round fingers — whether with the soft part, or with the tip, of the finger — whether with raised, straightened or sunk wrist, etc.

A powerful tone requires a powerful touch — a soft tone exacts a fine, careful observance of, and mastery over, the playing members and joints. Expressed in physical terms this means nothing else than: *bulk multiplied by velocity*.

5. The higher, active muscular tension, which, in certain cases, may for the moment combine with the weight, to modify the speed.

6. The build and shape of fingers and hands, which differ almost in each individual. Thin, bony hands and fingers have less weight and power to produce volume and fullness of tone, than thick, fleshy hands and corresponding fingers with broad, soft tips (cushioned as it were with flesh), powerful, massive joints and strong, muscular arms. As regards the expressive power of the fingers singly, we may say: The *second* finger has the greatest amount of singing power. It might be called the "declamatory" finger. Then follows the third. The fourth and fifth fingers mostly produce a tone of less power of intensiveness, of inferior quality and not so great in volume. Yet, the latter is often better suited to subtle, soft tone-shading, and especially to the "portato" style. The thumb excels rather by strength than by gracefulness of touch, and yet it is the finger best adapted for characterising passages and for executing the dynamic signs, making up, as it does for its want of flexibility, for its awkward and slow action, by its usefulness in the broad cantilena and in dramatic declamation, to which its massiveness (more especially the ball of the thumb) lends itself most admirably.

7. The manner of attack, which is in turn determined by the rhythmical impulse (velocity) and the respective action preferred, and the degree of control acquired by practice.

8. The motion in executing the attack, which may be:

- a swinging motion,
- a rolling motion,
- a gliding motion.

It may be a motion of the whole arm (from the shoulder), or a motion rather of separate single parts which must, of course, always be seeking to complement and assist each other, just as,

Chief factors

Tone-production

Physiological factors

Variety of motion

for instance, the arm participates with a swinging, rolling or gliding motion in any action of fore-arm, hand or finger.

The best motion:

The best motion is:

That in which all the joints and members participate equally to produce a uniform style of touch proceeding from the arm set in (swinging, rolling or gliding) motion.

Viewed from this point, (viz. from that of an undivided effective motion or action of arm and hand), the question as to how much the fingers are to be raised, the muscles exerted, must be left to the discretion and artistic taste of the individual.

Preparation.
Resolution
of touch

It is important that every motion or action preceding, or producing, the touch should be *prepared* and *resolved* (after the attack). The effect of the touch must be conceived and formed in the brain *before* the note is sounded, and *after* it is sounded, it must again be softened (preparatory to the attacking-motion that is to follow).

Such preparation and resolution are best effected by:

A light (gentle) and soft undulating or tilting motion of the wrist, or the loosening action produced by rolling the fore-arm.

Action of hand

The shape assumed by the hand in attacking the key differs almost with every individual: one person takes the key from above, another plays with long, spread-out (flat) hands, a third person produces the same effect and beauty of tone with a low-set (sunk) hand. Expressed in physical terms, the formula is always the same: *bulk multiplied by velocity*. If we put this into practical terms, and say that in general the *sunk* hand, i. e. the hand softly posed and sinking into the keys is best suited to produce *soft tones and shading*, whereas the raised hand (attacking from above) is calculated to bring out a great volume and hardness of tone, rather than accentuation, it amounts to the same thing, viz.: a presupposed determined degree of velocity.

It is self evident that the dynamic energy increases from the light descent of the finger to the heavy drop of the great mass (bulk) of the whole arm falling with a full sweep from the shoulder. The more powerful a *forte* is required, the higher the hand must be raised, in order to allow upper-arm, shoulder and back full play.

The best pose
of hand

One form is certainly the best one, in any case:

That of the hand in a state of perfect relaxation, looseness and repose.

Whereas one person employs the swinging motion, another prefers the gliding action and a third, the rolling motion; this depends upon individuality and varies with individual ability, or, it may be velocity, rapidity of the action. The player must be guided therein by the tonal effect to be produced, by artistic taste, by the style of composition, the ideas contained therein and the composer's intentions.

The deep swing of the hand produces a round, full and sound tone, provided the weight and velocity required are given.

The high-swung hand is calculated rather to produce a more pointed, accented tone, in consequence of the greater velocity gained by stretching out the fore-arm.

The rolling motion adapts itself advantageously to soft, sweet, delicate tone-production, provided the motion of arm, hand and finger is a pliant action, or in other words, provided the velocity imparted to the key is slight.

Similarly, the gliding motion effects a grand singing quality and possesses an ideal charm of tone. The fact of this form of touch not being the result of a sharp, pointed action but of a liquid, gliding motion of the hand (sinking into, or rising from, the keys) renders this form of motion and contact the softest (the degree of velocity being the least), and the tone the most beautiful of all, owing to its being held (spun) somewhat longer (as long as the damper permits), and thus being brought out and developed to the fullest effect of its over-tones.

Thus then in practising the exercises written specially to cultivate touch, (attack) we must concentrate our attention upon:

1. Exercises to develop power.

The volume of tone (its fullness, power and continuance, etc.).

2. Exercises on pressure (weight).

The dynamic shading or gradation, i. e., the power of mentally conceiving the various degrees of pressure or weight; in other words, we must train and refine our senses of consciousness: sense of position, motion, pressure, muscular exertion and of touch.

The "felt tone"¹, i. e. the form of dynamic attack acquired by the sense of touch, must be able to musically reproduce every gradation of weight. The gradually refined sense of touch and pressure alone can develop the faculty of "gauging" the specific weight of the key, and of every gradation of the dynamic scale, as also the ability to differentiate the numerous varieties of instrumental tone, from *ppp* to *fff*, to cultivate rhythm and precision, and educate the musical ear and the general conception of technic.

3. Exercises to train nerve and mind and develop power of concentration.

Intensity, i. e. the power of mentally conceiving the idea of sound, concentration of the mind upon emotion and expression.

¹ Fühlton: to feel the tone forming, developing under the weight of the hand, transferred to the finger-tips. (Tr. n.)

4. Exercises to develop dexterity and sense of rhythm.

Velocity, lightness, grace and rhythm.

5. Exercises in producing or blending the upper-partial tones.

Colouring, i. e. the effect of the upper-partials upon the tone (harmonics).

Axiom: The tone produced is the more beautiful, the purer and fuller its upper-partials blend with it.

6. Exercises on pedalling.

The art of pedalling most closely connected with, and directly affecting, the upper-partials.

Axiom: The pedal must be used in such a manner as to produce the most perfect effect of the upper-partials blending with the tone. All actions tending in the least to affect detrimentally the effect of the upper-partials (disturbing, impure mixtures) by means of using the pedal (cutting off the tone) must be abandoned.

Bach: Wohltemperiertes Klavier. Fuga V.

90.

Allegro moderato.
marcato

Beethoven: 32 Variations (Theme).

91.

Allegretto.

Beethoven: Sonata Op. 111.

92.

7. Exercises on musical touch and style.

Acquaintance with, and mastery over, the various musical effects and styles of playing, such as:

legato — non-legato — staccato — con bravura — jeu-perlé — leggiero — portamento —

and of the dynamic and agogic terms:

crescendo — diminuendo — accelerando — diminuendo — forte — piano — sforzato —, and discrimination of accent, time, phrasing, style, etc.

III. The style of touch which the artist must observe, is dictated by the *melodic* form and varies with the same.

We distinguish between:

1. The dramatic or pathetic declamatory style.

a. Demanding vigorous transfer of power from the raised arm (from the shoulder), broad setting of arm and hand, the weight of arm and hand bearing on the key, mostly with high-fall (up-movement of the hand, raising the wrist, the hand set in high-arched position) on to massive fingers.

Beethoven: Concerto E \flat -major, Finale.

95. *Allegro.*

ff *p* *trill*

b. Similarly on to *single* fingers or on to two fingers set together.

Schumann: Carnival (Finale).

94.

Chopin: Prelude No. 24.

95. (3 u. 2)

f

c. With the thumb alone.

Chopin: Sonata B-minor, Finale.

96.

f

2. The Cantilena style:

a. Which demands the greatest mental concentration, and

perfectly balanced action of hand and arm, carefully avoiding the least unsteadiness in the joints, and as carefully observing a uniform, uninterrupted flowing and gliding motion of the hand.

Bach: Wohltemperiertes Klavier, Prelude E \flat -minor.

97. *Lento moderato.*

pp dolce

Beethoven: Sonata A \flat -major Op. 110.

98.



b. With a light, swinging motion (balance) of arm and steady-swaying hand.

Schumann: Sonata F \sharp -minor Op. 11.

ARIA.

99.

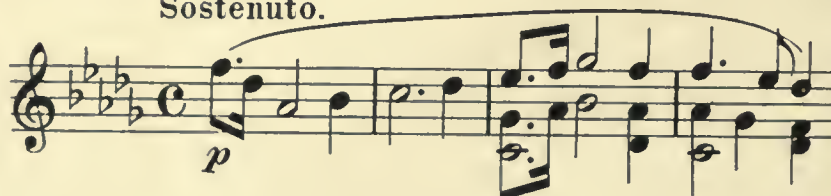


Also combined with a rolling motion.

