

**Gymnastic exercises, according to Ling's system, for the due development and strengthening of the human body / by Mathias Roth.**

**Contributors**

Roth, Mathias, 1839-1891.

Ling, Per Henrik, 1776-1839.

**Publication/Creation**

London : Myers, 1864 ([London] : Unwin.)

**Persistent URL**

<https://wellcomecollection.org/works/kbjze543>

**License and attribution**

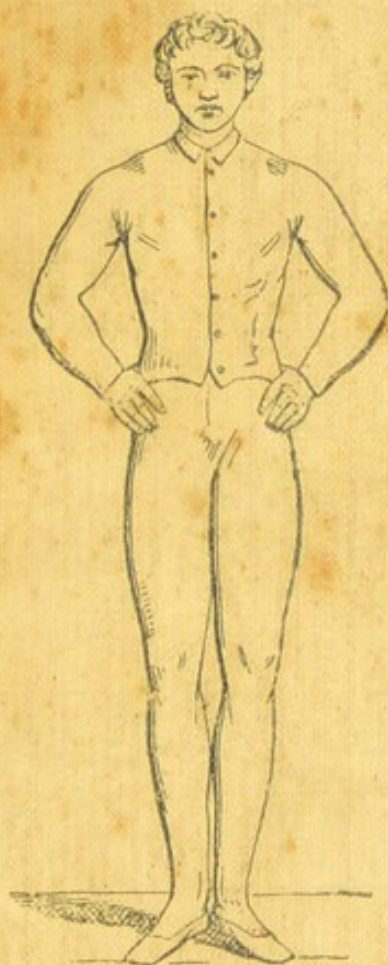
This work has been identified as being free of known restrictions under copyright law, including all related and neighbouring rights and is being made available under the Creative Commons, Public Domain Mark.

You can copy, modify, distribute and perform the work, even for commercial purposes, without asking permission.

*Edgar Haynes*

# GYMNASTIC EXERCISES

ACCORDING TO  
LING'S SYSTEM.



BY  
DR. MATHIAS ROTH,

PHYSICIAN TO THE PRIVATE MEDICO-GYMNASTIC AND ORTHOPÆDIC  
INSTITUTIONS IN OLD CAVENDISH STREET, LONDON,  
AND GLOUCESTER PLACE, BRIGHTON.

THIRD ENTIRELY REVISED EDITION.

LONDON.  
1864.

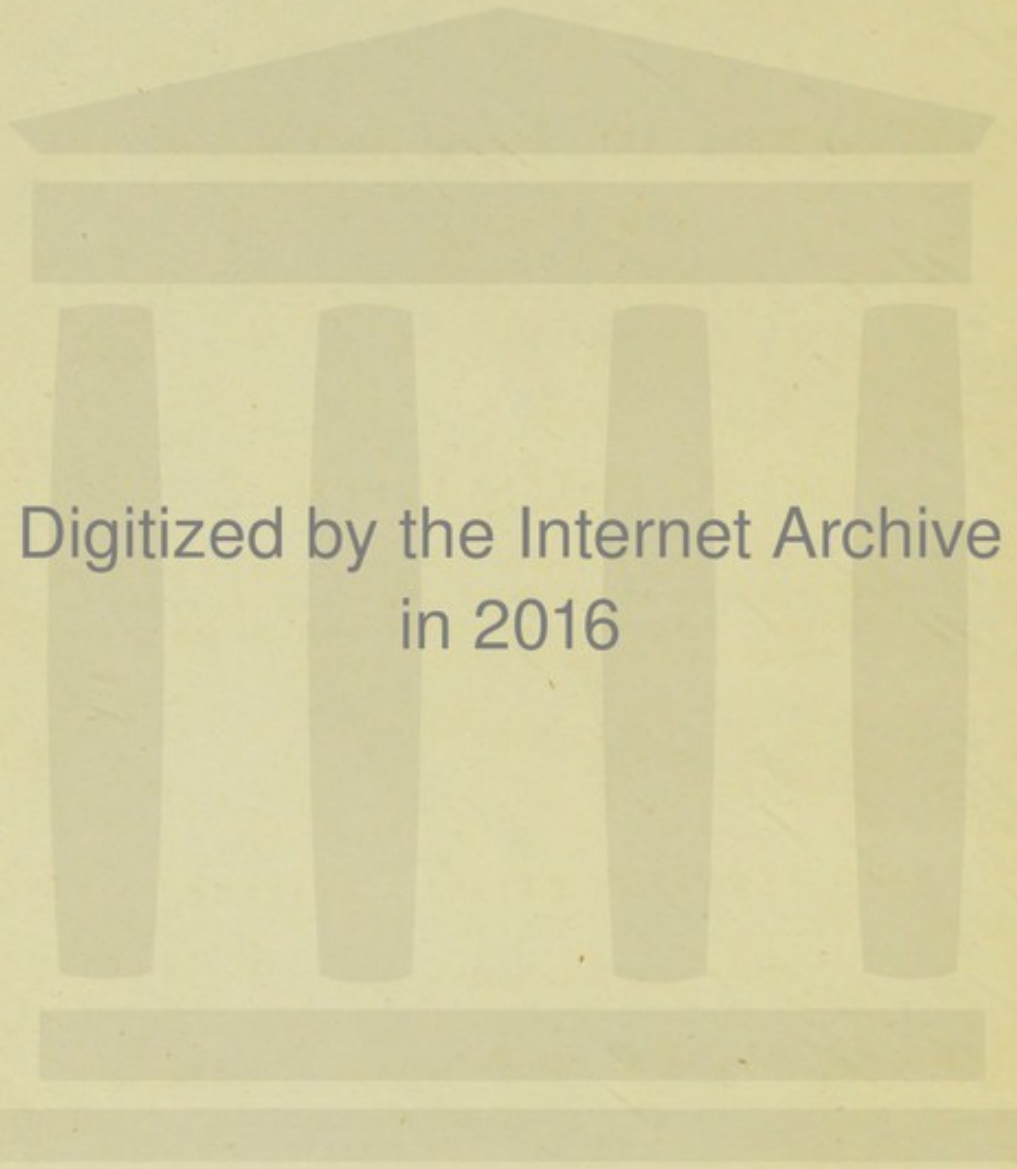




22101449919

Med  
K10438





Digitized by the Internet Archive  
in 2016

<https://archive.org/details/b28048222>

# GYMNASTIC EXERCISES,

ACCORDING TO

LING'S SYSTEM,

FOR THE

DUE DEVELOPMENT AND STRENGTHENING OF THE  
HUMAN BODY.

BY

DR. MATHIAS ROTH,

PHYSICIAN TO THE PRIVATE MEDICO-GYMNASTIC INSTITUTIONS FOR THE TREATMENT  
OF DEFORMITIES AND CHRONIC DISEASES, AT OLD CAVENDISH STREET, LONDON,  
AND GLOUCESTER PLACE, BRIGHTON; AUTHOR OF SEVERAL WORKS ON  
EDUCATIONAL AND MEDICAL GYMNASTICS; ETC.

THIRD ENTIRELY REVISED EDITION,

EXTRACTED FROM DR. ROTH'S WORK,

THE PREVENTION AND CURE OF CHRONIC DISEASES BY MOVEMENTS."

London :

JOSEPH, MYERS & CO.,

144, LEADENHALL STREET.

1864.



21361653

303950

WELLCOME INSTITUTE LIBRARY	
Coll.	welMOmcc
Call No.	QT

## INTRODUCTION TO THE THIRD EDITION.

---

No one, who has paid any attention to the subject, can doubt that the right use of properly-regulated exercises must have a most beneficial influence on the due development of the human body.

Ling's exercises may be introduced with the greatest advantage into every school and seminary; in fact, they should constitute a part of sound and good education. A healthy body is the best condition for the development of a healthy mind. It is hoped that parents, and all those who are engaged in the noble profession of tuition, will give their earnest attention and their practical support to the enlightened system of Ling.

It need not be said that these exercises are also very useful for preparing the recruit or volunteer for his military training.

Gymnastic games, based on the few exercises described in this pamphlet, are a source of amusement for young and old, in public and private schools, in barracks, in working men's clubs, &c. Persons engaged in sedentary occupations for many hours daily, as clerks, needlewomen, and others, whose stooping position contributes to injure the natural development of the respiratory and abdominal organs, will soon counteract these bad effects, by a daily practice of exercises which call into play all the muscles of the body, without incurring the expenses of gymnastic apparatus.



## INTRODUCTION.

To enable the blind, the deaf and dumb, and even persons affected mentally, to share in the beneficial effects of rational daily exercise, without exposing them to the danger of being injured, as often happens in exercises with gymnastic apparatus, a series of elementary exercises have been modelled under my superintendence by a first-rate artist; these models have been reproduced in plaster and papier-maché, and are sold by the publishers of this pamphlet.

For further information on Scientific, Educational and Medical Gymnastics, I must refer to the works on these subjects, a list of which is given at the end of this pamphlet. Those interested in the practical application of movements for curative and educational purposes, can apply at my Institutions, either here or in Brighton.

M. ROTH.

16A, OLD CAVENDISH STREET, LONDON, W.,  
*November 9th, 1868.*

## GYMNASTIC EXERCISES.

---

### LING'S IDEAS ON THE AIM OF RATIONAL GYMNASTICS, AND ON THE INFLUENCE OF MOVEMENTS ON THE DEVELOPMENT AND STRENGTH OF THE HUMAN BODY.

1. The object to be obtained by Gymnastics, is the harmonious development of the human body by well-defined movements.

2. The body is harmoniously developed when all parts of the body are in the most perfect harmony with each other, and when they are developed as much as the faculties peculiar to the individual admit.

3. Well-defined movements are those which are carefully selected, with regard to the individual to be developed by them.

4. The human body cannot be developed beyond the limits determined by its faculties.

5. Want of exercise may arrest the development, but not destroy the natural faculties.

6. Injurious exercise may prevent the development of our faculties, and thus be injurious to the harmony of the bodily development.

7. Stiffness or immobility of some parts of the body, in young persons, is usually caused by too much strength of those parts, and is compensated by weakness of other parts.

8. Too much strength of one part will be lessened, and insufficient strength of another will be increased, by exercise equally distributed all over the body.



9. The strength or weakness of a single individual does not depend upon the large or small volume, but upon the relative proportions of the various parts of his body.

10. Health and the maximum of strength, depend upon the harmonious development of all parts of the body.

11. The faculty of moving the body with precision, energy, and during a definite period of time, is of the greatest importance for everybody, but especially for those whose duty it is to defend the country, as they are obliged to move, and to overcome many impediments, while burdened with weapons, accoutrements, and baggage.

12. To be able to obtain and preserve the maximum of strength, we must accustom ourselves to positions in which the powers of breathing and moving are least interfered with ; because the power of moving depends, to a great extent, upon the power of breathing.

13. The present practice of exercising the limbs only, is not sufficient for obtaining the final results of rational Gymnastics ; and the power of using well the arms and legs depends, not only upon the strength of those limbs, but also upon that of all other parts of the body.

14. Persons who are well trained in Gymnastic Exercises, bear with more ease all kind of bodily fatigue, and the changes of temperature and climate ; they are generally in good spirits, and perform all their movements with a sensation of ease.

15. The movements selected at the commencement for physical training are very simple, and their execution is easy ; by degrees, and without the least danger of any injurious effect, the most difficult movements are made use of ; the persons who are trained are aware of the increase of their strength, and become conscious of the amount of work and exercise they might be able to go through.



## A FEW RULES FOR THE PRACTICE OF THE ELEMENTARY EXERCISES.

1. The exercises are divided according to the principal parts of the body, viz., into those of the arms, legs, head, and trunk; but as all these parts must be in perfect harmony, it is *not* indifferent whether we practise only certain movements.

2. In the beginning, the positions are to be practised.

3. No movement is to be done with any strain.

4. The action of breathing must not be stopped during the exercises.

5. The best dress is a loose one, and for ladies a blouse (*vide figure*), without stays or bustles, which are soon superfluous, if the following exercises are well and moderately practised.

6. The movements of the head and trunk are to be done slowly; also those of the legs, by which the body is raised or lowered; if the strength and flexibility increase, these movements must be executed *very slowly*.

7. The movements of the arms are to be done quickly, and the more quickly they are performed, the more strength is developed.

8. The movements vary, and one and the same movement is not to be repeated more than two or three times in succession.

9. The movements, although they are changed, must not be executed only and principally with one part, which would





then become stronger than all the others, and thus interfere with the harmony of the body.

10. The exercises are performed by healthy persons according to the numeric order of the tables of exercises. We should not proceed to any following table, before we have well practised the exercises of the preceding one.

11. Between the single exercises, an interval of half a minute to two minutes is desirable.

12. Not more than ten to twelve exercises should be practised at the same time each day.

13. Persons who are indisposed, or who complain of one part being weaker than another, should consult a medical man acquainted with the effects of movements, whether they should use any, and which; exercises being sometimes injurious.

14. The following exercises are called **FREE EXERCISES**, because they are executed without the help of any gymnastic apparatus.

### ADVANTAGES OF FREE EXERCISES.

Their great advantage consists in this:—

1. That the movements, being very simple, are easily understood and easily executed.

2. Much time is saved, because they can be executed simultaneously by many persons.

3. The expense of apparatus and machines is saved, and the dress is less spoiled.

4. The free exercises can be executed in any place; in the open air as well as in-doors, in schools, barracks, in the open field, in the camp, and in the bivouac.

5. As every motion of a free exercise is to be executed exactly, and, if there are many persons going through the exercises, they act simultaneously, all must accustom themselves to a certain amount of attention and precision, by which means the sense of order is developed, and the attention sharpened.

6. The free exercises produce an agreeable sensation during all the movements, and develope, better than the exercises on gymnastic apparatus, a good posture of the body, and an appropriate appearance and deportment in ordinary life.



## COMMENCING, INTERMEDIATE, AND FINAL POSITIONS.

Every gymnastic movement used for the harmonious development of our body, being a definite movement, has a *definite form*.

Every definite form has a definite point in which it begins, and this is called the *Commencing Position*.

All the positions in which our body, or a part of it, is, between the commencing and final position, are called *Intermediate Positions*.

The position in which the moved body, or part of the body, returns to the state of rest, is the *Final Position*.

## TIME, AND WORD OF COMMAND.

All the exercises composed of different movements, are divided into different spaces of time, during which a certain movement is executed; these divisions of time are called *Motions*, and are indicated by "one, two," &c.

The exercises are executed at word of command. The command consists of two parts; the first is called *Attention*, and the second *Execution*. For instance, in "RIGHT FOOT FORWARDS: PLACE!" the three first words form the first part and stand before the colon (:); they call the attention to an action for which the right foot is to be prepared; but, only when the word of *Execution*, "PLACE!" is given, the movement of placing the right foot forwards is executed.

