The gymnastic free exercises of P.H. Ling : a systemized course of gymnastics without apparatus, for the developing and strengthening of the body and improvement of the figure : adapted to the use of medical men, teachers, military men, and parents / arranged by H. Rothstein ; translated, with additions, by M. Roth.

THE

GYMNASTIC FREE EXERCISES

OF

P. H. LING,

ARRANGED BY H. ROTHSTEIN.

TRANSLATED, WITH ADDITIONS, BY

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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.

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PREFACE.

ADVANTAGES OF A NATIONAL INTRODUCTION OF LING'S FREE EXERCISES.

In my work, "The Prevention and Cure of Chronic Diseases by Movements," I called the attention of the profession and of the public to that part of Ling's system which relates to the cure of disease. A portion of the work was devoted to a few of the elementary exercises proper for the development and strengthening of the healthy body. This part has since been published separately as a pamphlet, under the title of "Movements or Exercises according to Ling's System, for the due Development and Strengthening of the Human Body in Childhood and in Youth," and has been well received by the public.

Being daily more and more convinced of the importance of Ling's system, I have endeavoured still further to promote its introduction into this coutry by translating the present book, and I have added some remarks on the importance of rational gymnastics to the healthy as well as the ailing, and the Appendix. The system of Ling is destined, I believe, to become a most important branch of any system of

education which aims at producing harmony between mind and body, and the time will and must come when the development of our bodily powers will be considered as imperative as the education of our mental faculties.

People are generally very ignorant about gymnastics, or the art of a harmonious development of the body and mind, and the few who think about physical education at all, believe that climbing on ropes and poles, leaping, and athletic exertions as used in the majority of the so-called gymnasiums, are all that is necessary for the development of the body.

Many parents, tutors, and principals of educational institutions think it enough to engage a drill-sergeant, or a teacher of callisthenic movements, for the purpose of giving their pupils the appearance of a straight figure, and to provide certain apparatus on which the pupils may hang, climb, swing, or make any other *tour de force* at their own option; all systematic instruction in this branch is necessarily neglected, because the teachers themselves generally have not even the most elementary knowledge of anatomy and physiology—a knowledge which ought to be deemed indispensable in a gymnastic teacher.

It is very singular, observes Rothstein, that we would not confine the care and training of a valuable horse to a man who had not a knowledge of the animal's anatomy and physiology; while the man who is intrusted with the development and strengthening of the human body is not expected to possess so much science as is deemed absolutely necessary in the trainer of our horses.

Scientific gymnastic instruction should be introduced into every *training* school, in order to form schoolmasters and schoolmistresses, who, knowing the elements of anatomy and physiology, would be able to make national in England a system which contributes not only to the bodily development and to the preservation of health, but at the same time to the prevention of so many spinal and other deformities, as well as scrofulous, rickety, and consumptive diseases; by such a diminution of disease amongst the working-classes the number of destitute poor must be necessarily diminished.

Another advantage of a national introduction of Ling's system, as far as it regards the healthy, would be to enable every man, in cases of emergency, to become in a short time an able defender of his country, by sea or land. For military drilling is but a part of gymnastics by which the soldier learns to exeeute with exactitude and precision certain bodily movements at word of command.

In this point of view the importance of gymnastics has been appreciated in France, Sweden, and Russia, and lately the Prussian Government has established at Berlin a Central Gymnastic Institution, on Ling's principle, for the training of civil and military teachers, whose duty will be to introduce Ling's system into all the military and private schools in Prussia.

A third and, according to my conviction, a great advantage of a national introduction of Ling's system would be the neutralizing of so many injurious influences acting upon the working-classes, who, obliged to remain for hours in the constrained position neces-

sary in many occupations, suffer accordingly, as we see in needlewomen, clerks, etc.

These advantages would be considerably increased by combining with elementary education, generally, the knowledge of hygiene, by which we might avoid the effects of many of the evil influences constantly tending to derange the health.