Chopin: Prelude D \flat -major.

100.

Sostenuto.



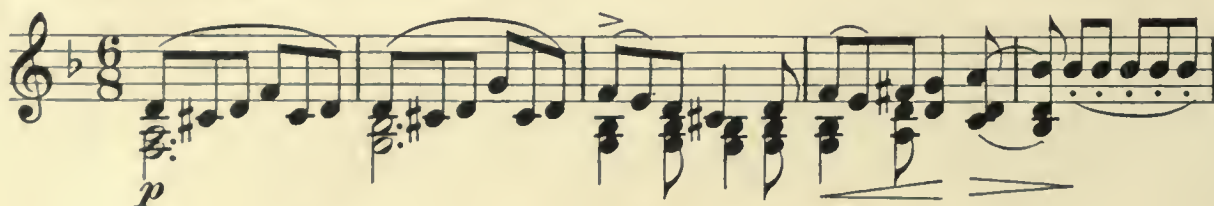
The question as to whether the hand should rather *pose on* or sink more into the keys, is one which varies with, and depends upon, the individuality of the player.

The hand must assume a perfectly loosened (relaxed) state and a broad expanded form, the fingers constantly remaining in contact with the keys, which should be raised, as it were, by the suction-power of the fleshy (*cushioned*) part of the rounded tips.

c. With deep (down-) pressure of the finger-tips, i. e. combined with an active tension of the whole muscular system participating, up the arm as far as the shoulder, varying according to the volume of tone required: i. e. with pressure exerted by finger and hand, arm or shoulder.

Beethoven: Sonata D-major Op. 10, No. 3.

101.



The tension or pressure must last *only* until the note is sounded and must be released immediately after the key is struck. This pressure-cantilena is not so soft and not of such a rich sombre timbre as the simple, broad weight-produced touch, but is all the more of a decided, clear, pithy and energetic character.

It is accordingly suited to the classic or plastic style, and *essential* to the polyphonic style.

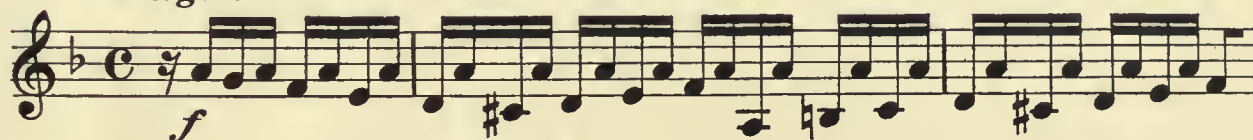
3. The non-legato touch:

a. With a short, energetic sinking-action of the hand (deep-fall), the hand sinks into the lowered, extended wrist-joint.

Bach-Tausig: Toccata and Fuga.

102.

Allegro.



non-legato rotations.

b. With vibrating hand (vibrato), when greater velocity is required, often combined with a rolling motion when executing broken forms.

Beethoven: Sonata Op. 31, No. 2.

103.

Allegro.



Beethoven: Concerto G-major.

104.



c. With high-fall and extension of fore-arm: jerked extension — vibrato.

Beethoven: Sonata Op. 109.

105.

Prestissimo.



4. Staccato melodies:

a. The hand thrown with a short jerk (often combined with a rolling motion and extension of fore-arm) in executing brilliant passages: staccato—brillante.

Beethoven: Rondo capriccio.

106. Allegro vivace.



Beethoven: 32 Variations (Var. VI).

107. · Con fuoco.



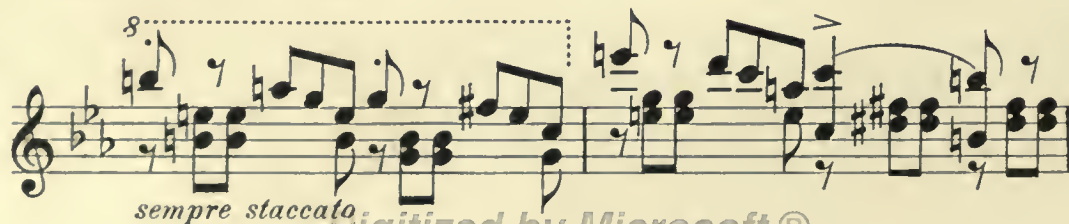
Schumann: Carnaval (Paganini).

108.



Liszt: Concerto E \flat -major (Finale).

109.



b. With drawn-off hand (by gliding motion), as if wiping the keys; in melodies of a softer, airier character (cf. also portato).

Liszt: Etude de Concert.

110.

cantando



dolce con grazia

Liszt: Au Lac de Wallenstadt.

111.



dolce

Beethoven: Sonata A \flat -major, Op. 26.

112.



pp

cresc.

sf

113. Mozart: Fantasia D-minor.



c. With rolled, i. e. dancing, or suspended (drooping) hand (oscillating arm), in graceful, coquette staccati (dance-music, waltz- and march-rhythms): *leggiero*—*staccato*.

Schumann: Kinderszenen (Haschemann).

114.



Mendelssohn: Rondo capriccioso.

115.

pp leggiero

Mendelssohn: Spinnerlied.

116. Presto.

sf

117. Chopin: Etude Op. 25, No. 9.

p leggiero etc.

118. Beethoven: Sonata Op. 31, No. 3.

Scherzo.
p

119. Liszt: Gnomesreigen.
staccato e legger.



d. With clawing hand and curved finger-tips, proceeding from a rotary motion, *plucked*: in so-called "harping-style".

120. Mendelssohn: Frühlingslied.



121. Schubert-Liszt: Der Erlkönig.
"Du liebes Kind, komm geh' mit mir".



Rubinstein: IV. Concerto D-minor, 2nd movement.

122. *Meno mosso.*



Chopin: Polonaise A \flat -major.

123.

Combined with a short jerk
of the whole arm.

e. In non-legato style with a short, sharp rebound and return of the hand: non-legato—staccato.

Beethoven: Sonata D-major, Op. 10, No. 3. 1st movement.

124.

More with set fore-arm (the wrist
slightly fixed), also good.

Bach: Wohltemperiertes Klavier, Fuga C-minor.

125.

Beethoven: Concerto E \flat -major. 1st movement.

126.

Left hand with sunk wrist
and firm finger-tips.

A musical score for a piano piece. The top staff is in treble clef and the bottom staff is in bass clef. The key signature has two flats (B-flat and E-flat). The music features several triplet markings (indicated by a '3' and a slur) and various slurs. The bass line has a steady eighth-note accompaniment.

f. With off-raised hand or arm (staccato—portato); frequently also with wrist in sinking pose, hand in “set” form (cf. portato).

Beethoven: Concerto E \flat -major 1st movement.

127.

A single musical staff in treble clef with a key signature of two flats. The music consists of a series of chords, each with a slur above it. The first chord is marked with a piano (*p*) dynamic. The sequence ends with a dotted line and the word “etc.”.

The hand to be lowered a little.

Beethoven: Sonata G-major, Op. 14, No. 2.

128.

Andante.

A musical score for a piano piece in G major, Op. 14, No. 2, measure 128. The tempo is marked “Andante.” The top staff is in treble clef and the bottom staff is in bass clef. The music features a series of chords with slurs and accents (>). The first chord is marked with a piano (*p*) dynamic. The sequence ends with a dotted line and the word “ten.”.

The whole chord is grasped and as it were lifted off the keys. At the pause, the hand sinks, assuming the shape required for the next chord.

Beethoven: Concerto E \flat -major 1st movement.

129.

A musical score for a piano piece in E-flat major, Concerto 1st movement, measure 129. The top staff is in treble clef and the bottom staff is in bass clef. The music features a series of chords with slurs. The first chord is marked with a pianissimo (*pp*) dynamic and the word “leggieramente”.

Right-hand “set”; staccato—vibrato, left hand “raised off”.

g. With a light arm-vibrato; the hand in a "fixed", set pose (held just above the keys), or *jerked*, with extension of the fore-arm. Frequently with a short "tapping" action with curved finger-tips: *staccato*—*pizzicato*.

Beethoven: Sonata in D-major, Op. 10, No. 3. 1st movement.

130.

Beethoven: Sonata in E^b-major, Op. 7. 2nd movement.

131.

Beethoven: Sonata C-major, Op. 53. 1st movement.

132.

Weber: Sonata A \flat -major (Andante).

133.

play the accompanying chords "jerked".

Beethoven: 32 Variations C-minor.
Theme (Finale).

134.

with a short touch of the finger-tip (curved): staccato — pizzicato.

h. Guitar- and mandolin-like accompaniments, bell-like tones and harmonics, the notes being struck with lightning rapidity, with a clawing hand (clawing like a cat).

Schubert: Moment musical.

135.

Allegro moderato.