### FIRST POSITION. (Fig. II.)

This is also called the *Fundamental Position*. The word of command is Position! or RECTANGULAR POSITION.

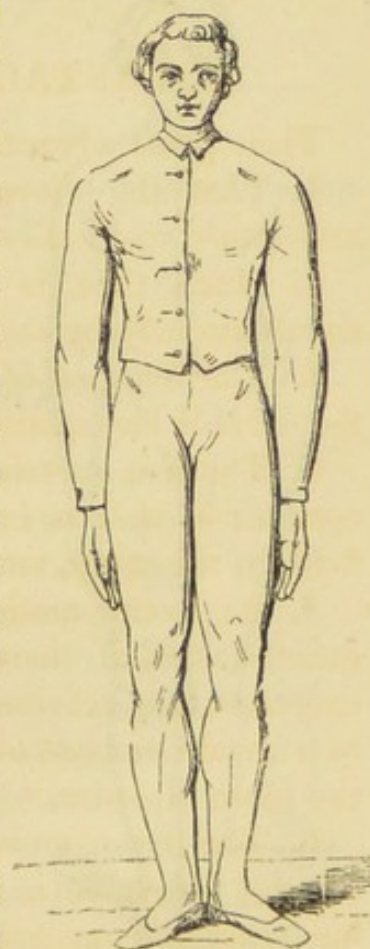


Fig. II.



## FEET: OPEN!

The heels are in a line, and closed; the knees straight, well stretched, and so turned outwards, that the feet may form a right angle between the heels; the arms are well stretched, and close to the sides of the erect body; the elbows directed backwards; the wrists touch the outer side of the thighs; the fingers, close to each other, with the thumb in front, are stretched in a straight line; the head straight—the eyes directed forwards; the chest projects, while the hips are kept slightly backwards, and almost in a line with the ankle-joints.

## SECOND POSITION. (Fig. III.)

## FEET: CLOSE!

The feet being in the first position; at ONE! the toes are slightly raised; at TWO! the legs and feet are turned towards each other; at THREE! the toes are placed down. These three motions are executed very quickly, and thus they form apparently only one motion.

## FEET: OPEN!

At ONE! the toes are raised; at TWO! the legs and feet are turned outwards; at THREE! the feet being in a right angle, the toes are placed down. These three motions, being quickly executed, form apparently only one motion.

## FEET ALTERNATELY OPEN AND CLOSE!

Is an exercise based on the two preceding positions, in which the feet are alternately opened and closed, at ONE! TWO! ONE! TWO! till HALT is ordered, when the first position is resumed.

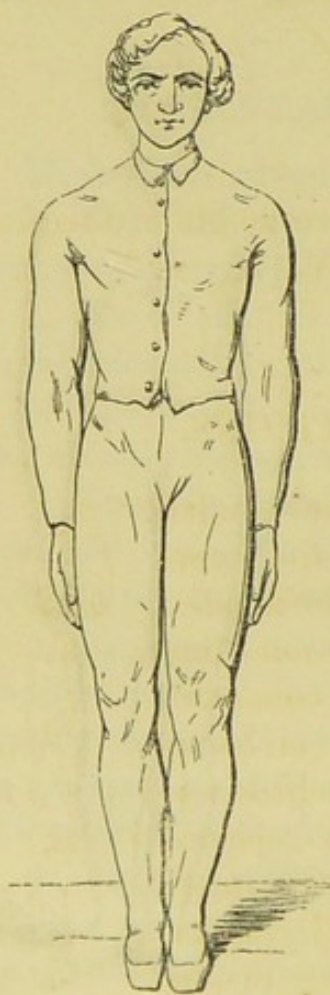


Fig. III.



## POSITIONS WITH DISTANCE.

The length of the pupil's foot is the measure, called *One Distance*; two distances between the heels, in a lateral, or in a front or rear direction, are sufficient for girls and women; for boys and men, three, and sometimes even four distances are chosen.

## WALK POSITIONS

Are those in which one foot is placed either forwards or backwards, at *one distance* from the heel of the other foot, the commencing positions being Feet Open! the word of command RIGHT (or left) FOOT FORWARDS (or backwards): PLACE! At PLACE! the right foot is placed forwards, and retains the rectangular direction of the commencing position. (See Fig. IV., 1.)

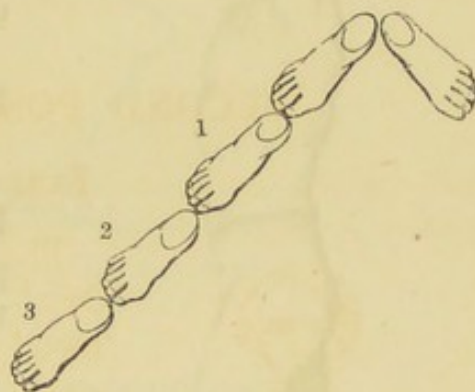


Fig. IV.

## STRAIGHT WALK POSITIONS.

These are, with regard to the distance, similar to the previous; but differ, *First*, in the commencing position being FEET: CLOSE! and *Secondly*, the foot to be moved being placed in the *same line* with the other. (See Fig. V., 1.) The command is, RIGHT (left) FOOT STRAIGHT FORWARDS (or backwards): PLACE! At POSITION! the foot which was placed either forwards or backwards is replaced <sup>2</sup> into the commencing position; at FEET: CHANGE! the other foot is placed into *straight walk position*, <sup>3</sup> either forwards or backwards, according to the word of command.

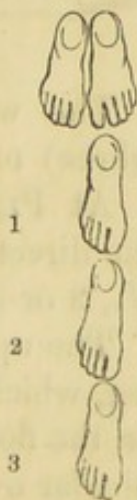


Fig. V.



### FEET ALTERNATELY FORWARDS (or backwards): PLACE!

Is an exercise based on *walk position*. At ONE! the foot is replaced into the commencing positions; at TWO! the other foot is placed into the position commanded.

The alternate positions are continued till HALT is given, when the commencing position is taken up.

### FEET ALTERNATELY STRAIGHT FORWARDS (or backwards): PLACE!

Is an exercise similar to the preceding, but FEET: CLOSE! is the *commencing* position.



Fig. V. A.

The words of command are, RIGHT (or left) FOOT TWO (three) DISTANCES FORWARDS (or backwards): PLACE!

At PLACE! the right foot is placed forwards, and retains the direction of the commencing position. (See Figs. IV. and V., 2 or 3; also the position of the feet in Fig. V. A.)

The upper part of the body is in a line with the left (right) leg, which is well stretched, while the left foot remains firmly on the floor; the right (left) knee is bent, and almost perpendicular over the right (left) toes; the body and left leg are inclined, and form an angle of about forty-five degrees, with

### PASS POSITIONS (Fig. VI.)

Are those in which one foot is placed either forwards or backwards, at *two* (three or more) distances from the heel of the other foot; the commencing positions are either FEET: OPEN! or FEET: CLOSE!

the horizontal floor ; the head is in a line with the right (left) knee and toes. (Fig. VI. represents the left *pass position* with *heels raised*.)

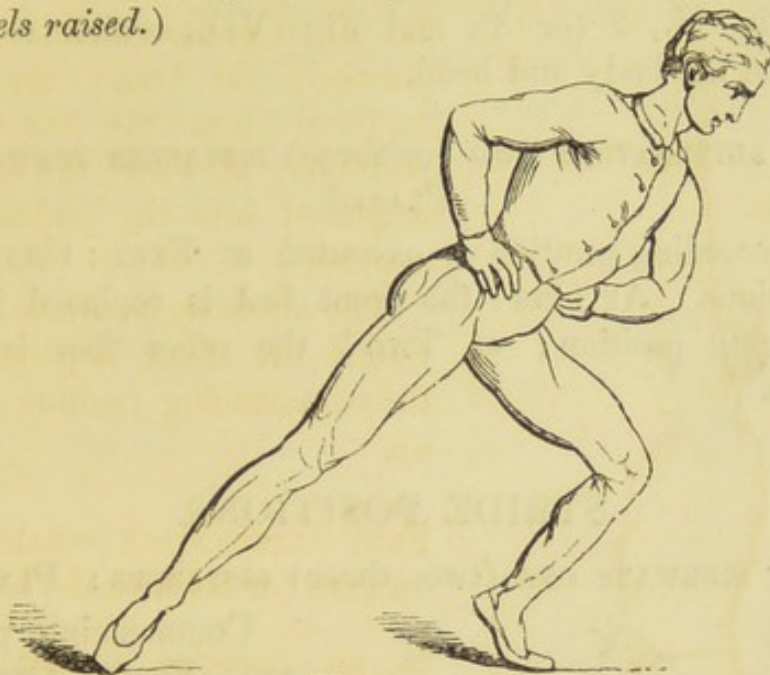


Fig. VI.

### STRAIGHT PASS POSITION

Is similar to the preceding, but the commencing position is  
FEET : CLOSE !

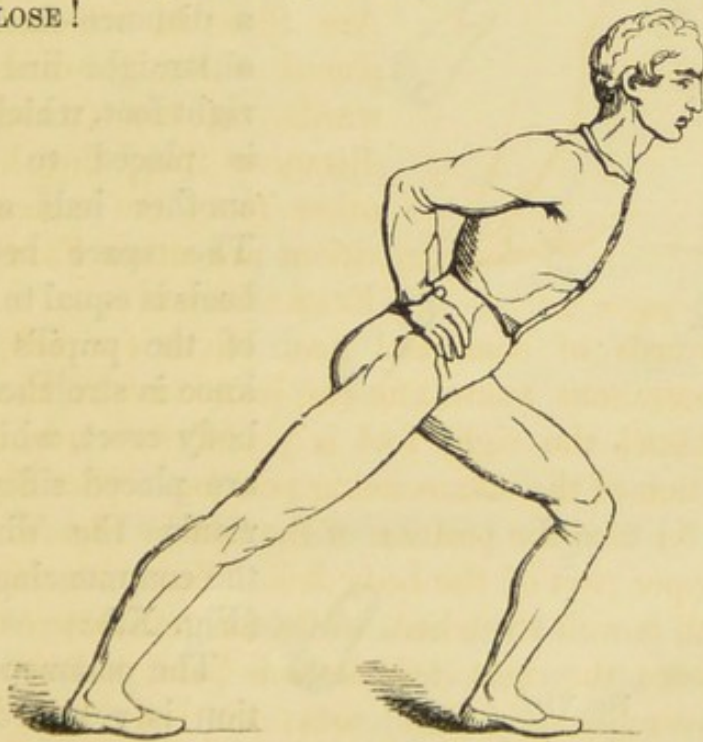


Fig. VII.



RIGHT (or left) FOOT TWO (or three) DISTANCES STRAIGHT  
FORWARDS : PLACE !

See Fig. V., 2 (or 3), and Fig. VII., which shows the position of the body and head.

FEET ALTERNATELY TWO (or three) DISTANCES FORWARDS :  
PLACE !

The preceding position is executed at FEET : CHANGE ! in two motions. At ONE ! the front foot is replaced into the commencing position ; at Two ! the other foot is placed forwards.

### STRIDE POSITIONS.

FEET SIDEWAYS ONE (two, three) DISTANCES : PLACE !



Commencing positions are FEET : OPEN ! or FEET : CLOSE ! (Fig. VIII., and Fig. IX.) In two motions.

At ONE ! the left foot is placed to the left, *half* a distance from, and in a straight line with the right foot, which, at Two ! is placed to the right another half a distance. The space between the heels is equal to the length of the pupil's foot ; the knee is stretched, and the body erect, while the feet are placed sideways, and retain the direction of the commencing position. (Fig. X.)

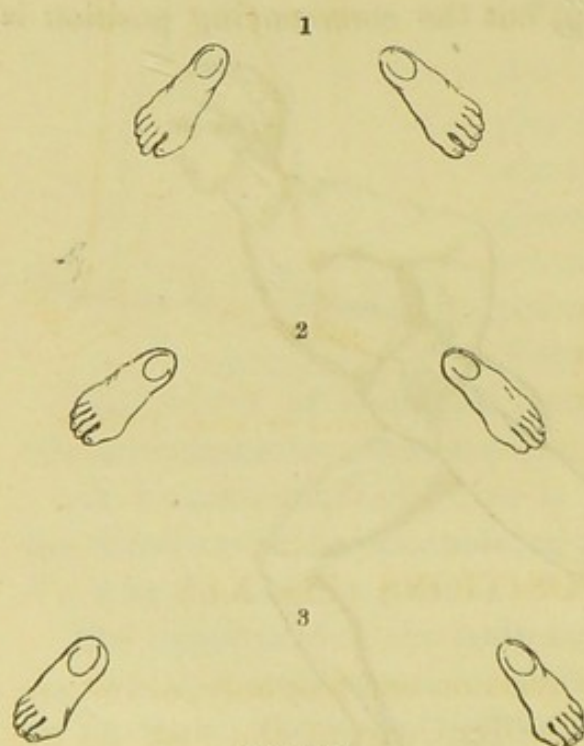


Fig. VIII.

tion ! and at ONE ! the left foot is placed at half a distance

towards the right foot, which, at Two ! is placed near the left; if the feet are to be placed apart at two or three distances, each foot is placed sideways at one half of the distance which is ordered; for girls, two distances only are commanded. Figs. VIII. and IX., illustrate the position of the feet when placed apart, either in the position FEET : CLOSE ! (Fig. IX.) or FEET : OPEN ! (Fig. VIII.)