In female educational institutions, in institutions for the blind, in those for the deaf and dumb, and idiots, the advantages of Ling's system would very soon be evident.

For the purpose of theoretical and practical instruction in Ling's system, in its relations to the healthy and the diseased, a course will be established in my Institution, to which gentlemen of the profession as well as laymen may be admitted; the latter will also have an opportunity of learning the elements of anatomy and physiology, illustrated partly by diagrams, partly by artificial anatomical figures.

For ladies, whether children or adults, certain appropriate exercises for the cultivation of gracefulness and strength are selected, and form a special course, to which only ladies are admitted, and for which there are female attendants.

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ON THE IMPORTANCE OF GYMNASTICS

TO THE HEALTHY AS WELL AS TO THE AILING.

ALTHOUGH the Free Exercises, according to Ling's system, are quite different from those used in the common gymnastics, and require no apparatus at all, their influence is so important upon mind and body, that it may be worth while to enumerate their advantages, in order to counteract those prejudices which have hitherto opposed the general introduction of the system into schools, colleges, universities, and military establishments. Were these exercises made an essential and indispensable part of education for both sexes, many diseases, which are the consequences of neglected bodily development or of constitutional debility, might be prevented; by this prevention of disease, the number of infirm and ailing poor would be considerably decreased, and at the same time their mental faculties more developed. In the military department, the drilling of soldiers and of the new militia would be made more simple and more rational.

So far as gymnastics are capable of preventing diseases and preserving health they belong to dietetics, or the science which treats of the healthy and injurious influence of all those things which surround us in common life, under which class are included food, drink, dress, air, exercise, etc.

It cannot be denied that the art of preventing disease is far preferable to that of curing it. Galen, the celebrated physician, thought that the best physician was he who was the best teacher of gymnastics, in the sense in which he understood the word, viz., as a part, and the most important part, of dietetics. Gymnastics constitute a very important means of preserving health. Rousseau says, "The body must be healthy in order to obey the soul,

a good servant must be strong; the weaker the body, the more it encumbers and weakens the soul." It is known by experience that a muscle unexercised not only loses power, but that it becomes changed in its form and consistence; this is shown by the diminution of its volume, by its softness and relaxed state, and in the highest degree of a continued inactivity it is changed into a mass similar to fat and wax mixed together. Frequent exercise and labour increase the density of the muscles, so that even in the state of relaxation they have a degree of firmness and hardness which the unexercised muscle scarcely attains during its contraction.

As many of the gymnastic exercises act in such a way that the flexibility of the joints in all directions is increased or preserved, persons accustomed to these exercises acquire a high degree of suppleness and flexibility, combined with firmness.

Gymnastic exercises increase the influence of our will on the muscles, so that they are brought into prompt and rapid action at the instant of volition. The combination of muscular force, flexibility, and prompt obedience to the will give to the body the pleasing and graceful appearance of firmness, steadiness, and dexterity in the positions and in the use of the limbs.

Gymnastics further the proportionate development of the body, and are especially effective in opening the chest and strengthening the lungs. It is a known fact that many spinal curvatures and deformities of the legs may in very many cases be traced to muscular weakness, which is often followed by scrofula and rickets, and the best, surest, and it may be said only preventive is muscular exercise—gymnastics; by which the body not only acquires a straight and firm position, but the constitutionally narrow chest is enlarged, by the strong back pull of the shoulders, by the protruding of the chest, and by slow and deep breathing, as practised, for instance, in the run

with closed mouth, continued for a certain time. We know that the health and the lives of many youths are endangered by their too quick growth, in a great measure from the chest not being sufficiently developed, consumption being thereby induced, and partly from the extraordinary weakness which accompanies quick growth, making the youth incapable of any energetic muscular contraction.