Weber: Sonata A \flat -major Op. 39: Menuetto capriccioso.

136

Presto assai.

Chopin: Preludes. Op. 28, No. 19.

137.

Vivace.

sempre legato

The author prefers to play the melodic part with a delicate staccato—portato, in the style of harmonics on the violin.

Liszt: La Campanella.

138.

Also good when combined with rotation of fore-arm.

Liszt: Concerto E \flat -major.

139.

Capriccioso scherzando.

5. Portamento:

a. With a swinging (dangling), rolling or gliding hand.

Beethoven: Op. 26, Var. III. 1st movement.

140.

b. With drawn-off hand (as if wiping the keys).

Beethoven: Sonata Op. 109. Var. II.

141.

Leggieramente.

c. (In classic style) with a light but decided depression of the arm, the hand (with lowered wrist) set on lightly fixed fingers: set pose (each tone requiring its special action).

Beethoven: Concerto E \flat -major. 2nd movement.

142.

Adagio un poco moto.

Beethoven: Concerto E \flat -major. 1st movement.

143.

6. Emphasized melodic notes:

a. The first kind: $\overline{\dot{\bar{p}}\dot{\bar{p}}\dot{\bar{p}}}$ is nothing but a sustaining of the notes, being therefore of an agogic nature, to produce which, a short, decided touch, or a slight pressure with the finger-tips suffices.

Chopin: Nocturne C-minor.

144.

Lento.

Bach-Busoni: Orgel-Choralvorspiele ("Wachet auf, ruft uns die Stimme").

145. etc.

b. The sforzato-kind: $\underset{sf}{\downarrow}$ or $\overset{\wedge}{\downarrow}$ is mostly produced from a *raised pose* of the hand and with a short extension of the fore-arm.

Mendelssohn: Variations sérieuses (Var. 8).

146. etc.

Beethoven: 32 Variations C-minor (Var. 26).

147. etc.

Beethoven: Sonata F-minor op. 57 (Andante, Var. 2).

148. etc.

Hand in raised pose or low-set.

Beethoven: Sonata C \sharp -minor Op. 27 (Allegretto).

149.

c. Similarly all accents: $\overset{\wedge}{\downarrow}$ $\overset{\wedge}{\downarrow}$ $\overset{\wedge}{\downarrow}$, although here a low-set hand, or finger and hand-pressure will be found to produce the tonal effect required.

150. Chopin: Mazurka G-minor. etc.

151. Schumann: Carneval (Chiarina).

d. All heavier accents (especially in dramatic and pathetic style) in martellato style with falling or jerked arm on a high-set, firm, arched hand and massive fingers.

Schubert: Fantasia C-major (Finale).

152. R. H.
3

ff L. H. with falling arm.

Chopin: Polonaise A-major.

153.

ff with falling arm on high set hand.

Liszt: Concerto E-flat-major 1st movement.

154.

ff etc.

Beethoven: Concerto E \flat -major. 1st movement.

155.

ff *sf* . etc.

To be played "jerked", the hand and wrist slightly "fixed" (clawing like a cat).

7. Figurated melodies:

Mozart: Sonata A-major (Var. III).

156.

p

Beethoven: Sonata A \flat -major Op. 26. (Var. 5).

157.

p dolce

Brahms: Händel Variations (Var. 2).


158.

p animato

Here the action must be determined by the nature and style of accentuation, position, movement and direction of the tones of the melody. The effect of rendering the tones of the melody prominent is produced by a slight weight-produced pressure of

the hand, by a short pressure of the finger-tips, by a tilting rotary swing, in broken forms, roulades and staccato-like passages.

In polyphonic melodies the same principles hold good respecting the progression of several parts, referred to in the chapter on Polyphonic Playing Action; weight and active pressure combine to produce the various dynamic gradations. The same holds good of melodic double notes (thirds, sixths and octaves) and chords.

The principal stress proceeding from weight-produced touch or finger-pressure is placed upon that note or exerted on that key which bears the accent of the melody. All such melodic tones are slightly sustained or slightly emphasized: .

The brilliant play of the virtuoso is merely a question of the action of the joints and short impulse, and the result of them and belongs, accordingly, to the style of technic termed *con bravura* playing (See chapter IV).

Such are the objective technical principles governing the art of a practico-melodic touch. We need scarcely add that, of course, they may be, or are, modified by individual habits. All else is dependent upon the intentions of the composer, the idea embodied in the composition and upon the momentary disposition and special nervous affections (imagination, ear, tone-perception, etc.) of the player.

The chief styles

In the art of touch we distinguish the following principal styles:

1. *The classic or plastic style*: Bach, Beethoven and others; here the form of touch or action must be: clear, precise, full of character and vigour.

The tone produced must be: grand, powerful, metallic, perfect in form and noble in quality (legato — non-legato).

2. *The lyrico-sentimental (romantic) style*: Schubert, Weber, Schumann, Mendelssohn, Chopin; also Liszt and Brahms.

The form of touch must be: soft, liquid, gliding or rolling; the tone: singing, full and broad, full of emotion, fervent and sweet (legato — portamento).

3. *The pathetic style*: Beethoven, Liszt, Chopin and others.

Form of touch: full of life and passion, violent, powerful, elemental (i. e. imbued with elements of one's personal nature); the tone produced must be: grand or pompous, sublime or overwhelming, fiery or dramatic (martellato — non-legato — con bravura).

4. *The serious or religious style*: Bach, Beethoven.

Form of touch: very calm, with full mastery and harmony of motion or action (quiet motion of hand and arm).

The tone produced must be: calm and broad, noble and touching, spiritual, devotional (legato — portamento).

5. *The graceful style*: Bach, Haydn, Mozart, Schubert, Weber, Schumann, Mendelssohn, Liszt, Chopin, Brahms.

Form of touch: delicate, light, fleecy (dancing, drooping hand).

The tone produced must be: short, dainty, graceful, playful, delicate, pleasing (staccato — portamento — leggiero — con bravura).

6. *The virtuoso style*:

Form of touch: perfectly light and elegant.

Tonal effect: graceful, perlé, flowing, brilliant, con bravura (leggiero — con bravura — brillante — vibrato).

IV. Rhythm.

Rhythm is based essentially upon feeling, sentiment, emotion, i. e., like so many other things, it must be innate, it cannot be taught or imparted to those who have not a certain amount of natural talent, any more than the essential conditions of playing pure and simple, viz. a certain amount of innate skill, natural appreciation of what is meant by softness, supple looseness and relaxation of the joints, etc.

Yet, while no amount of physical training can make up for the want of a natural sense of rhythm, it is possible, in cases where that sense exists, even though in the most rudimentary state, to develop it to a degree undreamt of, by releasing the physiological faculties, by freeing the playing-organs of all stiffness, of all contraction. Besides, there are far more physically awkward individuals than such as actually lack all sense of rhythm. And as the physical organism interposes between mind and expression, it is evident that mental rhythm and freedom of force can only be rendered audible by and through spontaneous, adequate, and natural physical rhythm.

Physical rhythm consists in the harmony of the natural movements of all the organs required in playing and of their component parts.

Sense of rhythm emancipates itself, the moment the brachial mechanism works freely and spontaneously. In this manner alone can the sense of rhythm, at one and the same time, find its embodiment of expression and realize it in sound. Innate talent alone (body and mind being indissolubly bound together) can *directly* transmit its own individual rhythm and impart to the physical organization (provided the latter has not been modified and spoiled by wrong methods) a natural and harmonious rhythmic swing; only genius divines by instinct the proper action expressing at once in motion and tone the rhythm and spirit of the piece played.

Practically speaking, all we have to do, is to let the physical organism do its work. Nature has provided it perfectly with all it requires from the minutest to the greatest. The moment its members are released from constraint and left to themselves, their movements assume a rhythmic form, which, if exercised naturally and simply, with nothing interfering with their freedom of action, will suffice for, and lead to, the highest manifestations of the art.

Hence we must eradicate every injudicious, inexpedient movement or action and follow the fundamental rules of two-handed playing. All difficulties arising from contrary action (or movements), dynamic or rhythmical opposition, will be removed in the most natural way, through steady oscillation or rolling of the weighted part by a soft and supple "flow" in hand and arm.

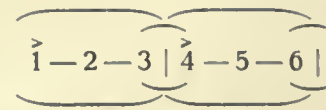
The root of all rhythmic difficulty will be found in stiffness of the body. If the body is supple, i. e. if its members sway obedient to its will, every movement becomes rhythm. With a few exceptions, those postures and movements are correct which the members perform without self-perceived tension of the muscles and which do not consciously stiffen the joints. (Kraemer.)

Dancing-rhythms must be practised with graceful descent of the free-oscillating mass. That is the way to study waltz, mazurka and polonaise-rhythms: the left arm swinging steadily and *with absolute certainty* from bass-note to bass-note, from chord to chord, to descend in heavy "martellato" or in "non legato". Teach the arm to descend properly and without hesitation, not timidly groping for the keys with hand or finger and it will, of its own accord, fall to the rhythm and measure, however quick the tempo.