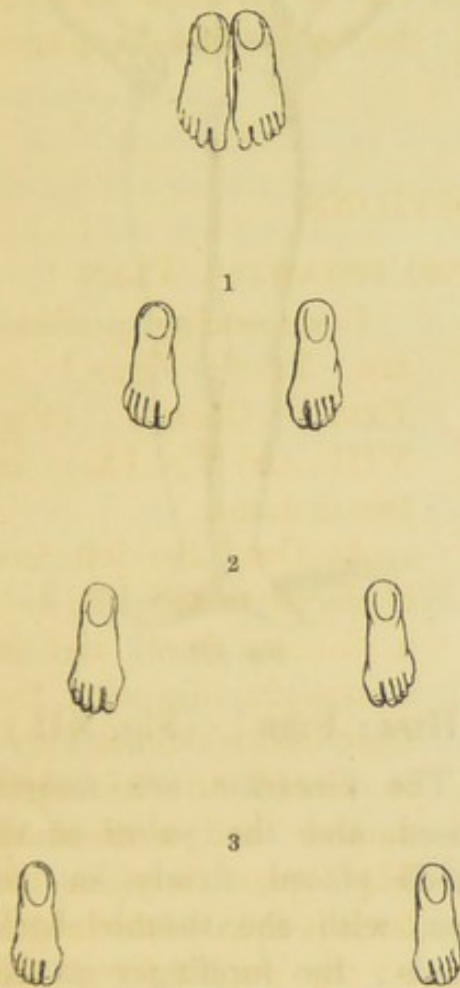
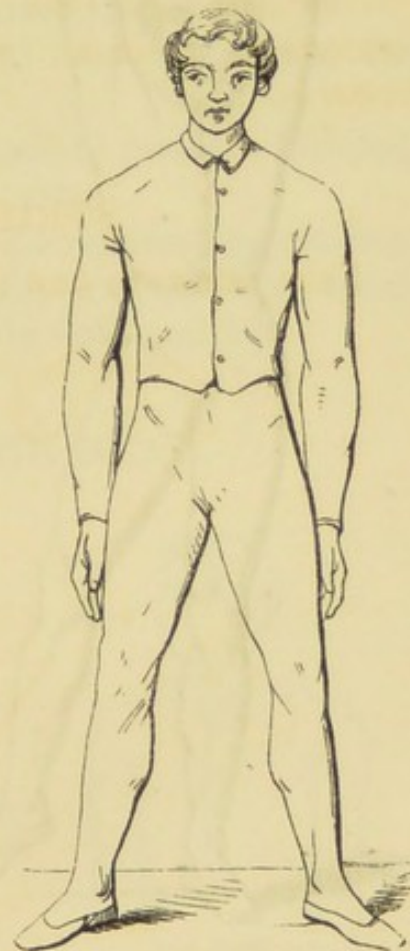


Fig. IX.

Fig. X.  
STRIDE STANDING POSITION

### BALANCING POSITIONS (Fig. XI.)

Are those in which the body rests on one foot only, or only on a part of the foot, viz., on the front part of the foot, on the toes, or on the heels. Only advanced pupils make use of these positions. Fig. XI. shows also stretch position of the arms.



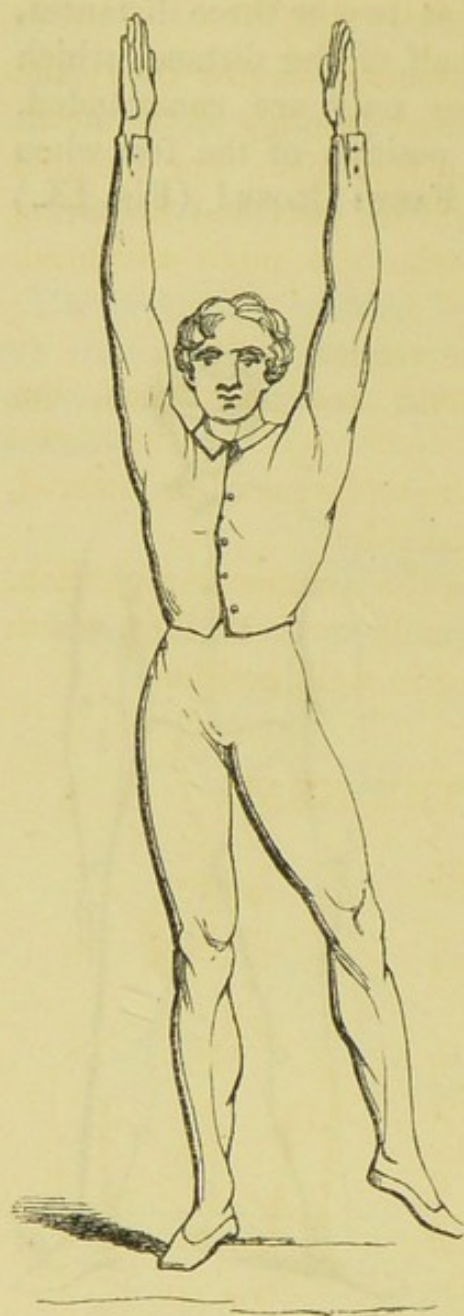


Fig. XI.

STRETCH RIGHT BALANCING POSITION

elbows in a line with the body, and the shoulders are kept down and backwards. This *position* serves as a *support* to the body, and enables us to retain with more ease the upright position, while various exercises of the legs and of the trunk are executed, or when balancing and other difficult positions are chosen.

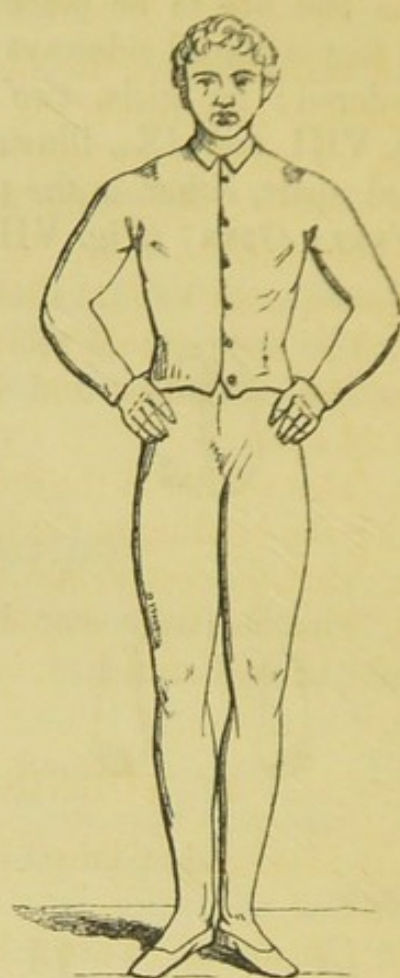


Fig. XII.

HIPS: FIRM! (Fig. XII.)

The forearms are smartly raised, and the palms of the hands placed firmly on the hips, with the thumbs backwards; the forefinger on the edge of the hip-bone, the el-

## MOVEMENTS OF THE HEAD.

All movements of the head are executed in *slow* time; the elementary movements are *Turning* and *Bending* of the head. Walk or stride positions, with the hips firm, are suitable commencing positions for beginners; the pass and balancing positions can be used by those who are more advanced. Attention must be paid that—

1. The body should remain in the vertical position.
2. The shoulders and hips should not be turned, but remain square.
3. That neither of the shoulders should be raised or lowered, during the bending of the head to the side.
4. That the feet should remain in the commencing position.
5. That the body should rest equally on both legs, which should be well stretched, in stride or in walk position.

## 1. TURNING OF THE HEAD.

(a) Head right: Turn! Forwards:  
Turn!

(b) Head left: Turn! Forwards:  
Turn! Position!

The head, without being *bent* to any side, is slowly and horizontally *turned* to the right (or left), till the chin is over the shoulder.

At FORWARDS: TURN! the head is turned forwards, as in the fundamental position.



Fig. XIII.

## 2. BENDING OF THE HEAD.

This is also called HEAD FLEXION.

- (a) Head forwards: Bend! Stretch!
- (b) Head backwards: Bend! Stretch!
- (c) Head to the right: Bend! Stretch!
- (d) Head to the left: Bend! Stretch!





Fig. XIV.

At the order, HEAD FORWARDS : BEND ! (Fig. XIV.) the head, which is held straight, without being in the least turned to one side, is slowly bent forwards until the chin slightly touches the chest. The upper part of the body, especially the shoulders, must be held firm.

At STRETCH ! the head is raised as in the fundamental position. Both movements are done steadily, and not by jerks.



Fig. XV.

At HEAD BACKWARDS : BEND ! (Fig. XV.) the head, without being turned or bent sideways, is slowly bent backwards ; at STRETCH ! it is raised into the previous position. The head is neither to be bent too far backwards, nor to be retained more than a few seconds in this position.

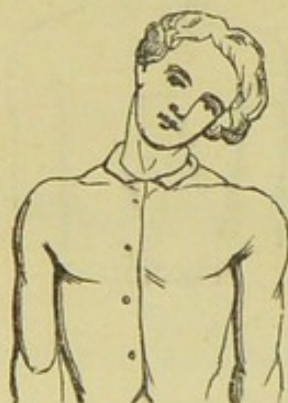


Fig. XVI.

At HEAD TO THE RIGHT (or left) : BEND ! (Fig. XVI.) the head is slowly bent to the right (left) side ; neither the face nor the shoulders are to be turned ; the raising of the shoulder opposite to the side towards which the head bends, and the lowering of the shoulder on the side to which the bending is made, must be prevented.

### 3. TURNING OF THE HEAD ALTERNATELY TO BOTH SIDES.

HEAD RIGHT AND LEFT : TURN !



4. BENDING OF THE HEAD ALTERNATELY  
EITHER FORWARDS AND BACKWARDS,  
OR TO THE RIGHT AND LEFT.

HEAD FORWARDS AND BACKWARDS: BEND!

HEAD TO THE RIGHT AND LEFT: BEND!

These movements of the head are done first towards one, and then, without the intermediate order of STRETCH, to the opposite direction.

5. BENDING OF THE HEAD  
WHILE IT IS TURNED  
TO ONE SIDE.

(Fig. XVII.)

HEAD LEFT (or right): TURN!

FORWARDS BEND! STRETCH!

BACKWARDS BEND! STRETCH!



Fig. XVII.

6. TURNING OF THE HEAD  
WHILE IT IS BENT.

(Fig. XVIII.)

Head to the right (or left): Bend!

Head to the right: Turn!

Head to the left: Turn!

Head backwards: Bend!

Head to the left (right): Turn!



Fig. XVIII.

MOVEMENTS OF THE EYES.

These movements are done in slow time. All standing positions are used as commencing positions. The words of command are—

1. EYES: to the right. 2. To the left. 3. To the right, and up. 4. To the left, and down. 5. To the front. 6. To



the left, and up. 7. To the right, and down. 8. From the right to the left, and *vice versâ*, in a horizontal line. 9. From the left to the right, in half a circle.

The usual faults are—

1. The head is turned, bent, or raised, to the side to which the eyes are moved.
2. The forehead is frowning when the eyes are directed upwards.
3. When the eyes are moved from one side to the other, they move in a circular instead of a straight line.

### MOVEMENTS OF THE ARMS

Are executed quickly, and each movement repeated three or four times. The commencing positions are all walk, stride, pass, and balancing positions.

#### STRETCHING OF THE ARMS IN THE FIVE PRINCIPAL DIRECTIONS.

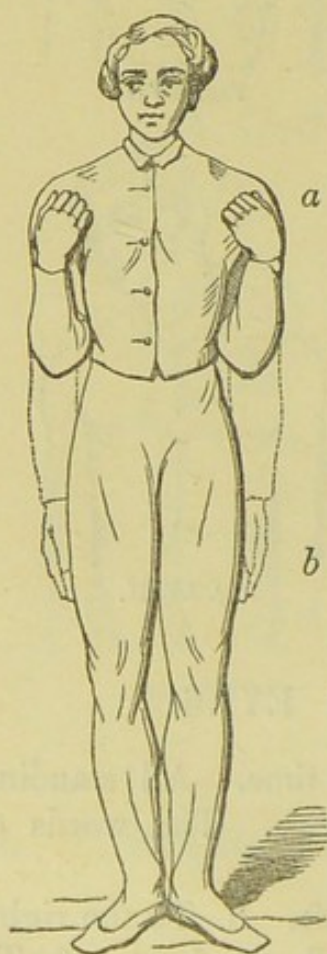


Fig. XIX.

*a* The stretching of the arms refers especially to the elbow-joint, which must be bent before it is stretched. The words of command for this preparatory exercise are,

#### I. ARMS UPWARDS : BEND !

(Fig. XIX. *a*.)

*b* The upper arm is immovable, and close to the side of the body, while the elbow is bent, and the forearm placed in front of the upper arm ; the shoulders and elbows are well drawn down ; the hands are bent at the wrists, without being stiff ; while the tips of the fingers, which are bent and close to each other, touch the armpits.



The usual faults, which must be avoided, during this exercise are—

1. The elbows are not placed as low as required.
2. The upper arms are not placed firmly, and sufficiently near to the side of the body.
3. The wrist and fingers are kept stiff, and do not touch the armpits.

## II. ARMS DOWNWARDS: STRETCH!

(Fig. XIX. b.)

The fingers and forearms are stretched, and brought down into the fundamental position, with the thumb in front.

The words of command for the movements of the arms are—

Arms upwards: Stretch!	} One! Two!
Arms sideways: Stretch!	
Arms forwards: Stretch!	
Arms backwards: Stretch!	
Arms downwards: Stretch!	

All these movements are executed in two motions.

At ONE! the arms are bent upwards.

At TWO! the arms are stretched, and the hands and fingers placed in a straight line with the arms.

## ARMS UPWARDS: STRETCH!

(Fig. XX.)

At ONE! ARMS UPWARDS: BEND!

At TWO! the arms, hands, and fingers are well stretched upwards and parallel to each other, and are placed vertically, as near as possible to the head, which remains immovable; the hands are facing each other during the movement, the fingers close to each other, and the little finger in front.

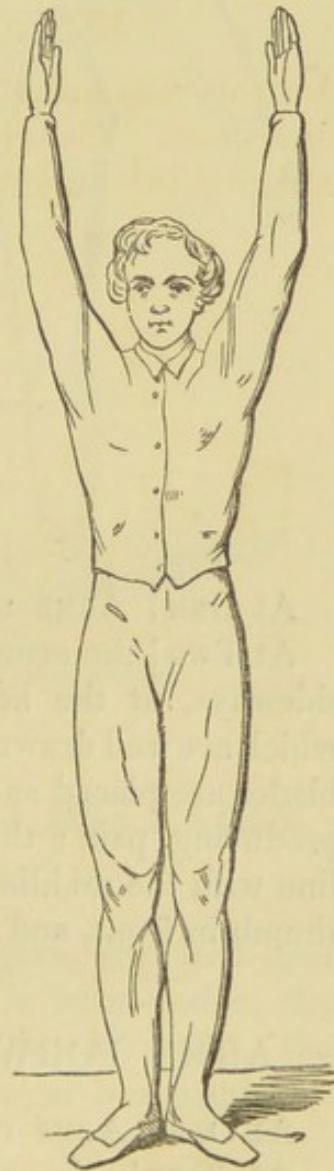


Fig. XX.