A very essential and important use of gymnastics is the prevention of obesity, which is more or less a consequence of a certain degree of weakness. This fatness is often seen in weak persons after previous excess of wines and spirits; after frequent bleedings; in persons suffering from weak digestion, diseases of the liver, or those who indulge too much in very nourishing food, especially persons of phlegmatic temperament. All these are constantly in danger of an apoplectic fit, of general dropsy of the skin, and dropsy of the thorax; they often become, if not of a very sanguine temperament, dull in body and melancholy in mind. This condition is perfectly prevented by gymnastics as a strengthening means, and if the condition is already developed, it is the only palliative. It is easily explained by the derivation of the nourishing material, which is used up by the increased activity of the muscles, and the improved power of digestion, the consequence of increased exercise.

The skin becomes more active with regard to the circulation of blood, and the increased functions of the cutaneous and sudatory glands; the nerves of the skin are less impressionable to the influence of heat and cold and the change of climate. Thus those influences which so frequently produce changes in our health become inoperative. The circulation and the formation of blood, and the different secretions, are made more regular by gymnastic exercises, and Frederick Hoffmann says that a strong bodily exercise is often a real and uninjurious preventive in the beginning of many diseases.

We have already mentioned the influence of exercises on the nerves and circulation, but as these systems are in most intimate relation with the organs of digestion, gymnastics indirectly improve and strengthen these important organs. The equilibrium between the food and waste is re-established, and instead of a fanciful desire for sweets and such things, an appetite for real food is excited. Sleep, that necessary restorative, becomes more regular, and is more enjoyed after exercises. The senses are sharpened and their faculties increased. Having thus mentioned, though very briefly, the power of gymnastics in the prevention of disease, we will give some instances of their curative power, which is very soon visible in the treatment of that general narrow-chested constitution so frequently found amongst persons of the higher class, and those who lead a sedentary or studious life. In the beginning of consumption, in hypochondriasis, in piles, and other abdominal diseases, they are the most important means of cure. So also in nervous debility, hysterical irritability, and other nervous diseases, especially if the consequences of a too early development of puberty. It is known that scrofula disappears after the use of gymnastics. J. P. Frank mentions the following. "We see daily many children with large stomachs and with constipation of the intestines cured as soon as they begin to walk and move freely." Galen says that if diseases take hold of particular parts of the body, and fix themselves there for a long time, there is nothing more efficacious or more sure to drive out the enemy from his position than diligent exercise and use of the limbs. Herodicus, the celebrated teacher of Hippocrates, cured himself and many others of a continual predisposition to disease by gymnastics, and, notwithstanding his weakness, reached the age of a hundred years. Galen, who was weak till the age of thirty, became strong and healthy, only by devoting several hours daily to gymnastic exercises, by which he also cured

many weak and ailing people. Fred. Hoffmann, who cites Galen, Avicenna, Sanctorius, and Lord Bacon, declares gymnastics to be almost a universal medicine, because there is no disease, he says, whose further development could not be prevented, or which could not, at its commencement, have been cured by bodily exercise.

We may be allowed to mention the great influence of the exercises on the mind, because in the same way as mental influences produce certain actions and movements of the body, so do the latter influence the former. The psychical use of gymnastics consists in the influence produced by them through the body upon the mind; and in their direct action of strengthening single faculties of the mind.

"It is a soul, not a body only which we educate; it is a man of whom we must not make two; we must not train the one without the other, but must guide and lead them like a pair of horses harnessed to one shaft." These are the words of the great philosopher Montaigne.

Certain it is that only in this way can man arrive at the highest possible degree of perfection, viz., with all his faculties and powers well exercised and uniformly strengthened and developed. This equality is the one sole condition of bodily and mental health. Plato says: "The excess of bodily exercises may render us wild and unmanageable, but the excess of arts, sciences, and music makes us too faddled and effeminate; only the right combination of both makes the soul circumspect and manly." Hufeland advises us to let the child till the seventh year pass the greatest part of the day in bodily movements and gymnastic games of every kind, and mostly in the open air, because that is the most healthy. This strengthens more than we can at first believe; gives to the body a proper activity, uniform distribution of power, and of the humours, and in the surest manner prevents deformities and other faults of development.