It may here be noticed that in waltzes and polonaises the last beat of the bar is slightly more emphasized and lightly linked to the first beat of the next bar. Thus one counts: three—one, three—one. The second beat of the bar is somewhat shorter (staccato), and so should be rendered by the hand on the rebound and treated as syncopated between the two principal bars.

This applies also to the rhythmic essentials of the accompanying figure, which may be divided into three periods: 1. fall; 2. rebound; 3. fall, with purchase or swing-off to the following 1st quarter-note.

Remark: Strauss' waltzes, and in fact all genuine Viennese waltzes are played (as Kraemer very correctly points out) in $\frac{6}{8}$ time, i. e. $2 \times \frac{3}{4}$, time grouped together, the resulting rhythm being:




It is different with the Mazurka, with French waltzes and the national music and dances of the Northern tribes and Slavs. In these the second quarter is often strongly accentuated, a chief characteristic being the frequent displacement of, and change in, the rhythmic beat.

Special care should be bestowed on the rhythmic figure commonly known as "two against three" (two notes in one hand as against three in the other, 3 against 4, 4 against 6, etc. In such cases, it is imperative that each hand follow its own course, boldly and steadily executing its part, independently of what the other hand is doing.

All such rhythmic figures should be played martellato and with *both hands from the very first*. It will be found useful to allow the accompanying hand to play the figures in question 1 or 2 bars in advance, the other hand as if casually joining in.

The analysis of the part to be played by each hand separately will assist in clearing up mental difficulties in the music, but cannot remove the technical obstacles, as the very difficulty consists in the correct working together and the harmonic flow, of *both* hand and arms.

Should timidity continue, let the hand playing the accompaniment (i. e. the lower part in: ) emphasize its part, containing the notes of greater value and contradicting the rhythm of the part above it. Then reverse the order, for it depends upon the individual, as to which of the two methods (one emphasizing the rhythmic figure, the other, that of the accompaniment) will prove the more successful.

The same method may be adopted in *syncopation*: syncopated passages should be rendered with a steady but heavy touch, and, after mental analysis, should be played with *both hands* simultaneously. The passage in question will be then found to flow of its own accord naturally. It must be left to each individual to decide which hand shall be used to support the rhythm with the slight accent, and which shall play with greater freedom the adverse part. I would suggest to musical players gifted with a keen sense of rhythm to conceive of syncopated passages as written in that vein of impetuous urging forward, characteristic of syncopation: one hand "urges onward" while the other "holds back".

Accents are rendered by erection of the hand (such as all

melodic accents) or by low-fall (in dramatic style in martellato character) or by a *sudden (jerked)* extension (straightening) of the (fore) arm, or by short, abrupt "disjunction" (con bravura), finally — if possible — by falling upon single fingers: thumb, 2nd or 3rd finger.

V. Fingering.

No more set fin-
gering

As regards "*Fingering*", it may be said to be a matter of individuality, depending, as it does, entirely upon the build of the hand, its stretching capacity and general dexterity.

All the puzzled-out *systems of fingering* with their *encumbering impediments* are useless.

Weight-produced touch renders any set-down special fingering superfluous.

Fingering ana-
lysed

1. All fingerings are the natural result of natural movements, consequently:
2. They are the outcome of the technical apparatus set in motion; hence: even movements — even fingering; uneven movements — uneven fingering.
3. Transmission and balance of weight necessitate between hand and fingers from the outset: a steady flow and a reliable posture. Let them have their own way.
4. As the tone is chiefly formed upon the surface of the key, — the fingers rather resting upon the bedded key to support the weight, — the rules of fingering which the old methods dictated, with *active* raising of the fingers to regulate their isolated movements, are disposed of as useless. Absolute relaxation and loose oscillation (passive action) of the thrown fingers can only proceed from "isolation".
5. Fingering is determined solely by the sense of touch, the perception of weight (sense of pressure and muscular sense) and by that of movement and localization, associated with the above sense of touch.
6. All *active* isolated fingering, i. e. all finger-spreading, overstretching, clutching, pawing *without* participation of the weight of hand or arm, with stiff wrist or fore-arm, must be abandoned, as the various symptoms of fatigue and injurious effects (tightening of the hand and fore-arm) have their origin in such isolated action and movements, and as immediate loss of the weight is the inevitable consequence of isolated finger-action. Such fingering leads to a result exactly contrary to that desired: instead of calm collection of mind and assurance in playing (as is secured by weight-produced touch), it gives rise to all sorts of irregularities and technical imperfections. Formerly each rise of the finger, raised to its

utmost limit, exacted a previous testing and regulating of the attack. The difficulty in fingering according to the old methods, lay less in the fingering itself than in the difficulty for the overstretched fingers to aim at and strike the right keys. In all rolling-forms in legato style, for instance, it is best to play without raised fingers. A C \sharp -minor scale descending two octaves required the fingers to rise 29 times and strike 29 times, and this called for special practice to learn how to hit the keys correctly. To this same lifting of the fingers we must also attribute the incredible difficulties involved in playing "between the keys", one of the terrors of the old school.

7. As the weight of the finger tends towards a natural pose of the fingers, regulating their normal action, all the exercises of the old method are rendered useless, teaching as they do a *certain fixed manner* of holding the hand and setting the fingers in impossible postures and positions.

We advocate *passive* action of the fingers loosely thrown and extended, and oppose the antiquated method of raising the fingers as high as ever they will go (*active* finger-motion). This solves all problems of fingering, which is finally determined by the intensity of the impulse, being, after all, a question of individual energy and temperament which require but two things: full freedom and determination.

For the typical forms of fingering (in scales and arpeggi) those tested and sanctioned by general practice are the ones to be observed.

Common sense demands that we shall observe the natural succession of the fingers, i. e. that we shall shift the hand as little as possible; furthermore that we observe a regularity of movement, i. e. retain as far as possible a constant, uniform mean pose of the hand.

Exercises in changing active fingers on one key (repetition-technic) must be abandoned. In passages requiring quick change of key the *vibrato* should be resorted to, i. e. trembling of the arm with one finger or alternating fingers, according to personal talent and circumstances. When the student has learnt to "roll" (with loose action from the fore-arm), he may, but need not necessarily change fingers in playing long trills or chains of trills. In playing embellishments, weight and motion of loose, dancing fingers are also the chief and final aids.

Hence, the finger-changing method, formerly resorted to for the sake of a clear and neat touch, may be abandoned with impunity, as the weight furnishes and constitutes the best guide and index to a plastic manner of playing, provided care be taken that each finger is actually properly "weighted", i. e. that it

supports and bears the weight of hand and arm. Any loss of the weight renders the fingers weak and causes the well-known, "gaps" and "holes" in scales and passage-work.

The noiseless (silent) change of fingers (on a bedded key) in polyphonic playing and in the cantilena must be executed with a soft supple movement of the tilting hand.

The typical fingering for octaves remains $1\widehat{:}5$, or for the black keys $1\widehat{:}4$.

The fingerings for octaves: $1:3$, $1:4$, $1:5$, are, however, not to be recommended, owing to the danger of over-tension. Where the stretch is too great, release at once the upper or the lower tone, whichever is not absolutely required in the melodic combination. As a last resource we have still the pedal. The pupil should, therefore, be taught in the beginning to release tone or key and trust to the pedal to prolong and sustain the sound, as required; nothing is more foolish and unnatural than to clutch the keys nervously or timidly.

An equal distribution of the weight affords, moreover, the advantage of strengthening and thus enabling the so-called weak fingers (4^{th} and 5^{th}) to do any work required of them, so that

there is no longer the least reason to avoid or restrict their employment.

The time-honoured rule exacting the same fingering for both hands, whenever possible, still holds good, not only as regards isolated fingerings, but also as regards series of fingerings in analogous figures, scales, passage-work, arpeggi, etc.

The adage of analysing and mentally studying every fingering before applying it, is too logical to require repeating. But what is most important in all forms, is: to recognize exactly what form of movement is required to solve and execute the technical problem. Here, balance of arm (free oscillation of the joints) and integral weight are the *alpha* and *omega* of the task set us. Assisted by individual talent and habit, the spirit of the music and personal taste will determine what fingering should be chosen. No theory, no system of fingering in the world can of themselves produce the quality of tone required.

We would do well no longer to concentrate all our energy upon the cultivation of what might verily be called "*digital*" intellect, but rather to develop and refine the intuitive and unconscious perception of position, motion, rhythm and dynamics.

CHAPTER XI.

HOW TO PRACTISE.

Object and art
in practising**1. Object and art in practising. Friction and relaxation.**

The object of practising has hitherto been grossly misconstrued, the idea conveyed by *study* having been taken to be identical with mechanical *practising*, teacher and pupil believing that in mechanically repeating certain movements performed by finger and hand, a hundred or a thousand times, they were actually "*practising*" something which, as we now see, does not require "practice" and is not even worth the tremendous sacrifice of energy and time expended on its acquirement.