## ARMS SIDEWAYS: STRETCH! (Fig. XXI.)

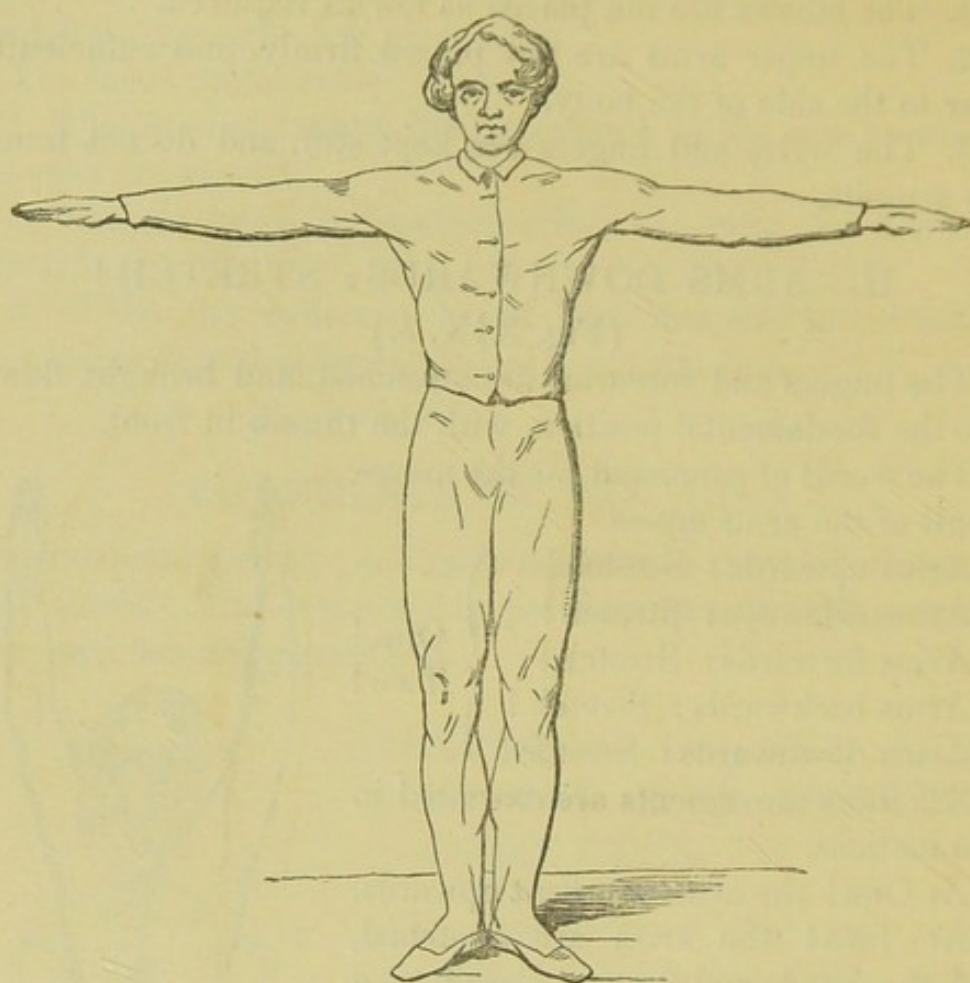


Fig. XXI.

At ONE! ARMS UPWARDS: BEND!

At TWO! the arms, hands, and fingers are quickly stretched sideways, at the height of and in a line with the shoulders, which are well drawn downwards and backwards; the shoulder-blades are placed as near to each other as is practicable without producing pain; the middle finger should be in a straight line with the middle of the highest point of the shoulder; the thumb in front, and the knuckles inclined upwards.

## ARMS FORWARDS: STRETCH! (Fig. XXII.)

At ONE! ARMS UPWARDS: BEND!

At TWO! the arms, hands, and fingers are stretched horizontally forwards; the arms are parallel to each other,

and in a line with the shoulders, which are well drawn downwards and backwards; the palms face each other, the thumbs are upwards, and the fingers close to each other.

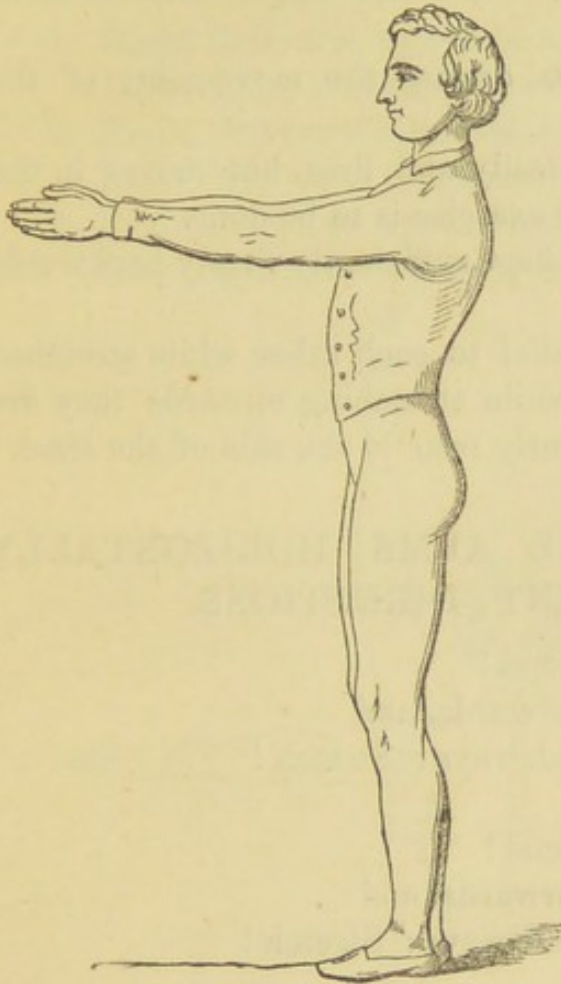


Fig. XXII.

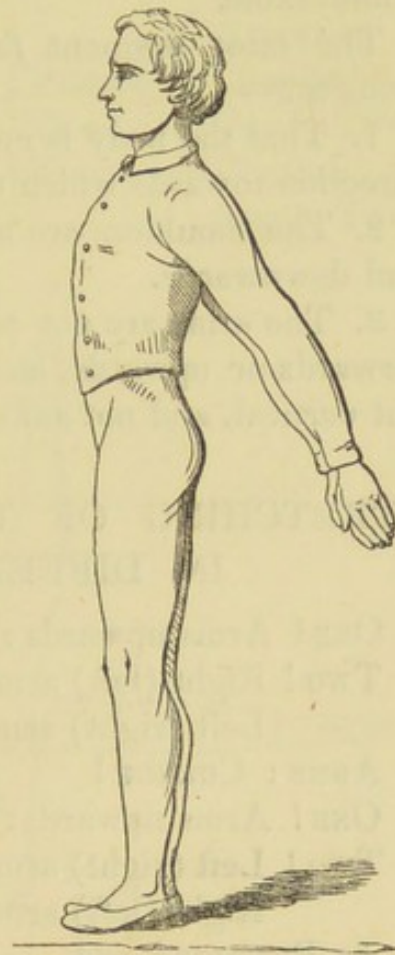


Fig. XXIII.

### ARMS BACKWARDS: STRETCH! (Fig. XXIII.)

At ONE! ARMS UPWARDS: BEND!

At TWO! the arms, hands, and fingers, are well and quickly stretched backwards; the body is immovable, the shoulders down and back; the palms face each other, the fingers are close to each other, the little finger is upwards.



## ARMS DOWNWARDS: STRETCH!

At ONE! ARMS UPWARDS: BEND!

At Two! the forearms, hands, and fingers, are stretched downwards near the body, while the upper arms remain immovable.

The most frequent *faults* during the movements of the arms are—

1. That the body is not steady and firm, but moves in the direction towards which the exercise is to be done.

2. The shoulders are not kept sufficiently firmly backwards and downwards.

3. The arms are not parallel to each other while stretched forwards or upwards, and while stretching upwards they are not vertical, and not sufficiently near to the side of the head.

STRETCHING OF THE ARMS HORIZONTALLY  
IN DIFFERENT DIRECTIONS.

ONE! Arms upwards: Bend!

TWO! Right (left) arm forwards, and

Left (right) arm sideways: Stretch!

ARMS: CHANGE!

ONE! Arms upwards: Bend!

TWO! Left (right) arm forwards, and

Right (left) arms sideways: Stretch!

At POSITION! and

ONE! Arms upwards: Bend!

TWO! Arms downwards: Stretch!

STRETCHING OF THE ARMS VERTICALLY IN  
DIFFERENT DIRECTIONS.

ONE! Arms upwards: Bend!

TWO! Right (left) arm upwards, and

Left (right) arm downwards (or backwards): Stretch!

ARMS: CHANGE! One! Two!

POSITION! One! Two!

{ Are executed in a way  
similar to the preceding,  
only the direction of the  
arms is different.

## STRETCHING OF THE ARMS ALTERNATELY IN DIFFERENT DIRECTIONS.

The words of command are—

- |  |                               |  |
|--|-------------------------------|--|
| 1. Right (left) arm upwards, and<br>Left (right) arm sideways :  | } Stretch !<br>One !<br>Two ! | } Arms :<br>Change !<br>One ! Two !<br>Position !<br>One ! Two ! |
| 2. Right (left) arm upwards, and<br>Left (right) arm forwards :  |                               |  |
| 3. Right (left) arm upwards, and<br>Left (right) arm backwards : |                               |  |

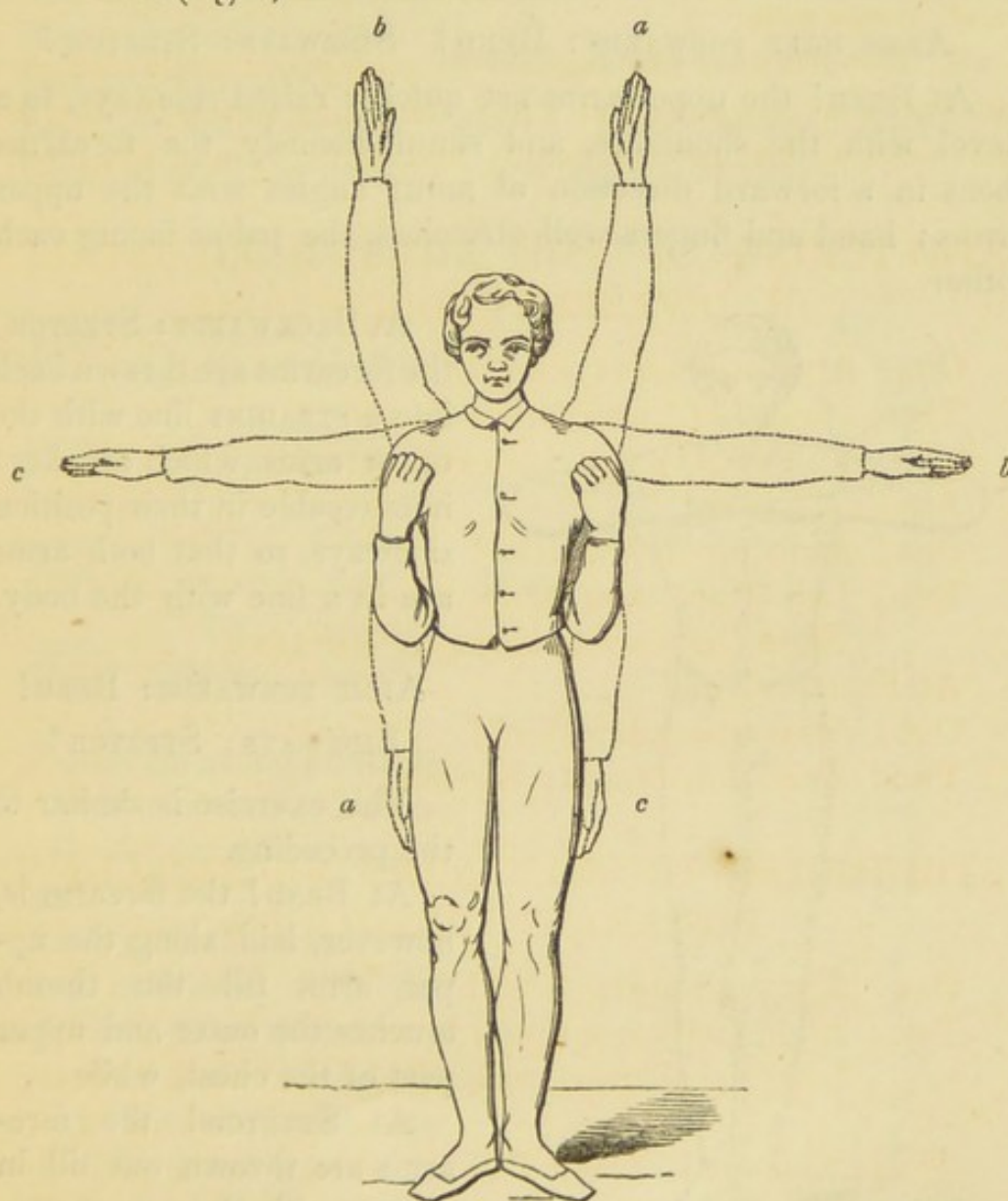


Fig. XXIV.



Fig. XXIV., *aa*, *bb*, *cc*, illustrate three different positions, with the arms in different directions.

At **STRETCH!** and **ONE!** the arms are bent upwards. At **Two!** the arms are stretched as ordered.

At **ARMS: CHANGE!** and **ONE!** the arms are bent upwards. At **Two!** each arm is placed in the position the other was in before.

At **POSITION!** and **ONE!** the arms are bent upwards. At **Two!** they are stretched down.

## BENDING & STRETCHING OF THE FOREARMS.

**ARMS HALF FORWARDS: BEND! SIDEWAYS: STRETCH!**

At **BEND!** the upper arms are quickly raised sideways, to a level with the shoulders, and simultaneously the forearms bent in a forward direction at **RIGHT** angles with the upper arms; hand and fingers well stretched, the palms facing each other.

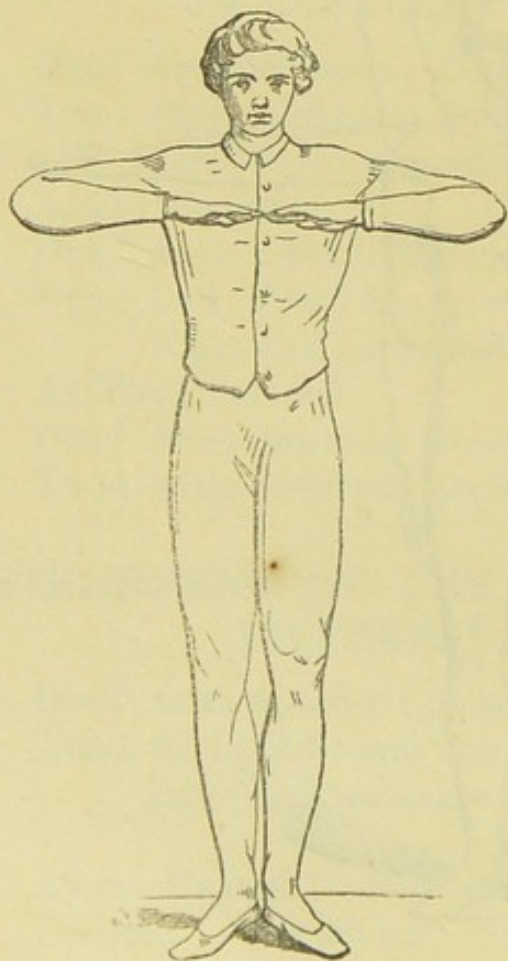


Fig. XXV.