"It is a great prejudice to suppose that we cannot begin too early our intellectual education. We do begin too early when we choose that period in which nature is still engaged in the development of bodily strength and organs, and where all her power is required for this purpose. If children are then compelled to sit quietly in a room, and their young minds urged to action, we take from them the noblest part of their strength, which is consumed in the function of thinking; growth is necessarily retarded, the limbs imperfectly developed, the muscles weakened, the digestion becomes bad, scrofula appears, and then ensues a predominance of the nervous system in the whole machine, which exhibits itself during lifetime in nervous diseases, hypochondriasis, etc. If the child is very early disposed to think and to learn, we should, instead of encouraging this tendency, as is usual, rather prevent its being indulged, for such precocity is in most cases itself a disease, or at least an unnatural condition, which is to be avoided. Any unequal development of our faculties is injurious, and it is certain that mental exertions weaken the more as they are unaccompanied by bodily movement. It is also certain that he who between his mental occupations goes through suitable bodily exercises can work mentally much more, and with less injury to his health, than another who neglects his bodily powers. We will not increase the number of quotations in favour of these views."

Gymnastics act on the courage, and produce independence and presence of mind. No man can possess much courage whose chest is narrow, and whose lungs are not fully developed. A laborious and continued mental occupation and much thinking weaken and shorten our breathing to such a degree, that the observer scarcely perceives that we breathe at all. It is easy to be understood that diminished activity of the lungs, if continued, must have an extremely weakening influence on those organs,

and tend to contract the chest. The capacity of the chest is the physical limit of courage. We find at the moment that courage awakens—at the moment, for instance, of a generous impulse—a considerable widening of the chest, but on the contrary, we see the narrow chested incapable of such sensations.

With the development of real courage that of presence of mind is coincident.

Gymnastics produce cheerfulness, and restrict our fancy and imagination to reasonable limits; they diminish also the predisposition to those moral faults which undermine bodily health and moral purity. The intellectual faculties are prepared by exercise for their future development. "If you wish to develope the mind of a pupil, develope the power which that mind has to govern, exercise his body; make him healthy and strong, that you may make him prudent and reasonable" (*Rousseau*).

Gymnastic exercises appear also to act by their physical influence in contributing to the development of mind, and Frederick Hoffmann mentions that he made people, naturally stupid, comparatively intelligent by prevailing on them to take gymnastic exercise.

Exercise is furthermore an assistant to the intelligence, inasmuch as it is the most suitable interruption to mental labour, and the best recreation after it. Uninterrupted mental exertion makes the mind heavy, dull, and almost paralysed, and even gives it a false direction.

The strengthening of the body and of the nervous system diminishes, and in a high degree too, the craving and the taste for sensual pleasures. Rousseau says all sensual passions are found in effeminate bodies, the more they are roused, the less they can be satisfied. A weak body weakens also the mind.

A regard for the common good and a willingness for self-sacrifice are most developed in strong and healthy people, who, from their very bodily condition, are least

likely to be dwelling with morbid solicitude upon their own feelings and circumstances.

Gymnastics, by giving the man power over his own body, exercise a considerable influence on morality. Hufeland says, "Give the child daily sufficient muscular motion, so that the natural store of strength may be used and derived by the muscles of volition. A child should run, leap, etc., daily, and use his strength in the open air till fatigue follows, and I am sure he will not think of vicious practices; these are the characteristics of the sedentary education of boarding-schools, and such monastic establishments where exercise is measured by half-hours."

The feeling of friendship and the development of sympathies are also consequences of gymnastics practised in concert with others, as is also the sense for order, precision, space, and time, and a habit of obedience, which are gradually more and more developed.

We must also call the attention of parents, teachers, and medical men to the abuse of gymnastic exercises, and we take it for granted that nothing in the world is so good as not to be injurious if used to excess; this has been already said by Frederick Hoffmann of bodily exercises, and every reasonable person will agree with him.

While we cannot shut our eyes to the immense advantage resulting from gymnastics, we must not, on the other hand, be seduced and blinded by enthusiasm for the good cause so far as to believe that the advantage is in proportion to the increased quantity; only the right measure is the wholesome one.