Avoid:

1. All mechanical
work2. Gymnastics,
etc.

The methods of old pursued but one object: the development of the muscular mechanism of the fingers, i. e. digital acrobatic feats, gymnastics, in fact. The most important item: "economization of energy" was entirely overlooked; whereas the real object of practice and study must be: to produce the *greatest* tonal effect with the *least* expenditure of energy.

The leading axiom says:

The less the friction, the more perfect the technic (*law of friction*).

The object of our practice is: to move the arms, hands and fingers in such a manner, as to reduce the friction to a minimum. We distinguish between *internal* friction (mental-nervous friction, that of the muscles, joints, sinews, ligatures) and *external* friction (resulting from contact between the playing-members and the instrument, and the resistance it affords, more especially as the velocity and muscular effort increase.) The only means of diminishing the friction consists in *relaxation*, both psychologically and physiologically speaking. Hence all training and educating must be directed upon the solving of the mental difficulties and upon rendering the playing-apparatus (members and joints) flexible, pliant and obedient to the will. The greatest amount of physiological friction is caused by muscles which are brought into play in ordinary daily movements (e. g. those used in gripping and bending) coming into conflict with those required in artistic and skilful piano-playing (e. g. the muscles used in extension of the fore-arm, rolling, etc.).

It is caused also by the joints, more especially by the wrist and

the knuckles joining finger and hand. The fingers must become so loose and flexible as to cause the least friction in their movements. And this is the final reason, why in our technic stress is *not* laid upon the *condition* (manner of holding and the positions, pose) of the playing-organs, but solely upon the form of their manner of action or *motion*. The normal action of hand and fingers results in a *passive* movement of descent or extension. So that it matters not in the least how we hold our arms, hands, fingers, so long as we are able to *move them correctly*, i. e. so as to cause as little friction as possible. We move the fingers correctly if their relaxed swing does not exceed the medium height of about one inch. Friction in a psycho-physiological sense is synonymous with mental inability.

Practice involves mental exertion, is a mental exercise proceeding from the "conscious" to the "unconscious", obeying the same laws of strength-economy and pursuing the same aim as our common memory (of which musical study is a part), viz. how to become automatic.

The chief object of the exercise, therefore, is:

To train the mind to conceive the technical purpose (motion) and to suit itself unconsciously to the same.

Then follows: the execution and reproduction by the playing-organs of the process of consciously or unconsciously assimilated motion.

It must be accepted as an axiom that nothing shall be practised before the technical means have been mentally conceived or unconsciously imitated. On the other hand, daily experience teaches us that the mental solution of technical problems also involves their physiological solution. This is always the case with gifted individuals.

2. Impediments and how to overcome them.

Friction is synonymous with impediment, inasmuch as impediment produces friction and friction signifies impediment. Hence the object of the exercise must at first be directed upon the *removal of impediments: Negative exercise.*

The impediments are:

1. Of a mental-nervous nature, for instance: the visual perception may be deficient, the mental grasping of the musical figure takes too long, too much time is required by the brain to take in the visual message and telegraph it to the executive centres (motorium); the message arrives late. Chief causes are: weakness and deficiency of *memory*, and defects of an intellectual nature, affecting the musico-technical side and producing difficulties in grasping the harmony, rhythm, melody, time, tempo, dynamics, agogics, rendition, phrasing and style. The chief impediments are afforded by the notation, the manner of writing music peculiar to different composers; the various historical styles (classic or romantic) and the ages and periods of music. The chief considerations in, the means and ability of, removing those obstacles and the method and practicability of doing so depend upon: personal temperament, climatic influences, willingness or unwillingness to study, and also upon the intensity of melodic or rhythmic incentives or impressions, and the greater or lesser personal inclination or disinclination to the work of art and the style of composition.

2. Of a physiological or functionary nature.

The arms, hands or fingers may be stiff or clumsily built. We must distinguish clearly between stiffness and clumsiness or awkwardness: The former is absolute inability of the individual to move his members and joints (loosely and flexibly) in the manner required, and is, therefore, rather of psycho-physiological nature; whereas awkwardness or clumsiness is, in most cases, merely a psychical defect, attributable to ignorance and want of practice. A stiff joint cannot move correctly, though the attempt be made, while an awkward, a clumsy one will perform the right action or movement, when it is shown how to do so by proper training and correct practice. Awkwardness is, however, often less due to functionary inability than to timidity and lack of confidence. An absolutely stiff joint can but seldom and with great difficulty be rendered loose and flexible, whereas the psychical awkward, clumsy member can be trained and its dexterity developed. We must also distinguish between: stiffness of the body, back, neck and shoulders; stiffness of the upper-arm in the shoulder-joint; stiffness in straightening out the elbow, stiffness in the rotary joint of the elbow, stiffness of the wrist and in the knuckle-joints of the fingers. The removal of the impediments in the joints, of itself, brings about the correct action of the muscles, or muscular system. Therefore, we must direct our chief attention: *to the loosening of the joints*. Viewed thus, piano-playing is a display of *joint-action*, not one of muscular action in the sense of acrobatic feats. What the student must aim at,

is grace and skill in the action of his members and joints, nothing more. And this art or ability presupposes and embraces in itself the correct muscular action.

3. Of anatomical nature. Such are impediments attributable to the build of the playing-organism (arms, hands, fingers); for instance: too weak hands, hands with a small span, or too narrow or of too delicate a build; thin bony fingers, too short fingers; hands with immovable, stiff, tough sinews and ligatures; ruined hands and fingers with a stiff thumb; flabby, shapeless, thick-set and spongy forms, and other defects. Still more hopeless cases are hard, bony, stiff shoulders and elbows.

4. Of a purely mechanical-instrumental nature.

These are: the impediments offered by the construction and mechanism of the instrument.

5. Of a general human nature: Constitutional defects, faults of personal nature, weakness of character, lack of temperament, energy, perseverance and concentration (apathy, absentmindedness); bodily weakness (more especially anæmia, deficient nourishment, nervousness and other inherited or acquired ills; defects and pathoform abnormalities). To these we must add external impediments in life: anxiety, care, sorrow, struggle for existence, financial difficulties.

The removal of impediments signifies an advance towards perfection. This negative practising continues, until absolute relaxation has been attained, i. e. up to the moment when a *feeling* of perfect ease and disencumbrance sets in: then and not till then, when we have fully mastered the executive organs and command and control them absolutely, does the *positive practising* proper begin. Now we begin the ascent and overcome all difficulties with ease. The work of a master differs from that of a pupil only in the greater expediency and the ease in the form and manner of practising.

3. Various kinds of exercises.

According to the object pursued and the impediments, the exercises are divided into:

1. Exercises to overcome nervousness, and to concentrate the attention (upon the tone, the intensity of expression).

The principal exercises in concentration are exercises for the memory. All talent depends upon the central energy (power) of memory. The chief characteristic of the prodigy is its phenomenal memory.

Memory is developed:

a. By training the ear, which is best done by singing the piece when playing it, etc.

- b. By critical analysis of the harmony (explaining the structure, development, working-out, dynamics, phrasing and style of the composition).
- c. By independent, personal study of harmony and composition.
- d. By correct exercising of the muscles and joints, based upon the principle of relaxation. Our experience has taught us that all those who practise correctly, i. e. are encumbered by few or no impediments (the talented ones) have, without exception, a good memory.
- e. By educating the sensations exerted on the threshold of consciousness, more especially the sense of pressure and muscular exertion.
- f. By developing and refining the sense of sound and the power of mentally conceiving tone.

2. Exercises to develop power and stimulate perseverance (volume, power and fullness of tone). They are met by weight-produced touch. The means employed consist of: strength emanating from the back and shoulders, greater sweep of the playing members and accelerated velocity.

3. Exercises in dexterity, skillfulness (precision and rapidity of tone and velocity). The chief aids are:

Energy of mind educated to grasp, determine, and *execute with rapidity*. The "reproductive" is the art of combining quick resolution with the greatest presence of mind. Velocity depends upon a certain disposition of the nerves (or of the will) to urge the arms, hands and fingers on to movements, actions occupying from $\frac{1}{10}$ to $\frac{1}{40}$ second. This kind of lightning energy, which is closely connected with the blood and with race and temperament of the individual, has a telling influence upon the development. Many are the talents that fail, for lack of a sufficiently strong nervous system to force the will to perform momentary feats of utmost skill; such are those who lack temperament, anæmic, phlegmatic natures, corpulent, fat, lazy individuals. To possess talent, one must not only have, quantitatively, a few million more cells, but the individual must be, qualitatively, endowed with more highly strung nerves and quicker powers of perception, with a greater intensity of mental expansion and radio-activity of the nervous fluid.