At **BACKWARDS: STRETCH!** the forearms are thrown back into a **STRAIGHT** line with the upper arms, which are kept immovable in their position sideways, so that both arms are in a line with the body.

**ARMS FORWARDS: BEND!**

**SIDEWAYS: STRETCH!**

This exercise is similar to the preceding.

At **BEND!** the forearm is, however, laid along the upper arm, till the thumb touches the outer and upper part of the chest, while

At **STRETCH!** the forearms are thrown out till in a line with the upper arm, which remains immovable.



ARMS FULLY FORWARDS: BEND! BACKWARDS: STRIKE!

(Fig. XXV.)

At BEND! the arms are bent at the elbows as in the preceding exercise; the forearms are brought forwards till the tips of the fingers meet, in front of and near the upper part of the chest.

At STRETCH! the arms are stretched briskly as FAR BACK as the shoulder-joints permit; the horizontal position of the arms is retained.

The forearm movements can also be executed, while the commencing position is different for each arm; for instance—

Right arm half forwards:	} Bend! Sideways: Stretch! or,
Left arm forwards:	
Left arm half forwards:	} Bend! Left sideways: Stretch!
Right arm fully forwards:	

### TURNING OF THE HANDS.

Fig. XXVI.  
One.



XXVII.  
Two.



XXVIII.  
Three.



XXIX.  
Four.



The commencing positions are ARMS FORWARDS (or sideways): STRETCH! HANDS: TURN!

At ONE! the hands are turned outwards, with the back of the hand down.

At TWO! the hands are turned inwards, with the back of the hand up.

At THREE! the hands are turned partly outwards, with

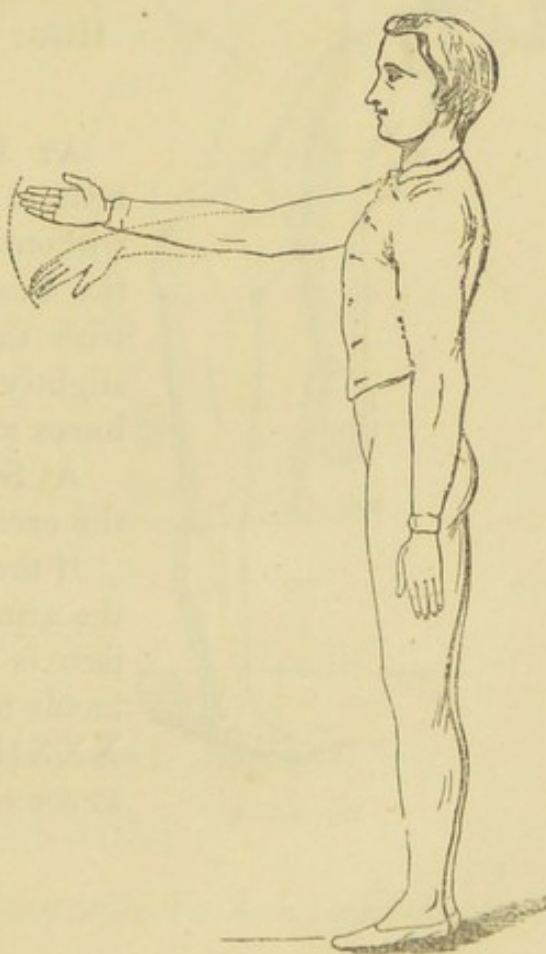


Fig. XXX.



the back of the hand outwards, the thumb up, and the little finger down.

At **FOUR!** the hands are turned with the palm of the hand outwards, the thumb down, the little finger up.

Fig. XXX. shows the way the forearm is moved, while the upper arm is steady.

## MOVEMENTS OF THE TRUNK

Are done in slow time. For beginners, the walk or stride positions are suitable commencing positions. Those who are more advanced can choose pass, straight pass, and balancing positions, combined with different positions of the arms.

### BENDING OF THE TRUNK FORWARDS AND BACKWARDS.

**HIPS: FIRM! TRUNK FORWARDS:  
BEND! STRETCH!**

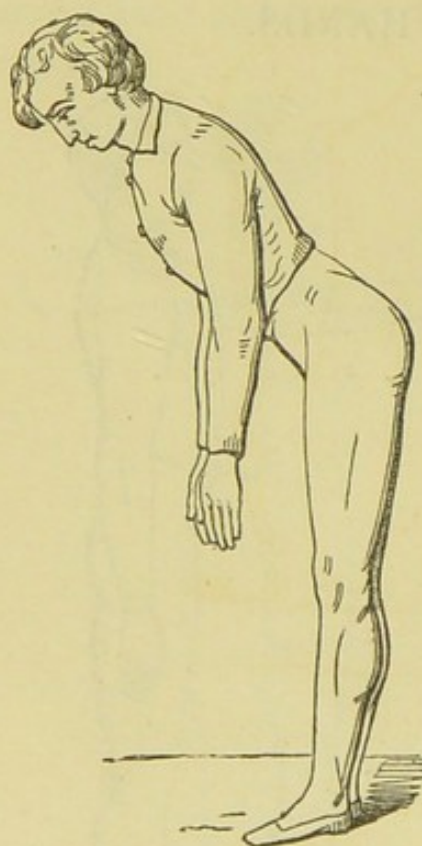


Fig. XXXI.

At **BEND!** the trunk is gently bent at the lowest part of the spine, without twisting the body or moving the head, which remains in a line with the trunk. The face inclines slightly downwards, the legs and knees are firm.

At **STRETCH!** the trunk returns to the erect position.

If the trunk is bent forwards while the arms are stretched upwards, the face is opposite the knees, and the hands touch the toes, as seen in Fig. XXXII., *a*. It is essential that the knees should remain stretched.

## INCLINATION OF THE TRUNK

Is a movement in the hip-joints, by which the upper part of the body is inclined forwards without bending the spine.

The Figs. XXXI. and XXXII. *b*, represent the inclination, and the dotted lines *aa*, the bending of the trunk.

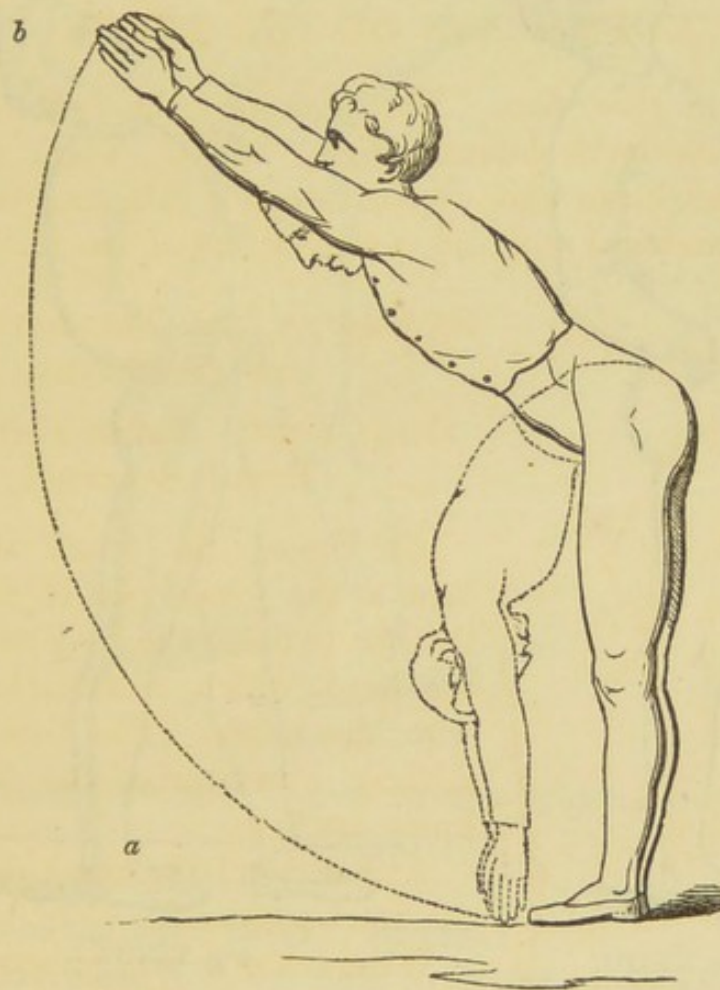


Fig. XXXII.

TRUNK BACKWARDS : BEND ! STRETCH

(Fig. XXXIII.)

The trunk bends gently backwards, the face being directed slightly upwards.

At STRETCH ! the previous position is resumed.



In Fig. XXXIII. A, the commencing position is a walking position, with the left arm on the hip, and the right stretched up, the right foot in straight walk position.

Fig. XXXIII. B, is trunk bending backwards, with both arms stretched upwards, and the right foot in walk position.

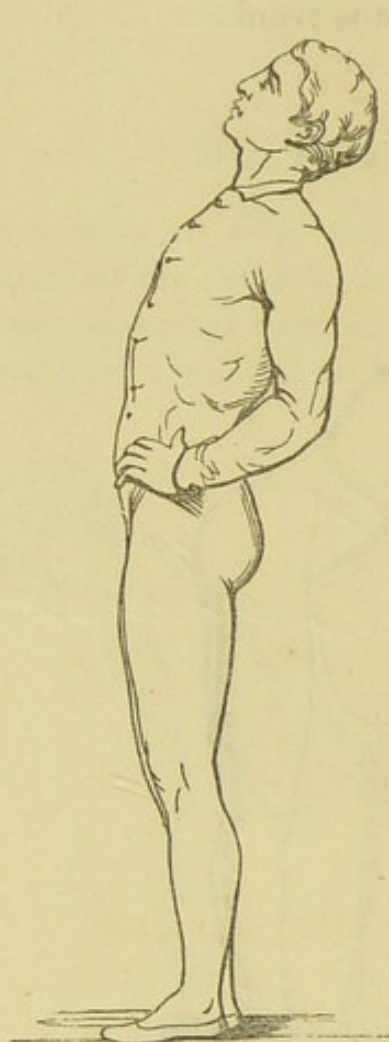


Fig. XXXIII.

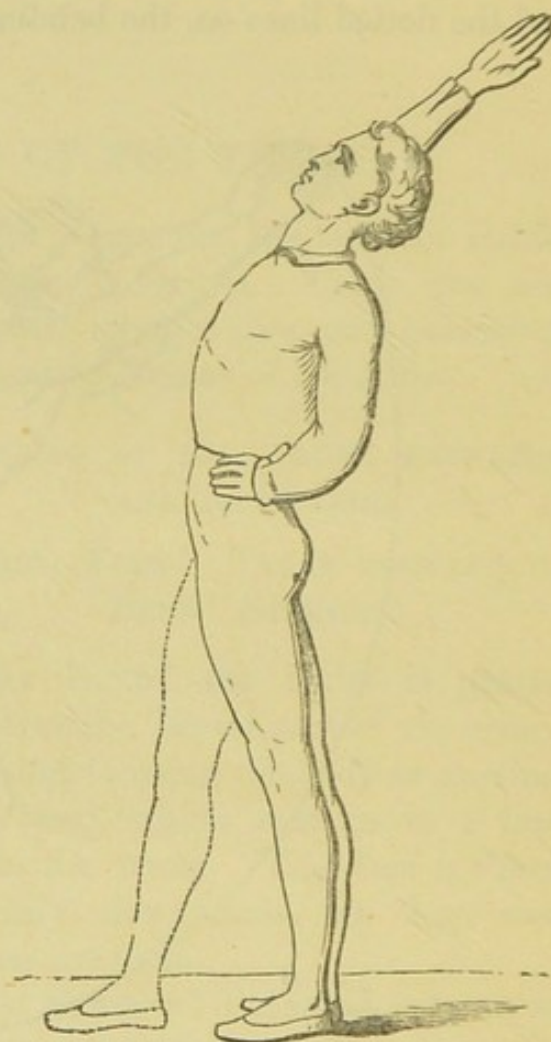


Fig. XXXIII. A.

#### BENDING OF THE TRUNK SIDEWAYS. (See Fig. XXXIV.)

TRUNK TO THE RIGHT (left): BEND! STRETCH!

At BEND! the trunk is bent to the right (left), as far as it is possible without raising the left (right) foot from the ground; the head in a line with the trunk, the legs unyielding. The arms hang freely down, and the hands accommodate themselves to the movement, the right (left) by sliding down the right (left) thigh to the knee; the left (right) by sliding up the left (right)

thigh to the hip. The upper part of the body is not to be twisted.

At STRETCH! the body is slowly and steadily raised into the erect position.

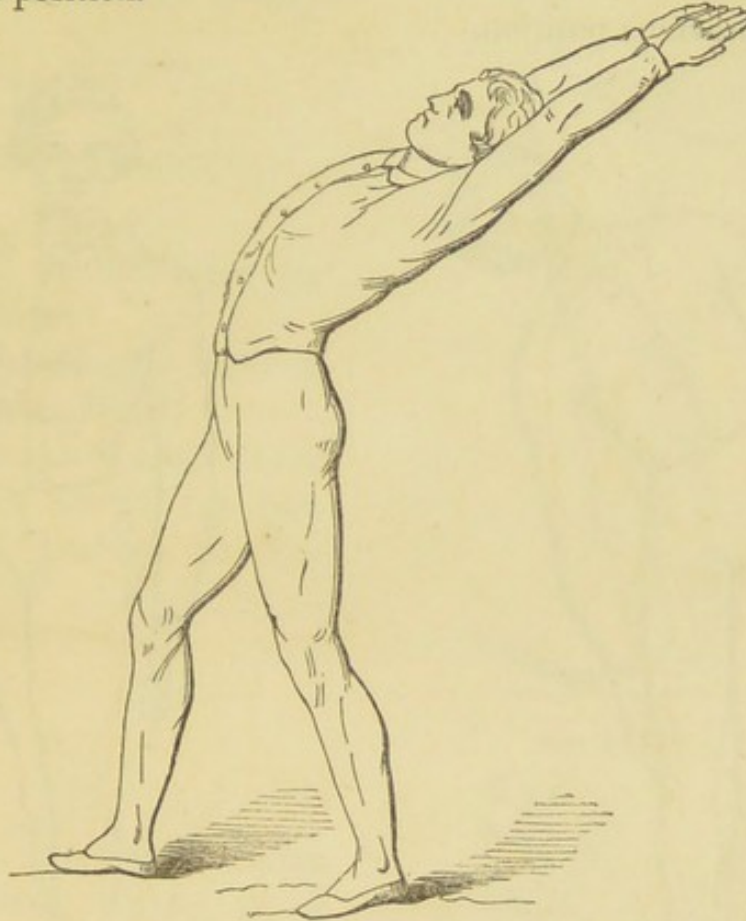


Fig. XXXIII. B.