It is not needful to sacrifice so much time to the gymnastic exercises as to retard the intellectual education of the pupil. They must be regarded only as the means for the attainment of higher aims, and not the aim itself. So, again, they must not be considered merely as an amusement, but as something more, and far superior.

GYMNASTIC FREE EXERCISES.

INTRODUCTION.

§ 1. UNDER the name of Free Exercises, in the system of Ling, are included such exercises as are performed without the help of technical apparatus; for instance, masts, balancing-beams, ropes, ladders, dumb-bells, leaping-bars, etc.

The movements in the free exercises are done on the ground if in the open air, on the floor if within doors, without any supporting apparatus. There is a certain class of free exercises in which a support is used, but then it is not that of any technical apparatus, but a living one, effected by a mutual apposition of the hands, arms, legs, etc., of the individuals performing the exercises.

§ 2. The ultimate aim of rational Gymnastics is the harmonious development of the physical and psychical life of man; and this development may be attained by Ling's Free Exercises, which are an essential and complete branch of Pedagogical Gymnastics. Medical Gymnastics make use of them principally in the after-cure or treatment of the convalescent. In Military Gymnastics they form the wrestling exercises; and Æsthetic Gymnastics consist of free exercises only.

The highly celebrated Greek Gymnastics consisted,

with but few exceptions, of these free exercises alone, and the results which were produced by them on the population of Greece is a sufficient proof of their efficiency. The different species of free exercises consist—1st, in movements of the limbs on the spot, and without reciprocal support; 2ndly, in movements from the spot, and without support; 3rdly, in movements, with support; 4thly, in wrestling exercises; 5thly, exercises belonging to the Æsthetic Gymnastics.

§ 3. Gymnastic exercises consist in movements of the body. All movements require space and time, and gymnastic movements require a determined form of space and time. It is this settled and determined amount of space and time in which the movement must be made, that gives such movement a value, not only in developing the body, but with regard to the effect on the mental and psychical nature of man.

To raise the arms from a hanging position, in a loose random way, without thinking, and to stretch them in the air, can have little corporeal effect, and certainly no mental one; but to stretch the arms in a manner and direction and with a velocity, all previously determined and exactly prescribed, and then to move their different parts (upper and fore-arm, hand and fingers) precisely as determined and commanded, this is an exercise which, independent of the physiological effect on these limbs, tends to awaken and sharpen the sense of space and time. To learn to leap very far or very high, it is not necessary to have special gymnastic instruction; but to be enabled to leap in a certain way, with the least possible expenditure of power, with great certainty and precision, with graceful ease, with

nice regard to distance, etc. etc., this is a matter calling for skilful and systematic instruction, and such a system constitutes gymnastics.

§ 4. The different forms of gymnastic free exercises, with regard to space, depend of course principally on the different articulations of the frame, and the pliability of the limbs in this or that direction, according to their anatomical structures. The position in which the body is when about to execute a certain movement, is called *the commencing position* of that movement.

The commencing positions may therefore vary infinitely in the free exercises; for instance, we have the fundamental position, stride position, walk position, close feet position, stretch position, etc. etc.

The fundamental position is the ordinary perfectly upright position: the heels close, and the feet forming a right angle with each other.

The close position differs from the previous only in this, that the internal edges of the feet are brought together.

The stride position is taken by sliding the feet sideways from each other, until there is a certain interval between them.

The walk position is assumed by setting one foot forward as if going to take a step; or similarly backwards.

The stretch position has the arms stretched vertically upwards.

Compound commencing positions are formed of two or several simple ones; as, for instance, the stretch close position, in which the arms are in the stretch, and the feet in the close position.