Our art does not consist in the performance of acrobatic feats, but is a display of artistic skill and dexterity, in which the finest actions and movements of the joints play a chief part, so that grace and elegance of action and movement are what must be aimed at. The object of

these exercises is, therefore: light, flowing, soft, elegant, and shortest action. *The shortest movement is the quickest movement* of arm, hand and finger. The shortest and quickest movement is produced by: fore-arm-rolling (trills, tremoli, and other forms of rolling) and fore-arm-extensions (lightning-octaves and forms of vibrato). The shortest or quickest movement of the hand is its passive vibrato-motion, produced by fore-arm-extension (extension — vibrato). The shortest or quickest motion of the fingers is the light straightening out of the same, combined with hand-vibrato, leading to that staccato effect which we characterised in treating of the *leggiero* style of playing (Chapter VIII, p. 55).

4. Dynamic or pressure exercises (gradation of tone). Exercises to develop the sensations of muscular pressure, motion, position and touch, which teach us the gradation of tone by the resistance thus perceived when practising on the instrument. Here also weight-produced touch forms the basis.

We must practise from the very first what is synonymous with the perception of weight, viz. the conscious or unconscious senses of looseness and flexibility of the arm and of its parts: hand, fingers, — and the mental power of discriminating between *relaxation* and *tension* of the muscles.

This state is only acquired through continual practice; for it is impossible, especially in the case of stiffened arms with hard, vigorous, thick-set muscles and inelastic joints to acquire, at the outset, or even in a short time, the sense of loosened and relaxed muscles, and of the passive suspension of the arm as a mass. It requires patience and time all the more, as the muscular system needs to accustom itself to this new state, and must first gradually cause this new mode of working, this action, *to pass from conscious to unconscious perception*. We cannot expect a "rusted" digital muscular machine to adapt itself at once to a mode of action diametrically opposed to that it was formerly accustomed to. The moment the arm hangs suspended free from the relaxed shoulder, the perception of weight will locate itself in the finger-tips, i. e. will come under the control of will-power. The sum and substance of all is nothing more than the perception of the resistance felt by the muscles, — i. e. the perception communicated to the brain, — of the pressure (sensation of muscular tension) exerted by the full mass of the arm perfectly relaxed and passively pendent, bearing with its full weight upon the key-board. With a view of increasing and refining the

perceptive faculties in dull pupils, in this respect, we recommend the use of an ordinary weighing-machine, with which to test frequently the weight and state of relaxation.

5. Exercises calculated to bring out the æsthetic qualities (formal beauty of tone) of the instrument. Knowledge and development of instrumental effects, utilizing the positions, the resonance and pedal-effects.

6. Exercises calculated to develop musical style (musical beauty of tone). They consist of exercises on harmony, rhythm, melody, dynamic shading, agogics, time, tempo, phrasing, style and varieties of style. We must also here include the exercises of the usual dynamic varieties of playing: legato — non-legato — staccato and their sub-divisions.

7. Tonal exercises (harmony of tone). The object is to acquire a perfect blending of the upper-partials and the harmonics, a chief feature being the artistic use of the pedals.

Hence the final object of all exercises is to reduce friction by relaxation. The manner of practising the musical forms and styles of playing is correct, if its execution requires the least possible exertion, — it is wrong, as soon as any resistance or impediment is felt (in the muscles and joints). So that exaggerated muscular tension, pressure, stiffening the joints by exaggerated motions of extension, and other injurious, inexpedient actions are to be discarded. The hands may, however, be expanded to the utmost, the joints may be stiffened, now and then, in cases where the composition requires it, provided such action be of but short duration. In a state of imperfect relaxation, all exercises are to be studied loosely, softly, *p.* and *pp.* When the greatest impediments have been removed, the exercise is to be studied with the object of obtaining musical, artistic perfection.

Having recognized in the perception of weight and relaxation of the joints the fundamental principles of practice and study, we may formulate the elementary laws as follows:

1. Do not hold or restrain the arm in the shoulder, which means:
2. Let the arm hang suspended from the shoulder.
3. Transmit its weight to the key-board.
4. Seek to retain it in a state of complete relaxation, whether moving or stationary, i. e.
5. Free it from every constraint or spasmodic contraction, and relax its naturally loose joints, thus rendering it fit for its work.

6. Let the arm oscillate and fall freely.
7. Roll the weight on, i. e. execute the rotary articulation with a soft movement of the fore-arm.
8. Practise fore-arm-extension and a loose passive fall of the hand.
9. If possible, maintain the joints relaxed in every position and whatever the form of playing they assume.
10. Do not tolerate a single movement other than the natural and rounded principal motions.
11. Do not allow any other muscular tension or action than that normally required to swing, rest and roll the arm, etc.
12. Always allow the hands and fingers to “rest” on the key-board, raise them only as far as is absolutely necessary to enable them to shift, and always let them run freely (remaining in constant contact with the keys to be played).

Entrust all the rest to the natural abilities of body and mind (energy, patience, temperament, musical taste, etc.).

The most important and most difficult lesson we have to learn is: to train ourselves and educate ourselves to art. It is the task of a life-time.

4. Daily exercises.

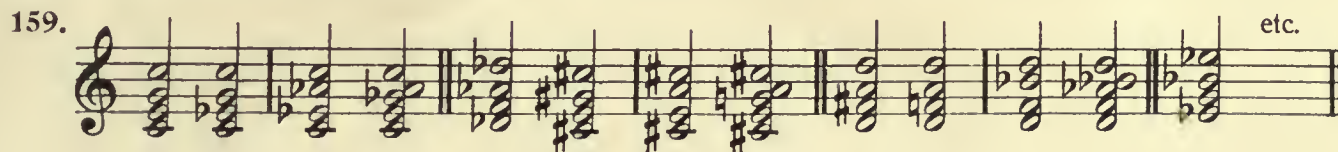
Only such exercises are to be practised daily, as are required to train the bodily functions to render the whole organism supple, and to move arm and hand naturally and freely, retaining their relaxation and weight.

Hence practise daily:

1. The free fall and vibration of the mass: *martellato* — *non-legato*, on to single fingers, thirds, sixths, octaves and chords.
2. The extension of the fore-arm: sixths, octaves, chords (hand vibrati or tremoli, oscillations) quite loose, in a quick tempo.
3. The rotation of the fore-arm: tremolo, various trills, etc. (shake-movements with rotation), more especially broken three and four-part chords (sevenths), etc.
4. Five-finger roulades, scales, broken three and four-part chords, arpeggi (of 2 octaves), passage-work.
5. Upper-arm flexion and extension of fore-arm (gliding of the shifted hand) in legato-scales.
6. The natural rebound of the weight in the divers forms of staccato, in five-finger roulades, scales, thirds, sixths, octaves.

An hour and a half of daily practice of these exercises (which should precede the actual practice) will suffice. For each form

select a typical figure and transpose it chromatically into all the keys, on the following modulatory system:



Stiff arms should be rendered supple by loosening-exercises: gymnastics of the shoulder, arm, rotation of the fore- and upper-arm.

Preliminary Exercise: extend the hand, in a state of repose, on to an interval of a sixth or an octave and rock it (up and down), raising and lowering it in a natural manner, the fingers never quitting the bedded keys, which, however, are not to be pressed or crushed (Chap. II. pp. 17, 18)

In the same manner study chords, and finish up with exercises for both hands in similar and in alternating motion. These exercises in "longitudinal vibration" of the arm are calculated to loosen its joints and, if practised daily, will develop dexterity more than hundreds of études.

We must not omit those exercises which render the wrist supple, viz. rotary motion and lateral flexion. For example: place the hand loose and relaxed resting on the thumb bedding the key *C*², and describe a complete circle with the hand (the thumb acting as a pivot, the key remaining bedded), from the low to the high and back again to the low position, (i. e. from the extended posture of the hand to the curved position and back again). Practise the same exercise on the 2nd, 3rd, 4th and 5th fingers, more particularly on the 5th finger, as at first it is the most awkward. Practise these exercises "silently".

The *relaxing* of the hand and its sinking back into the relaxed wrist (fig. B. p. 21) must always be practised thoroughly. For example: set the hand supported on the high arched 3rd finger (fig. C), the wrist raised; suddenly sink the wrist, so that the hand assume its straightened-out posture (fig. B), the fingers, however, remaining straight from the raised knuckle-joints. The relaxing of the wrist thus becomes independent of the firm set knuckle-joints and fingers. Practise the same exercises with the other fingers. To relax the wrist is more difficult on the 5th finger, the knuckle-joint of which at first always gives with the wrist. Among 10 players scarcely 2 will be found who can, at the first attempt, perform this wrist-tilting movement correctly. This exercise also may be practised on a table.

A very good exercise for loosening the hand and rendering

it flexible is the "oscillating" (swinging) alternation of the hand and of the five fingers on one and the same key, i. e. the repetition of one key by means of the hand oscillating upon fingers 1., 2., 3., 4 and 5 in succession, but in such manner, that the fingers retain their posture in the firm-set knuckle-joints, the arm sinking into the yielding wrist, following the elastic movements of the latter with spring-like action. Try to do the same *in rising* (from below), which is not easy.