#### BENDING OF THE TRUNK TO THE RIGHT AND LEFT ALTERNATELY.

Trunk to the right: Bend!

Trunk to the left: Bend! Stretch!

The movement from the right to the left, and in the opposite direction, is done without stopping.

#### TURNING OF THE TRUNK

Consists in twisting the upper part of the body round its longitudinal axis, and above the hips.

TRUNK TO THE RIGHT: TURN! FORWARDS: TURN!

(Fig. XXXV.)

The body is twisted steadily to the right side, till the shoulders are at a right angle with the front line; thus the



fourth part of a circle is described by each shoulder. The head, preserving its original position with regard to the trunk, moves simultaneously with the trunk; after a short pause, at TRUNK FORWARDS: TURN! the trunk is steadily brought into the previous position.

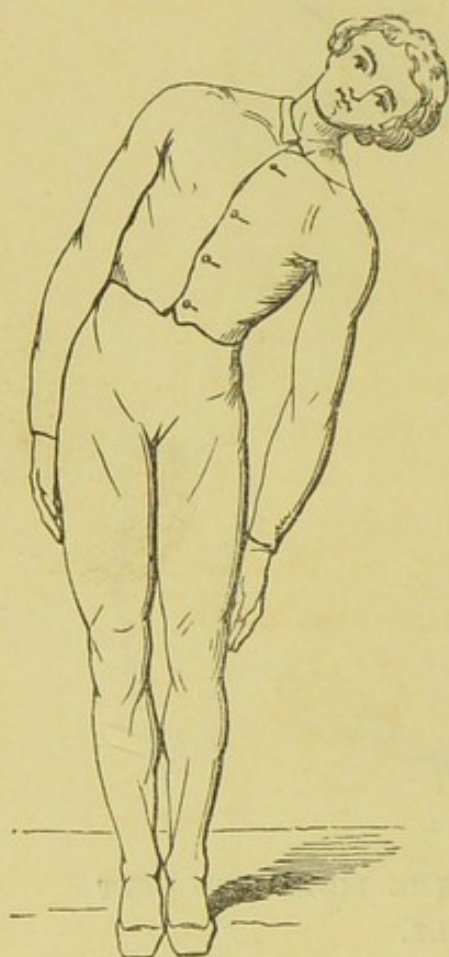


Fig. XXXIV.

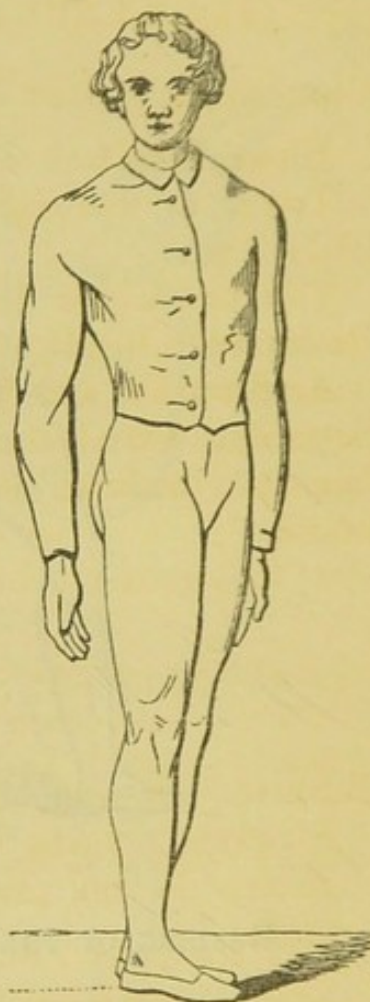


Fig. XXXV.

At TRUNK TO THE LEFT: TURN! FORWARDS: TURN! the movement is done first to the left, and, after a short pause, forwards.

#### TURNING OF THE TRUNK TO THE RIGHT AND LEFT ALTERNATELY.

TRUNK TO THE RIGHT AND LEFT: TURN!

The movement from the right to the left, and in the opposite direction, is done without stopping.

BENDING OF THE TRUNK  
BACKWARDS WHILE TURNED  
TO THE LEFT (OR RIGHT).

(Fig. XXXVI.)

Commencing position is—

Hips: Firm!

Trunk to the right (or  
left): Turn!

The bending is done at  
Backwards: Bend!

At Stretch! and Trunk  
forwards: Turn! the fun-  
damental position is re-  
sumed.

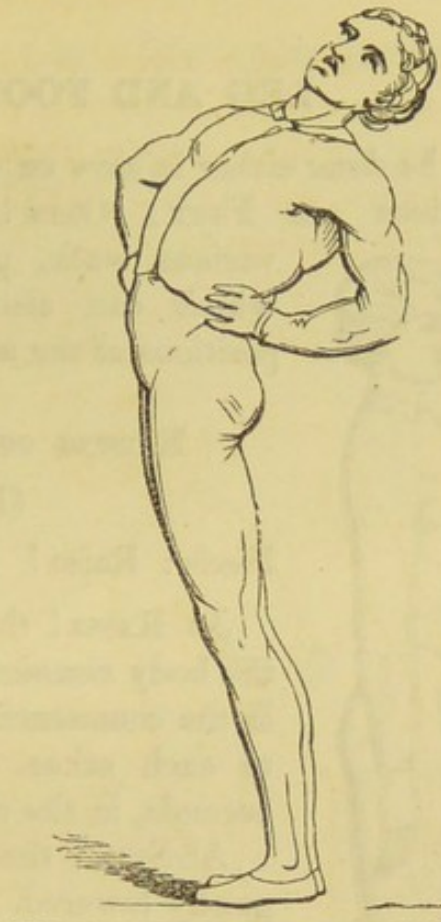


Fig. XXXVI.

BENDING OF THE TRUNK  
FORWARDS, WHILE IT IS  
TURNED TO THE LEFT (OR  
RIGHT).

(Fig. XXXVII.)

Commencing position is—

Hips: Firm!

Trunk to the right (or  
left): Turn!

Words of command are—

TRUNK FORWARDS: BEND!  
STRETCH!

TRUNK FORWARDS: TURN!

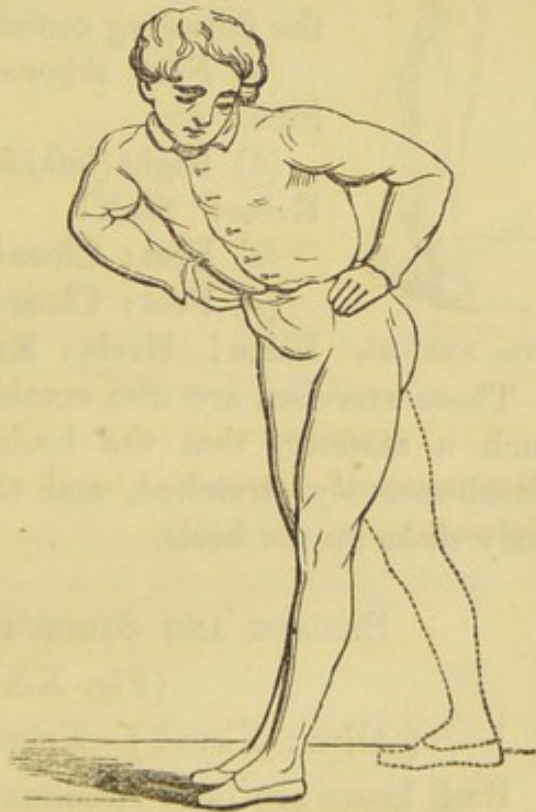
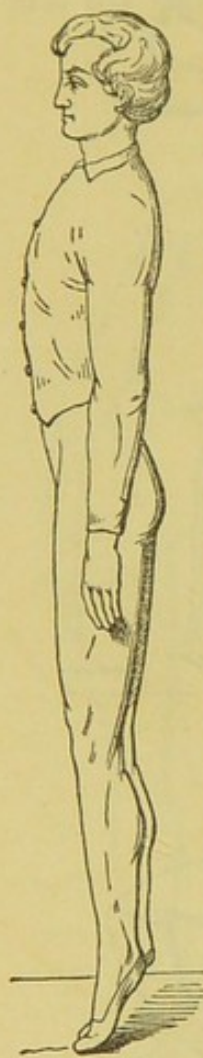


Fig. XXXVII.



## LEG AND FOOT MOVEMENTS

Can be done either in slow or quick time. The commencing positions are FEET: OPEN! or FEET: CLOSE! and the various walk, pass, and balancing positions, which can also be combined with various positions of the arms and body.



## RAISING OF THE BODY ON THE TOES.

(Fig. XXXVIII.)

Heels: Raise! Sink! One! Two! (repeat.)

At RAISE! the heels are slowly raised while the body remains erect, the feet still remaining in the commencing position, with the heels close to each other. The body is, during a few seconds, in the raised position.

At SINK! the heels and body are slowly and gently lowered.

This balancing exercise can be practised in the following commencing positions:—

(a) Feet sideways: Place! Heels: Raise! Sink! &c.

(b) Right (left) foot forwards: Place! Heels: Raise! Sink!

(c) Feet: Close! Heels: Raise! &c.

(d) Feet: Close! Right (left) foot forwards:

Place! Heels: Raise! &c.

These exercises are also combined with arm movements in such a manner, that the heels are raised, and the arms simultaneously stretched, and the arms are bent while the body sinks on the heels.

## BENDING AND STRETCHING OF THE KNEES.

(Fig. XXXIX.)

( Hips: Firm! ) Knees: Bend! Stretch!

Both knees are bent simultaneously; the thighs and legs form a right angle at the knee-joint, each knee being placed



in a line with and above the toes. The upper part of the body is vertical and square.

- |                 |                      |                                       |
|-----------------|----------------------|---------------------------------------|
| (Hips : Firm !) | 1. HEELS : RAISE !   | } One !<br>Two !<br>Three !<br>Four ! |
|                 | 2. KNEES : BEND !    |                                       |
|                 | 3. KNEES : STRETCH ! |                                       |
|                 | 4. HEELS : DOWN !    |                                       |

These four motions are thus performed :—

At ONE ! the heels are raised.

At TWO ! both knees are bent, and directed outwards.

At THREE ! the knees are again stretched.

At FOUR ! the heels are placed on the floor.

This exercise is first practised at the words of command named before ; then, at One, Two, Three, Four ! and finally at the words, Knees : Bend ! Stretch ! which command is given in slow time.

The exercise having been well practised, the first and second motions are simultaneously done at ONE ! and at TWO ! the third and fourth

motions are simultaneously done ; thus the knees are bent while the heels are raised, and the knees are stretched while the heels are placed on the floor, the stretching being completed when the heels touch the floor.

This exercise is also useful as a balancing exercise. The single motions must be steady, and the knees are not to be bent beyond a right angle. If the commencing position is FEET : OPEN ! the heels touch each other during the whole movement.

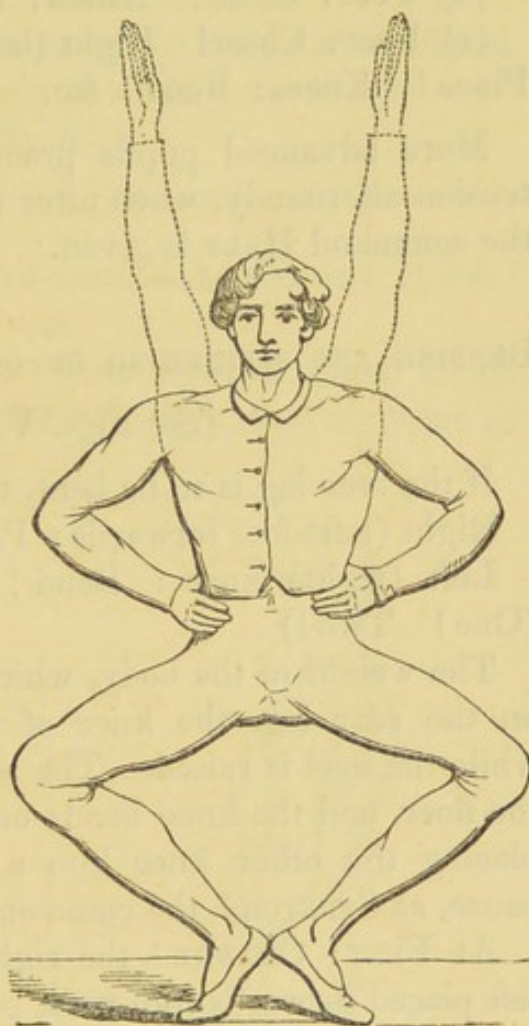


Fig. XXXIX.



Instances of other commencing positions are—

- (a) Feet sideways: Place! Knees: Bend! &c.
- (b) Right (left) foot forwards (backwards): Place! Knees: Bend! &c.
- (c) Right (left) foot two paces forwards: Place! Knees: Bend!
- (d) Feet: Close! Knees: Bend! &c.
- (e) Feet: Close! Right (left) foot forwards (backwards): Place! Knees: Bend! &c.

More advanced pupils practise the knee flexion and extension alternately, when after three, four, or five repetitions, the command HALT is given.

#### BENDING AND STRETCHING OF ONE KNEE IN WALK POSITION.

(See Figs. VI. and VII.)

If the rear leg is to be bent, the words of command are—

Right (left) foot forwards: Place!

Left (right) knee: Bend! Stretch! Feet: Change!  
(One! Two!)

The weight of the body, which is upright and square, being on the rear leg, the knee of this is bent in a right angle, while the heel is raised. The sole of the foot in front touches the floor, and the knee bends only to the extent required for placing the other knee into a right angle. After a short pause, at STRETCH! the commencing position is resumed.

At FEET: CHANGE! the right foot is drawn back, and the left placed forwards into walk position; the right knee is then bent, and stretched in the manner just described.

#### BENDING AND STRETCHING OF ONE KNEE IN PASS POSITION.

Right foot to the pass forwards: Place!

Front knee: Bend! Stretch!

At the first command the pass position is taken up.

At BEND! the front knee is slightly bent beyond the point of the foot, while the heel is simultaneously raised; the rear leg is well stretched, and the rear foot remains on the floor.