The different forms of gymnastic movements, with regard to space, are affected also by other causes besides those before mentioned; this is principally the case in those free exercises in which the person moves from the spot, and in which the line of movement describes certain symmetrical figures. Thus it is possible, in the walk and run exercises, to move in a straight, circular, or serpentine line, etc., and each of these modes of moving from the spot has some special characteristic with regard to the developing influence of the exercise. The greatest diversity in the different forms, with regard to space, is exhibited when a large number of persons move together, according to a certain model form, acting in concert as a tactically articulated whole, forming groups, and executing different evolutions.

§ 5. In the forms of the exercises with regard to time, the following is to be observed:—

The importance of the rhythmus and time of the movements is very great. The single motions of the exercises are to be compared to a speech spoken in an articulated manner, inasmuch as the articulation of words during speaking consists in movements of certain muscles and parts of the body done in a certain time. Each syllable which is pronounced is a motion, and each word is a movement, and when several words are pronounced and follow each other according to a determined metrical law, then the movements of the organs of speech become rhythmical movements, as, for instance, in declamation.

Therefore, for both groups of movements, for the movements of speech as well as for the movements of

the limbs, there exist the same laws of metre. The metrical development of the speech is made an important object of education; but with regard to the exercises of the limbs, the metrical laws have been very little or not at all thought of, and it is a great advantage of Ling's Gymnastics that this is made one of the principal features.

§ 6. Tempo (time, motion) is a measure of time or of the celerity with which a movement is made. Celerity, however, is but a relative term, as the movement which in one point of view is a slow one, may in another be a quick one. To fix its value therefore, we must assume as a standard a certain unit of measure, in the same way as in the determination of space. From the habit of using the astronomical division of time in the usual pursuits of life, a notion of quick and slow is pretty common among men, and a tolerably uniform idea is attached by all to those terms.

§ 7. The general distinction into slow and quick time is not enough. It is necessary also to consider how the movements follow each other, and are dependent on each other. Even movements apparently the most simple (as, for instance, a pace, a jump, a fencing pass, etc.) are all compounded of simple elements. The most simple leap comprises a raising of the heels, a flexion of the foot and knee joints, etc., forming the first part of the leap; a strong stretching of different joints, etc., in order to spring from the ground, and, finally, another flexion and stretching of the different limbs, in order to finish the leap and return to the previous upright position.

Thus in so simple a movement as the leap there are

three principal parts, clearly distinguishable, which follow each other, and each of these parts consists of smaller ones also distinguishable. Therefore, for a complete consideration of the leap, we have not only to see that it is done with a certain amount of quickness, but that the different motions follow each other in a certain way and in a certain time, and that the separate motions bear a determined relation to each other with regard to time. A perfectly simple movement would be a movement in which only one articulation is moved: it is similar to a syllable of speech or to a monosyllabic word pronounced by itself. In the same way as in parts of speech a compound word, a phrase, a sentence, constitute a definite and intelligible expression of our thoughts, so a compound movement tends to a definite end, answering to its purpose if executed with the appropriate articulation.

§ 8. As each simple movement, with regard to the tempo, involves a certain measure of time, so the compound movements, and those which follow each other, must also be executed in a certain measure of time or in so many single consecutive measures. It is an indispensable quality of the rational teacher to divide each movement into its constituent motions or elements, and to mark them during their performance by counting. This is not the place to show that it is only in this way we can become conscious of the form and signification of each movement, or the exercises become conscious actions. This is also the cause why gymnastic exercises are not only a means for the development of the body, but also for that of the mental and spiritual man. The mind is taught to govern the

body, and every articulation and limb is habituated to a prompt and ready obedience to the will.

§ 9. The measure of time, or the tempo, must also be viewed in a special way, as far as it regards the gymnastic free exercises. If we see a whole series of movements, either one exercise repeatedly executed according to a certain law, or different exercises following each other according to a similar law, then we have the rhythmus; the movements become rhythmical, and the various motions appear as parts of a certain measure of time. Military marching may serve as an instance; it consists of one principal movement, the repeatedly executed pace, which, being alternately done by both feet, appears as a double movement, which in its repetitions produces the movement of walking, and this, if the same tempo is observed for both feet and for the repetitions, becomes a rhythmical walking or marching. Each pace is a tempo, a part of a measure, which finishes with the setting down of the advanced foot.