The "Natural Piano-Technic", vol. I. pp. 115/119 will be found to contain the instructions required in studying the work of art; we would, however, draw attention to the great importance attaching to both, technical and musical analyses, and the benefit to be derived from them. Study form, structure, rhythm, harmonics, modulations, etc.; then take up the technical forms.

Analyze, for instance, the structure of difficult scales, passages or arpeggi, train the eye to take in quickly what it sees, and to convey it clearly to the brain, translating the dead notes into the ideas they are intended to express, animating them and thus mentally creating corresponding, definite, living forms, which it becomes the task of the trained hand to reproduce through the medium of technic. Every line, every period, the shortest phrase, in fact every bar and rhythmical figure has an outline, a "*physiognomy*" of its own. The mind must be taught so to grasp every musical form, as to instil life into it, bring out its structure and outline clearly, to lay it out and execute it, before a tone is heard.

This mental vision and audition is of the greatest importance in musical education, both from a technical and artistic point of view, and we cannot too urgently recommend frequent, constant, close mental study of the work of art, inaudible practice and trying to unravel and resolve intricate passages, suiting them to the hand. The conscientious student will derive more benefit from such study than from 10 hours' thoughtless strumming.

Further hints:

1. Always begin with the left hand, in order to compensate for its natural inferiority to its right companion.

2. Never limit the study of a technical element to the work of a so-called stationary hand, but practise each exercise with a shifting hand only, according to modulatory principles, in order to accustom the hand to a steady unrolling of the musical "flow", in any position between the white or the black keys.
3. Practise exercises and pieces evenly and uninterruptedly from beginning to end.
4. Rhythmic and polyphonic difficulties should be practised separately. If the whole study is based upon a certain musical figure of a definite formula, make a special study of it.
5. Do not practise the same technical figure every day.
6. Do not always play "forte", in the non legato fall, but often *p* or *pp* in leggiero—leggierissimo rollings, etc.
7. Never strive to attain technical perfection for the sake of technic alone.
8. Never spend more than one or two hours a day actually at the instrument; only those who choose the art as a profession may extend the time to three or four hours. Technical practice should be usefully complemented by purely intellectual work: write an analysis of the piece, commit it to memory, read it over and over again.

Never let a day go by without reading some piece at sight, and devote a few moments to polyphonic music. Never lose sight of the one master whose name is Bach!

Before proceeding to practise, analyse the piece as to its form, harmonic structure, rhythm, dynamics, fingering, technical forms, etc., simultaneously committing these to memory.

As regards the aids to learning music by heart, see "Natural Piano-Technic", vol. I. chap. V. "The Psychology of Technic".

In the elementary stage, commence with exercises on hearing and in dictation. [See Hugo Riemann: Catechism of musical dictation, Leipzig, M. Hesse; Max Battke, Education of musical perception, Gross-Lichterfelde, 1905, Vieweg & Son, also: E. Jaques Dalcroze: Rhythmic Gymnastics, Neuchâtel, Jobin & Co.)

Let the pupil sing every one of the one-part and of the polyphonic passages; play all the parts to him several times in succession, he following with the eye or voice.

Above all, let us do away with the wretched old-fashioned system of mechanically reading and playing "notes" and signs. Every phrase, line (scale, passage) or figure is to be conceived of as part of, and taught in connection with, the whole, i. e.

every figure must be referred to the general movement, to the hand-formation in taking the keys required. Every violinist and 'cellist practises and plays with an absolute perception of the position. He never loses sight of the formation of the hand in relation to the notes or intervals to be stopped. And the pianist must do the same, for it is easier to discriminate and pick out the special from the general, than to reconstruct the latter from the former, i. e. from the reunion of notes of every value analysed singly: reduce everything to its harmonic basis, suit even the smallest detail to the hand, form a clear idea of the meaning and object of form and figure, elucidate its symmetrical or asymmetrical structure, and determine the technical form of attack aesthetically best suited to an artistic rendering. In thus training the eye to take in the whole at a glance, to analyse, divide into groups and resolve with ease what we are about to play, we are pursuing the only possible way towards achieving success. We shall then overcome that bugbear so wont to haunt us in the shape of figures in semi-demi and hemi-demi-semi quavers with their innumerable dazzling and puzzling lines, which made the page or passage look so black.

A wrong note, a slip to begin with — what does it matter? so long as the movement (action) is anything like correct.

"Timia accuracy is the curse of liberty". He that never fell off a horse, has never learnt to ride. He that never struck the wrong note, will never play correctly. Only by boldly striking, swinging out and bringing the hands firmly and resolutely down upon the keys, can technical assurance be acquired, which is nothing more than determination and independence of mind, will and action. And this applies to everything in connection with piano-playing: skips, glides from bass-note to bass-note, from chord to chord, octave to octave, etc., which can only be sounded properly, if hands and arms are allowed full fling and freedom of action.

Another fault requires to be eradicated, viz. the lifting and suspending of arm and hand in mid-air during the rests. If a hand has nothing to do, let it rest on the key-board, till it is required again, or on the edge of the key-board, if time permits.

In the elementary stage, we would urgently recommend that the pupil be taught to desist from pedantically counting bar by bar; he has far too much else to do. To read the music, play with arms, hands and fingers and count into the bargain, are three actions which a child cannot possibly accomplish simultaneously. He will be found to stop counting of his own

accord, unless he plays wrongly or contracts hand and finger. Let us have patience and not uselessly torment and rack the brain of the poor little ones, rendering the task still more difficult, instead of facilitating it for them. They will learn time and rhythm soon enough, as flexibility and technical dexterity develops in mind and body.

Concentration

All that is required is conscious, conscientious study, with concentrated attention and freshness of mind and body. Physical exhaustion requires rest. What cannot be done to-day, will succeed the better to-morrow. Patience and pleasure in the work is what we require.

5. How to breathe correctly.

How to breathe

The proper manner of *breathing* is of vital importance in producing tone and acquiring technic.

To train the pupil to take a deep full breath in a natural manner is the first and principal condition towards awakening his soul to music's inspiration: everything depends upon it, not only rhythm and the broad, melodic flow of the real cantilena-style, but also the successful execution and mental command of the greatest technical problems, a perfect blending, to the highest and ultimate degree, of physical and psychical energy. All trembling, shivering, stumbling, anxious hesitating at the sight of lengthy passages containing technical difficulties, the timid shrinking from cadenzas and the fear of coming in at the wrong or right moment in nice or complicated movements and phrases, uncertain, imperfect rhythm and other faults too numerous to mention, may all be attributed to improper management and economy of the breath and wrong breathing.

Weak persons and how to train them

Nervous anæmic ladies, when the least excited, suffer more especially from shortness of breath, accompanied, as a natural consequence, by a state of utter helplessness resulting in pitiable bungling, for which there is no other explanation. A most dangerous habit is the retention of the breath, producing, as it does, through compression of the air, a high pressure upon the heart, leading to an acceleration of the pulse, the result being a highly wrought nervous state, loss of memory and those well-known symptoms expressing themselves in what we commonly term stage-fright. Teach the pupil to breathe in a free, natural manner, and mental composure will prevent nervousness, heart and lungs being supplied with all the oxygen they require. This will also affect and improve tone and touch. Those who breathe correctly, inhaling fresh air as nature requires, always have

Outward signs of proper manner of breathing

warm hands, even to the finger-tips, where the warm blood courses, and their tone is of a warm quality, full and round. Those that do not sit properly at the instrument and breathe wrongly, always have cold hands, the blood not coursing to the finger-tips; their touch, and the tone produced, is consequently cold, dry and lacks all colour.

The importance of deep breathing, now generally acknowledged, must, therefore, be considered one of the most important fundamentals of the whole technic; the pupil should be trained accordingly when yet in the elementary grade, and those Institutes where music is taught as a profession, should include it in their theoretical courses. The pianist should be taught breathing on the system adopted by the schools where singing is taught. The only correct method is that in which the individual breathes freely from the diaphragm, filling abdomen and chest with air in the same manner.

Exercises:

1. Inhale slowly through the nose, and, without moving the shoulders (subclavian breathing is absolutely wrong and must be discarded), gradually fill the chest with air, from below, until it is "set", then when that state is attained, try to retain and hold the breath there for a moment, producing a tension in the pectoral regions through the air-column becoming steadied; then begin gradually to exhale the air slowly and uniformly. Those of a weakly constitution should practise these breathing-exercises every morning and evening in well-tempered air from 6—12 times every day. These exercises should then be followed up by practical application:
2. When playing the up-beat, make the pupil take a full, deep breath; then with perfect composure and ease play the introductory bar (or even a single chord, to begin with); then exhale to the bottom of the lungs.
3. Make the pupil take a deep breath simultaneously with his striking the up-beat or first bar, and retain that breath with equal tension for 2 bars. Continue this, until he can play 4, 6 and 8 bars in this manner.

As the pupil's training advances, apply the same principles in all rhythmical difficulties, in long passages, cadenzas, in *bravura* passages and such as terminate in presto time. A systematic training in deep, slow, steady breathing will also be found to tell most beneficially both upon body and mind, art and music.