At **STRETCH!** the front foot is lowered, the heel touches the floor, the knee is in a right angle, and the body in pass position.

At **FEET: CHANGE!** the same movement is executed by the left knee.

#### ALTERNATE KNEE FLEXION IN PASS POSITION.

The right and left knees are alternately bent and stretched.

The words of command are—

Right (left) foot forwards: **Place!**

Left knee: **Bend! Stretch!**

Right knee: **Bend! Stretch!**

These alternate movements are continued at **LEFT! RIGHT! LEFT! RIGHT!** till **HALT!** is given.

At **FEET: CHANGE!** and **ONE!** both feet are placed in the commencing position; at **Two!** the left (right) foot is placed in pass position; then,

Right knee: **Bend! Stretch!**

(**One! Two! One! Two!**)

Left knee: **Bend! Stretch!**

(**One! Two! One! Two!**)

For those who are more advanced, the order is—

Right and left knee alternately: **Bend! Stretch! Halt!**

#### RAISING OF THE KNEE.

**HIPS: FIRM! RIGHT (LEFT) KNEE: RAISE! DOWNWARDS: STRETCH!**

**LEFT (RIGHT) KNEE: RAISE! DOWNWARDS: STRETCH!**

(Or, **Feet: Change! One! Two!**)

At **RAISE!** the right (or left) knee is quickly raised, and the foot simultaneously bent; the knee is brought into a horizontal line formed by the thigh, which

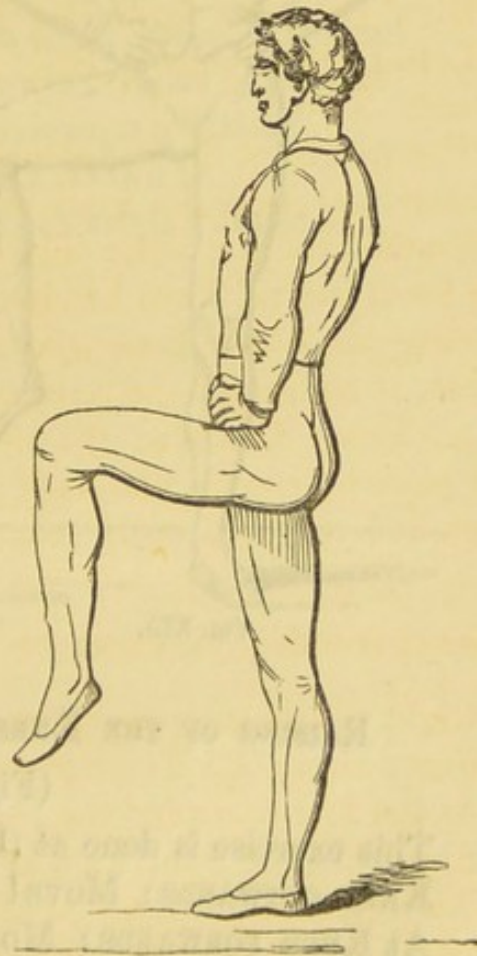


Fig. XL.



is placed in the direction in which the foot is in the commencing position. The knee forms a right angle, the foot being as much as possible bent at the ankle-joint, the toes directed upwards.

At FEET: CHANGE! the change is done gently, the left (or right) knee is not raised before the right (or left) foot is firmly placed, and the right leg well stretched.

These motions are done at STRETCH! The upper part of the body remains immovable and upright in the commencing position.

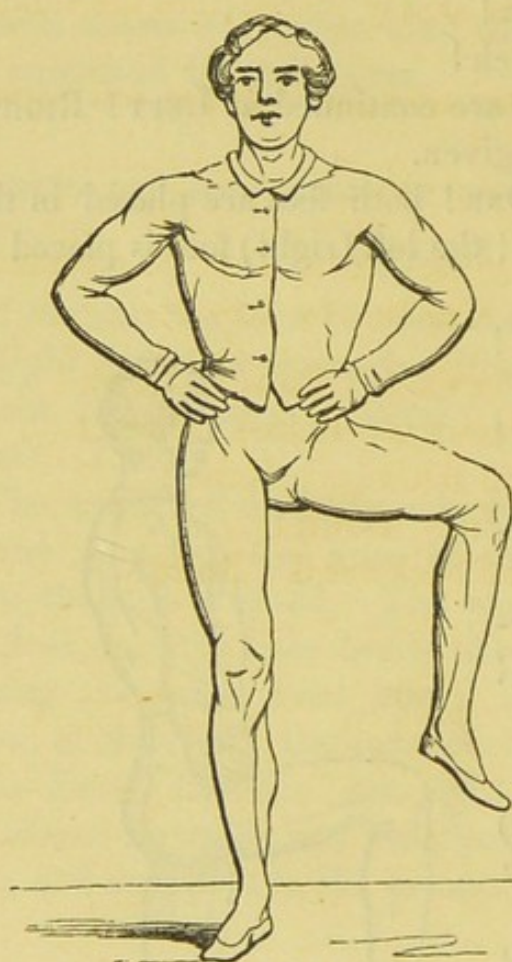


Fig. XLI.

#### RAISING OF THE KNEE AND STRETCHING OF THE LEG.

Right (left) knee: Raise!

Right (left) knee forwards: Stretch! &c.

The knee having been raised, at STRETCH! the right (left) knee and foot are simultaneously stretched as far as possible in a horizontal line. The other leg is kept rigid, while supporting the erect trunk.

A similar exercise with the other knee is executed at FEET: CHANGE! At ONE! the fundamental position is resumed. At Two! the left (right) leg is first raised upwards, and then stretched in a similar way.

#### RAISING OF THE KNEE AND MOVING IT OUTWARDS.

(Fig. XLI.)

This exercise is done at (Hips: Firm!) Knee: Raise!  
KNEE OUTWARDS: MOVE!

At KNEE FORWARDS: MOVE! and FOOT: DOWN! the commencing position is resumed.



## RAISING OF THE LEG.

The leg can be raised either forwards, sideways, or backwards, and the combination of these three movements forms the rotation outwards.

(Hips: Firm!) Right (left) leg forwards (sideways, backwards): Raise! Down!

At RAISE! the right (left) leg being firmly stretched, is raised forwards (sideways, or backwards). The upper part of the body remains erect, with Hips: Firm!

At DOWN! the raised leg is slowly placed into the fundamental position.

At LEG: CHANGE! a similar exercise with the left (right) leg is done.

## RAISING OF THE LEGS IN QUICK TIME, AND IN DIFFERENT DIRECTIONS, WITH CHANGE OF LEGS.

(Hips: Firm!) Right leg forwards: Raise! Down!

Left leg sideways: Raise! Down!

Leg alternately forwards and sideways: Raise!

(One! Two!) or (Left! Right!) Down!

Leg alternately forwards and backwards: Raise!



THE FOLLOWING TABLES OF COMMANDS SHOW THE ORDER IN WHICH THE PRECEDING MOVEMENTS CAN BE PRACTISED BY HEALTHY PERSONS.

TABLE I.

1. Position!
2. Hips: Firm!
3. Feet: Close! Feet: Open!
4. Right (left) foot, one (two, three) distances forwards (backwards): Place!
5. Feet sideways: Place!
6. [Hips: Firm!]\* Heels: Raise!
7. Arms upwards: Bend! Downwards: Stretch!
8. [Hips: Firm!] Trunk backwards: Bend! Stretch! Trunk forwards: Bend! Stretch!
9. [Hips: Firm! Right (left) foot forwards: Place!] Heels: Raise!
10. Arms upwards: Stretch! Bend! Downwards: Stretch!

TABLE II.

1. [Hips: Firm! Feet: Close!] Right (left) foot forwards (backwards): Place! Position!
2. Right (left) foot forwards: Place! Feet: Change!
3. [Hips: Firm! Feet: Close!] Heels: Raise!
4. Arms upwards: Stretch! Bend!  
„ downwards: Stretch!
5. [Hips: Firm!] Trunk forwards: Bend! Stretch! Backwards: Bend!
6. [Right (left) foot forwards: Place!] Arms upwards: Stretch! Heels: Raise!
7. Head forwards: Bend! Stretch!  
„ backwards: „
8. Head to the right: Bend: Stretch!  
„ to the left: „
9. [Hips: Firm! Feet sideways: Place!] Heels: Raise!
10. Arms upwards: Bend! Sideways: Stretch!  
„ Bend! Downwards: Stretch!

TABLE III.

1. [Hips: Firm! Feet: Close! Right (left) foot forwards: Place!] Heels: Raise!
2. Arms upwards: Bend! Forwards: Stretch!  
„ Bend! Downwards: Stretch!
3. [Hips: Firm!] Trunk forwards: Bend! Stretch!  
„ Trunk backwards: Bend! Stretch!
4. [Hips: Firm!] Knees: Bend! Stretch!
5. Head forwards (backwards): Bend! Stretch!  
„ to the right (left): Bend! Stretch!

\* All the commencing positions are printed in brackets.



6. [Hips: Firm! Feet: Close!] Trunk to the right (left): Turn!  
Trunk forwards: Turn!
7. Right (left) arm sideways: } Stretch! Change!  
Left (right) arm downwards: }  
Right (left) arm upwards: } Stretch! Change!  
Left (right) arm forwards: }  
Right (left) arm backwards: } Stretch! Change!  
Left (right) arm sideways: }
8. [Hips: Firm! Feet: Close! Left (right) foot forwards: Place!]  
Heels: Raise!
9. Arms upwards: Bend! Upwards: Stretch!  
„ Bend! Downwards: Stretch!

TABLE IV.

1. [Feet: Close! Right (left) foot forwards: Place! Arms upwards:  
Stretch!] Heels: Raise!
2. Head right (left): Turn! Forwards: Turn!
3. Arms upwards: Stretch! Bend!  
„ downwards: Stretch!
4. [Arms upwards: Stretch!] Trunk backwards: Bend! Stretch!  
Trunk forwards: Bend! Stretch!
5. [Hips: Firm!] Knees: Bend! Stretch!
6. [Hips: Firm! Feet: Close!] Trunk to the right (left) Turn!  
Forwards: Turn!—To the left (right): Turn! Forwards: Turn!
7. Position! Right (left) foot two distances forwards: Place! Feet!  
Change! Position!
8. [Feet: Close!] Right (left) foot two distances forwards: Place!  
Feet: Change! Position!
9. [Feet: Close! Right (left) arm upwards, left (right) arm down-  
wards: Stretch!]  
Trunk to the right: Bend! Stretch!  
„ to the left: Bend! Stretch!
10. Position! Right (left) foot two (three) distances forwards; Place!  
Feet: Change!
11. [Feet: Close!] Right (left) foot two (three) distances forwards:  
Place! Feet: Change!
12. [Arms upwards: Stretch!] Trunk forwards: Bend! Stretch!  
Trunk backwards: Bend! Stretch!

TABLE V.

1. [Hips: Firm!] Knees: Bend! Stretch!
2. Arms upwards: Stretch! Bend!  
„ outwards: „ „  
„ forwards: „ „  
„ downwards: „ „
3. [Feet: Close! Right (left) foot two distances forwards: Place!  
Arms upwards: Stretch!] Trunk forwards: Bend! Stretch!  
Backwards: Bend! Stretch!
4. [Arms upwards: Stretch!] Knees: Bend!
5. Head right: Turn! Forwards: Turn!  
„ left: Turn! Forwards: Turn!
6. [Feet sideways: Place! Heels: Raise!] Repetition of 2.



7. [Hips: Firm! Feet: Close! Right (left) foot three distances forwards: Place!] Right knee: Bend! Stretch! Left knee: Bend! Stretch!
8. [Feet: Close! Right (left) arm upwards: Stretch!] Trunk to the right: Bend! Stretch! „ to the left: Bend! Stretch!
9. [Right foot two distances forwards: Place! Right knee: Bend! Trunk: Incline!] Arm movements with change, as No. 7 in Table III.
10. Feet: Close! Right (left) foot two distances forwards: Place! Right arm up, left arm backwards: Stretch!

TABLE VI.

1. [Hips: Firm! Right (left) foot forwards: Place! Heels: Raise! Knees: Bend!]
2. Arms backwards: Stretch!
3. [Hips: Firm!] Head to the right (left): Turn! Forwards: Bend! Stretch! Head to the left (right): Turn! Backwards: Bend! Stretch!
4. Feet: Close! Right (left) foot two distances forwards: Place! Head forwards: Bend! Arms upwards: Stretch! Trunk forwards: Bend! Stretch! Backwards: Bend! Stretch!
5. Hips: Firm! Right (left) foot forwards: Place! Left (right) knee: Bend!
6. [Feet: Close! Trunk to the right (left): Bend!] Right (left) arm up, left (right) arm downwards: Stretch!
7. [Hips: Firm! Feet: Close! Right (left) foot two distances forwards: Place!] Right (left) knee: Bend! Stretch!
8. [Feet: Close!] Arm stretching in different levels. *See* No. 7 in Table III.
9. [Hips: Firm!] Trunk forwards: Bend! Stretch! Trunk to the left: Turn! Forwards: Turn! Trunk backwards: Bend! Trunk to the right: Turn! To the left: Turn! Forwards: Turn! Position!
10. Hips: Firm! Right (left) knee upwards: Raise! Downwards: Place!
11. [Right (left) knee: Raise!] Arms upwards: Stretch! Bend!  
 „ outwards: „ „  
 „ forwards: „ „  
 „ downwards: „ „  
 „ backwards: „ „

TABLE VII.

1. [Hips: Firm!] Right (left) foot two distances forwards: Place! Right (left) knee: Bend! Stretch! Feet: Change!
2. [Trunk to the right (left): Turn!] Forwards: Turn! Arms upwards: Bend! Upwards: Stretch!
3. Head to the right turn and forwards: Bend! Stretch and forwards: Turn! To the left turn and backwards: Bend! Stretch and forwards: Turn!



4. [Right (left) foot two distances forwards: Place!] Right (left) arm forwards, left (right) arm sideways: Stretch! Arms: Bend!  
Right (left) arm upwards: } Stretch! Change!  
Left (right) arm downwards: }
5. [Feet sideways: Place! Arms upwards: Stretch!] Trunk forwards: Bend! Stretch! Trunk backwards: Bend! Stretch!
6. [Hips: Firm!] Right (left) knee upwards: Raise! Backwards: Stretch!
7. Feet: Close! Right (left) foot two distances forwards: Place!  
Feet: Change! Right (left) arm upwards: Stretch!  
Trunk to the right (left): Bend! Stretch!
8. Repetition of No. 1.
9. [Arms forwards (sideways): Stretch!] Forearms: Turn! One!  
Two! (or out and in.)
10. [Hips: Firm!] Right (left) knee upwards: Raise! Outwards: Move! Downwards: Place!
11. Hips: Firm! Right (left) leg backwards: Stretch! Arms upwards: Stretch!