Avoid

Conformably to the laws of a normal and natural technic, we must abolish:

1. All mechanical finger-exercises, the sole purpose of which is "precision", "detaching" and "equalizing" the fingers (as all these are acquired by employment of weight), — more especially the unnatural exercises with "set¹ fingers" and changing-fingers, and all special exercises, such as passing the thumb under, octave-studies, etc.
2. All scales and exercises, the sole object of which is to develop "velocity", independence, equality and other illusionary ideas.
3. All purely acrobatic or gymnastical exercises intended to develop extraordinary muscular power or exaggerated "looseness" and "flexibility" and all mechanical practice on dumb pianos and "machines" (Virgil, Jackson, etc.).
4. All monotonous, interminable, useless repetition of one and the same musical figure.

Velocity, i. e. rapidity, is the product of two factors: muscular relaxation and lightning activity. It is attained simultaneously with the acquisition of loosened, i. e. limp, joints (more especially of the shoulder and the rotary articulation of the elbow), of a free, loosely oscillating arm, hand and fingers performing the shortest and least movement.

Independence of the fingers and hands is also a question of relaxation and of increasing agility of hand and brain. Attain an independent free, attack with the arms, independent balance and rolling of the weight, — and independence of finger and hand will follow.

6. Fundamental works for studies.

Finger dexterity is the natural outcome of a light arm and hand acquired by steady and regular consciousness of relaxation, by control of the impediments and by removing the obstacles

¹ rigidly set on the keys. (Tr. n.)

presented by internal and external frictions; it is the result of complete relaxation and looseness of joint, *not* the cause. It should not be practised in an isolated form, for no finger-studies ever will teach it.

All sensible instruction must begin at once with polyphonic playing, in order to develop arms and hands. Excellent material for study is afforded in:

Bach: The first studies.

Händel: The first studies.

Bach: Short Preludes and Fughetti.

Bach: Two and three-part Inventions.

Bach: French and English Suites.

Bach: Wohltemperiertes Klavier.

The following works are also to be recommended:

Emil Krause: New Gradus ad Parnassum.

J. J. Philipp: 25 Canons.

All "studies" must be practised non-legato — legato — staccato (wherever suited to the pieces), with rolling of the fore-arm.

As soon as the pupil has learnt to transmit and roll the weight, to soften and liberate arm, hand and fingers, he should take up the actual study of the "*work of art*", and train mind and body by practising and studying all the musical forms dispersed (in ever recurring instances and in an endless variety of the typical forms here analysed) throughout our musical literature.

In art, as in life, the most sublime conception of the object to be attained demands the elimination of "technical obsession" and pleads for a speedy initiation into the beauties of the art-work itself.

Life is too short, art and its study too difficult, its domain too vast, for us to neglect the least opportunity of penetrating into its secrets, the moment mind and body are so far trained as to enable the soul to grasp the meaning and beauties of art.

CHAPTER XII.

CONCLUSION.

We now close our theory of the technical education of the body, i. e. of the development of its natural playing-faculties. It is based, as we have seen, upon the observation of the principle that the arm must be weighted and yet loose in all its movements. The elementary movements, in their turn, are based upon four actions:

Recapitulation

1. The longitudinal oscillation of the arm (alternate rise — fall or vibration of the arm). *1st action.*
2. Upon the fore-arm-extension (vibrato or tremolo-percussion: hand-vibrato). *2nd action.*
3. The rolling of the fore-arm (rolling or shaking). *3rd action.*
4. The natural participation of the loose fingers articulating freely to the whole motion of the swinging arm. *4th action.*

These four points of view, corresponding to the natural functions of our body, must be accepted as norms both for the technical education in the elementary grade and for the middle and higher grades, even up to the stage of virtuosity.

All that which corresponds to the idea of immobility, of “*fixation*”, and which practically only belongs to the artistic education of the professional pianist properly speaking, has been omitted from this “School” which demonstrates rather the general, natural aids to free action. Contrary to other methods, we start from the principle that we must begin by developing looseness, flexibility and suppleness in the physical organism, before attempting to strengthen and fix the muscles and joints. Experience teaches us that he who can let go, when and wherever he will, can hold fast when and wherever he will, — not the other way about. This fact points exactly the way we have to take. (On the theory of “*Fixation*”, cf. *Natural Piano-Technic*, vol. I, 2nd ed., Leipzig, 1905, C. F. Kahnt Nachfolger, pp. 31, 107/8, 146, etc., 247, 250, 361, etc., 376, etc.)

To make it more clear, we will add that by “*fixation*” we

simply mean a slight, momentary fixing or a light holding, setting of the joints and muscles of arm and hand, or finger, justified by aesthetic reasons, for artistic or technical purposes.

Fixation practically means: to set arm, hand, fingers in a rigid (fixed) pose, all fixed together for a definite purpose, in a certain part of the key-board; for instance, in a *pp* chord or particularly delicate legato or portato passage. This, naturally, requires a particular muscular tension. Prolonged immobilizations, however, such as we encounter in virtuosity, constitute exceptions which do not come into account. Is it advisable to teach such things methodically? That is the great question of dispute. According to the author’s practical experience and personal feelings in the matter, such technical peculiarities should be left to the artistic impulse of the individual, as they present themselves. In passages calling for a certain effect, a gifted individual will, of his own accord and unconsciously, exert a certain muscular tension as required by the part or situation.

It has already been practically demonstrated that “looseness” and “flexibility” are not all that is required. We may even safely affirm that in certain technical cases, and considering merely the quality of tone, the effect produced by the descent of the loose arm is inferior to that resulting from a lightly borne arm working with steady, regular action and ease. Such is the case, for instance, with regard to the absolute rapidity of certain forms, such as: lightning-octaves, staccatissimi, rapid rolls (such as trills) and other tremolo movements. As to the sonority itself, the *timbre*, the difference between the weight-touch and that with lightly set joints is necessarily very great. Dynamic shading certainly is impossible without the latter. Swinging and throwing the arm, releasing the weight, the descent of part, or of the whole physical playing-apparatus, — though the free descent be the fundamental and norm of technic — these actions must and always do produce material effects. The cantilena of the higher

order, the finer gradations of tone, perfect ease and lightness combined with artistic gracefulness, delicate rhythmic motions can scarcely be realized, technically or aesthetically, through the medium of descent and heavy fall. Nor is it less true that the moment the arm or hand has descended or been thrown upon the instrument, we have lost the power of control over the means of producing the tone and consequently over the tone itself — so that (presupposing rapidity as determining factor) the character of the descent and the weight set in action determine the quality of the tone. If free descent of the weight be the object of natural technic, its retention is that of “artistic” technic. The weight lends the tone its fullness, its consistency, its volume just as the spontaneous “attack” with the whole arm as a mass, lends power and grandeur to the playing, imbuing rhythm with that ponderous brazen tread as of elemental powers. The retained action, the delicate touch, glide and rise, such as we observe in the rhythmic flight of a hovering butterfly — is what lends grace. And nothing but a perfect mastery over both these great complexities of form, the free *and* the *fixed* styles *will lead* to a perfect equilibrium of the forces, and thus to that perfect harmony between technical and artistic reproduction which nothing material can clog or blemish. The highest degree of tonal precision, light, floating rhythm, perfect equality and uniformity in the melodic outlines can only be attained by will-power with an organism at its disposal not only loosened and ever ready for action, but also possessing that precision and spring which alone secures equality and uniformity of muscular power. To play “fixed” is perhaps the same as to play “with concentrated

attention”¹; it is midway between relaxation and rigidity, and produces the sensation of a fine, constant muscular tension, holding the balance between absolute independence (relaxation) and retention (active stiffening) of the joints. Consequently, fixation (immobility) indicates perception of mean muscular tension, of compensation, of muscular rhythm; hence it is the perception of the intensity or elasticity itself.

The object is to establish between the adductive and the abductive muscles (synergists and antagonists) a harmony calculated to bring about (through their natural conjunctions and extensions) the desired result: the maximum resistance-power and suppleness in the playing-organs.

Since the reproduction of the art-work — the sole object, after all, of our technic — exacts the greatest variety and multiformity in the means of expression, a “firmness, full of character” in the physical organism is an absolute essential. Those that would diffuse amongst others the fullness of life and their enormous wealth of tone and colours, i. e. those that would be artists and bear the name deservedly, must be in possession of means of expression, sufficient to meet every demand which art may lay upon them.

¹ This psychological explanation differs greatly from the rather physiological theories of Mr. Jaëll, of Deppe-Caland and others. Viewed from our standpoint of a free and natural action of the arm (arm-swing), self regulated (determined) entirely by artistic inspiration (will), the “active fixation” of the third phalanx, of wrist and elbow (by rigid abduction and pronation), constructed by those methods, affecting the natural reciprocal action of the three principal joints and paralysing arm and hand, — can no longer be upheld.

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