## TABLE VIII.

1. [Hips: Firm! Right (left) foot two distances forwards: Place!] Left (right) knee: Bend!
2. [Right (left) arm forwards, left (right) arm sideways: Stretch!] Hands: Turn! One! Two! Three! Four!
3. Hips: Firm! Heels: Raise! Knees: Bend!  
Head to the right (left): Bend! Stretch!  
„ forwards (backwards): Bend! Stretch!
4. [Feet: Close! Right (left) foot two distances forwards: Place! Right (left) arm upwards, left (right) arm downwards: Stretch!] Trunk forwards: Bend! Stretch! Backwards: Bend! Stretch!
5. [Feet sideways: Place! Knees: Bend!] Right arm upwards: } Stretch! Change!  
Left arm downwards: }
6. [Feet: Close! Arms upwards: Stretch!] Trunk forwards: Bend! Stretch!
7. [Arms upwards: Stretch!] Trunk to the right (left): Turn! Forwards: Bend! Stretch! Forwards: Turn! Backwards: Bend! Trunk right (left): Turn! Forwards: Turn!
8. [Hips: Firm! Feet sideways: Place!] Heels: Raise! Knees: Bend!
9. Right (left) foot three distances forwards: Place! Right (left) arm forwards, left (right) arm sideways: Stretch! Hands: Turn! One! Two! Three! Four! Arms: Change!
10. [Hips: Firm! Feet: Close! Right (left) foot forwards: Place!] Trunk to the right (left): Turn! Forwards: Turn!

## TABLE IX.

1. [Hips: Firm!] Feet sideways: Place! Knees: Bend!
2. [Heels: Raise! Arms outwards (or forwards): Stretch!] Hands Turn! One! Two! Three! Four!
3. [Hips: Firm! Knees: Bend!] Head to the right: Bend! Stretch! To the left: Bend! Stretch! Head forwards (backwards): Bend!



4. [Hips: Firm!] Trunk to the right (left): Bend! Stretch! Trunk forwards (backwards): Bend! Stretch!
5. [Hips: Firm!] Right (left) knee upwards: Bend! Backwards: Stretch! Feet: Change!
6. Trunk to the right (left): Turn!  
" to the right: Bend! Stretch!
7. [Feet: Close! Right (left) foot three distances forwards: Place!] Arms upwards: Stretch! Bend!  
" outwards: " "  
" forwards: " "  
" backwards: " "  
" downwards: " "
8. [Hips: Firm!] Heels: Raise! Trunk to the right (left): Turn! Forwards: Turn! Stretch!
9. [Feet: Close! Right (left) foot two distances forwards: Place!] Trunk forwards (backwards): Bend! Arms outwards: Stretch! Hands: Turn! One! Two! Three! Four!
10. [Hips: Firm! Heels: Raise!] Right (left) knee upwards: Raise! Forwards: Stretch!

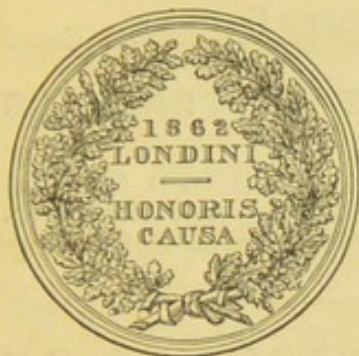
## TABLE X.

1. Hips: Firm! Right (left) foot two distances forwards: Place! Heels: Raise! Right (left) knee: Bend! Stretch! Feet: Change!
2. [Trunk to the right (left): Turn! Trunk backwards: Bend!] Arms upwards: Stretch! Bend! Downwards: Stretch!
3. Feet: Close! Right (left) foot two distances forwards: Place! Heels: Raise! Trunk forwards: Bend! Stretch!
4. Right (left) knee upwards: Raise! Backwards: Stretch! Knees: Change!
5. [Hips: Firm! Trunk forwards: Bend!] Head: Backwards: Bend! Stretch!
6. [Feet: Close! Right (left) foot two distances forwards: Place! Heels: Raise!] Trunk to the right (left): Bend!
7. Hips: Firm! Right (left) foot three distances forwards: Place! Heels: Raise!
8. Arms upwards: Stretch! Heels: Raise! Knees: Bend! Stretch





# INTERNATIONAL EXHIBITION, OF 1862.



CLASS 29.  
EDUCATION.

## PRIZE MEDAL

AWARDED TO

DR. M. ROTH,

FOR MODELS AND EFFORTS IN BEHALF OF PHYSICAL EDUCATION.

### DR. ROTH'S GYMNASTIC MODELS.

These Gymnastic Models have been published by Messrs. JOSEPH, MYERS & Co., of 144, Leadenhall Street. They are executed in Papier maché, each Model being twelve inches in height. The price of the set of Twenty-four, mounted on hard wood, is £3. Sets of Dr. ROTH'S Models can be seen in the Kensington Museum; in the Home and Colonial Training School, Gray's Inn Road; in the English and Foreign School, Borough; in the Institution for the Blind, Avenue Road, St. John's Wood; and some Private Schools. They will be found useful for purposes of Physical Training, not only in Public and Private Schools, and Asylums for the Blind, Deaf, and Dumb, but also in Private Families.

### DR. ROTH'S GYMNASTIC GAMES.

These consist of a series of thirty-six Cards. Each Card presents an accurate representation of some position in which the body is to be placed, as a Gymnastic Exercise. The Cards are accompanied by instructions explaining the methods of playing, by means of them, various Interesting Games, thus affording much amusement; while, at the same time, they are most efficient in promoting a healthy development of the muscles, and form a system of physical training. Price, in a strong gilt cloth case, 1s. 6d.; in morocco leather case, elegantly gilt, 2s.

All Works, Models, Diagrams, &c., published by Dr. ROTH, can be had through Messrs. JOSEPH, MYERS & Co., 144, Leadenhall Street.



# DR. ROTH'S WORKS.

*Just published, price 3s. 6d.,*

## THE PREVENTION OF SPINAL DEFORMITIES, ESPECIALLY OF LATERAL CURVATURE;

With notes on the causes, the artificial production, and the injurious modes of treatment of these complaints. With Fifty-three Engravings.

*Price Sixpence,*

## TABLE ADAPTED TO THE USE OF TEACHERS AND PARENTS,

SHOWING A FEW INJURIOUS POSITIONS TO BE AVOIDED DURING THE TIME OF EDUCATION AND GROWTH; AND SOME DEFORMITIES OF THE SPINE, produced partly by bad positions, and partly by tight lacing. With Forty-six Engravings.

*Price One Shilling,*

## TABLE OF GYMNASTIC EXERCISES ON APPARATUS.

According to the rational system of LING. With Eighty Illustrations.

## ON SCIENTIFIC PHYSICAL TRAINING AND RATIONAL GYMNASTICS.

A Lecture delivered by Dr. ROTH at the Royal United Service Institution, at the request of the Committee, and published in Vol. VII. of the Journal of the Royal United Service Institution. 1863.

## DR. ROTH'S INSTITUTIONS,

16a, OLD CAVENDISH STREET, CAVENDISH SQUARE, LONDON, W.,

And 21, GLOUCESTER PLACE, BRIGHTON.

ESTABLISHED IN 1850, FOR THE

## TREATMENT OF DEFORMITIES AND MANY CHRONIC DISEASES, AND FOR THE STRENGTHENING AND DUE DEVELOPMENT OF THE HEALTHY BODY, AND IMPROVEMENT OF THE FIGURE.

PATIENTS desirous of being treated by Movements have a preliminary consultation with Dr. ROTH, without which he cannot prepare the prescription of Movements suitable to their case.

In this Institution NO RATIONAL MODE OF TREATMENT WHICH CAN CONTRIBUTE TO THE CURE OF DEFORMITIES AND CHRONIC DISEASES IS EXCLUDED, but the principal means employed are:—

I. The *Medical Gymnastics* comprised in the system of LING, a system altogether different from Gymnastics as hitherto practised, and also known as the Swedish Gymnastics.

II. The (so-called) *Russian Bath*, a combination of the various local and general applications of cold and warm water and vapour, according to Dr. ROTH's invention.

III. The *Water Cure*, as commonly practised in Hydropathic Institutions.

No machines or straining instruments are used in the treatment of spinal diseases, and the torture of lying constantly on the back or stomach is entirely avoided.

Patients are not received as inmates, but there are many establishments in the immediate neighbourhood where Board and Lodging may be conveniently procured.

The Patients perform the Movements prescribed, by the assistance of Dr. ROTH or male or female attendants.

Further particulars can be obtained at Dr. ROTH's Institution, at London or Brighton.



**WORKS BY M. ROTH, M.D.,**

PHYSICIAN TO THE INSTITUTION FOR THE TREATMENT OF DEFORMITIES AND CHRONIC DISEASES  
BY MOVEMENTS AND THE RUSSIAN BATH, ETC., ETC.

*Price 10s., with Ninety Engravings,*

**THE PREVENTION AND CURE OF MANY CHRONIC DISEASES BY  
MOVEMENTS.**

An Exposition of their Principles and Practice, for the Correction of the Tendencies to Disease  
in Infancy, Childhood, and Youth, and for the Cure of many Morbid Affections in Adults.

"The work before us proposes to cure.....diseases through the beneficial influence of movements and mechanical appliances.....In certain chronic and functional maladies, physic alone will not achieve the results desired.....The most rational section in the work is that on dress.....Dr. Roth insists, and very properly, on the ill consequences of stays: and when the matter is seriously considered, we believe that an immense amount of human suffering, and even great saving of human life, would be consequent upon the total discarding of stays. The illustrative engravings are admirably executed, and the book well got up."—*Lancet*.

"Dr. Roth's is the first work that has appeared in England, which gives a clear and lucid account of the practice, and we hail its appearance with great satisfaction."—*British Journal of Homœopathy*.

"This is altogether a novel but valuable addition to our medical literature.....The most prominent feature of the present system is its extension beyond the limits of ordinary gymnastics to diseases other than spinal curvatures, club-foot, contractions, etc. In the present work we find indications for its application in asthma, incipient consumption, contracted chest, and many diseases of internal organs.....Dr. Roth deserves our best thanks for the publication of this system for the first time in an English dress, thereby opening up a novel and very important branch of professional knowledge to our study."—*Hom. Times*.

*Second Edition, price 2s. 6d., with Fifty-eight Illustrations,*

**THE GYMNASTIC FREE EXERCISES OF P. H. LING,**  
ARRANGED BY H. ROTHSTEIN.

TRANSLATED, WITH ADDITIONS, BY M. ROTH, M.D.

A Systematized Course of Gymnastics, without Apparatus, for the Development and Strengthening of the Body and Improvement of the Figure. Adapted to the use of medical men, teachers, military men, and parents

*Price 1s., Second Edition,*

**THE RUSSIAN BATH;**

Published with a view to recommend its Introduction into England for Hygienic as well as Curative Purposes; with some Suggestions regarding Public Health, addressed, by permission, to the Right Hon. W. F. COWPER, President of the Board of Health.

"Dr. Roth's book gives a brief account of the Egyptian, Turkish, Russian, and other Baths, and ought to be read by the members of our profession as well as by the public."—*Medical Circular*.

"We have the testimony of many distinguished continental physicians to the wonderful remedial powers of this kind of bath, and we are glad to learn that Dr. Roth has not contented himself with describing its benefits, but has actually set about the construction of such a bath, on a large scale, in connection with his Gymnastic Institution. We recommend a perusal of Dr. Roth's little Pamphlet, and we heartily join the author in his hope that it may be the means of introducing the Russian Bath into general use in England."—*Brit. Hom. Journal*.

*With Forty Illustrations, price 6d.,*

A TABLE OF A FEW

**GYMNASTIC EXERCISES WITHOUT APPARATUS,**  
ACCORDING TO THE RATIONAL SYSTEM OF P. H. LING.

For the due Development and Strengthening of the Body and Improvement of the Figure.  
Adapted to the use of teachers and pupils.

*Third Edition, with 42 Illustrations, price 1s.,*

**MOVEMENTS OR EXERCISES ACCORDING TO LING'S SYSTEM,**

For the Development and Strengthening of the Human Body in Childhood and in Youth.

London: GROOMBRIDGE AND SONS, 5, PATERNOSTER ROW.



*Price 1s.,*  
ON THE IMPORTANCE OF  
**RATIONAL GYMNASTICS AS A BRANCH OF EDUCATION.**  
**A LETTER TO EARL GRANVILLE.**

London: GROOMBRIDGE AND SONS 5 Paternoster Row.

---

**LATEST WORKS ON THE MOVEMENT-CURE**

*Just published, price 10s., with 155 original Engravings,*  
THE

**HANDBOOK OF THE MOVEMENT-CURE.**

By M. ROTH, M.D.

Physician to the Institution for the Treatment of Diseases by Movements and the Russian Bath,  
Old Cavendish Street, London, and to the Institution, Gloucester Place, Brighton, etc., etc.

**Dedicated to those Medical Practitioners who Examine before they  
Condemn.**

**CONTENTS.**—Description of the Positions, Movements, and Manipulations used  
for Preventive and Curative Purposes, according to the system of Ling and his  
disciples; with Cases illustrating the treatment of Spinal and other Deformities,  
of Pulmonary and Abdominal Complaints, of Paralysis, Goitre, Ruptures, Hypo-  
chondriasis, Hysteria, and other Chronic Diseases, by the scientific application of  
Movements.

London: GROOMBRIDGE AND SONS, 5, Paternoster Row.

---

*Just published, price 3s. 6d., with 38 Engravings.*

CONTRIBUTIONS TO THE  
**HYGIENIC TREATMENT OF PARALYSIS,**  
AND OF  
**PARALYTIC DEFORMITIES.**

Illustrated by Numerous Cases. With a Short Sketch of Rational Medical  
Gymnastics, or, the Movement-Cure.

By M. ROTH, M.D.

Dedicated to Medical Practitioners who, unworped by preconceived notions,  
consider it their duty to examine new applications of known means or new methods  
of treatment, and, if convinced of their efficacy, have the courage to advocate  
them, although they may not be approved by orthodox and common routine prac-  
titioners, who condemn what is unknown to them, without taking the trouble to  
investigate it.

London: GROOMBRIDGE AND SONS, 5, Paternoster Row.

---

*Just published, price 1s., with 38 Engravings,*

A SHORT SKETCH OF  
**RATIONAL MEDICAL GYMNASTICS, OR THE MOVEMENT-CURE.**  
BY M. ROTH, M.D.

London: GROOMBRIDGE AND SONS, 5, Paternoster Row.