The special rhythmical relations of walking and marching, as well as in general of all the advancing foot movements, are made sensible either by directing our attention principally to one foot while the other is comparatively disregarded, and thereby to our imagination the steps of the first foot appear the heavier and stronger, or the rhythmus may be observed by marking more prominently the steps of one of the feet, or in general certain steps, which are, so to speak, somewhat more accentuated, either by a really more vigorous tread, or by resting longer with one foot on the ground, or by executing at certain steps corresponding

movements of other limbs (clapping together of the hands, for instance, inclination of the upper part of the body, etc.); in this way originate rhythmical forms of time, which show themselves as determined metrical articulations. To exhibit movements in such pleasing and beautiful forms is an essential branch of Æsthetic Gymnastics. Here gymnastics enter into the most intimate sisterhood with music; nay, in these exercises and representations they are music itself.

ON THE ARRANGEMENT OF FREE EXERCISES IN GENERAL.

§ 10. The free exercises, or at least a part of them, may be executed by one person alone; but certain classes of exercises can be done only in combination with others, and therefore, if only a single person is exercised, many of those essential points are lost which contribute to the harmonious development of mind and body. The free exercises have their greatest value when done by many together, and under the direction of an experienced teacher. The number of pupils may be very large, and is only limited by the extent of the place of exercise. Nevertheless at first, while the different forms of exercises are imperfectly known, it is best to restrict the number to smaller parties of ten or twenty persons, before we begin to exercise large parties of thirty to fifty.

§ 11. An orderly and exact execution of the gymnastic free exercises by many persons at once is made possible, by their being done, as in military exercises,

at word of command. The orders must be short and significative, and pronounced in an impressive voice, as on the military parades.

(1.) In the order for the gymnastic exercises we must distinguish the announcing command and the special execution command, between which a short pause is necessary.

In the order, for instance, "*right knee upwards—bend,*" the three first words form the announcing order, and this, after a short pause, is followed by "*bend,*" pronounced with a strong intonation, forming the execution order.

(2.) The announcing order describes generally the limb which is to be moved and the direction of the movement; the execution order describes shortly the mode of movement or action.

(3). Although the execution order, compared with the announcing order, has always the stronger intonation, still it is not always uttered suddenly; it depends upon whether the movement is to be done in quick or slow time—the execution order being uttered quickly or slowly accordingly.

All movements of the trunk and head must, in comparison with the movements of the limbs, be done in slow time. Therefore, in the order "*trunk right sideways—bend,*" the word "*bend*" must be pronounced slowly; in the same way, if a run is to be finished by a stop, the word "*stop*" must be pronounced sharp and short, or long and drawled out, according to whether the stop is sudden or more deliberate.

(4.) In later lessons, for the sake of shortness, two

full orders are combined into one; this is done by the word "and." The two combined words must be pronounced quickly, one after the other, and only the second execution order interrupted and accentuated. The break occurs in the second, thus: "*hips firm and feet—closed.*" A similar combination very frequently used is, for instance, that by which the simultaneous closing of the feet and grasping of the hips is ordered, viz., "*hips firm and feet—closed.*" Here the order should be, properly, first, "*hips firm,*" and then "*feet closed.*"

(5.) When a movement of a certain limb is executed in a certain direction, for instance to the left, and then immediately after with the same limb to the right, it is not necessary in the order to repeat the name of the limb to be moved. The same takes place if flexion and extension of one and the same part are to be executed quickly one after the other.

(6.) When movements for the limbs are not to be executed equally with the limbs of both sides, but unequally, then as soon as the first movement is executed, the order "*arms* (*feet*) *change*" follows, in order to move both limbs in a similar way, by a different execution of the movement. For instance, in the arm extensions, after "*right arm upwards, left arm forwards, stretch,*" as soon as the stretching is executed, instead of the order "*right arm forwards and left arm upwards, stretch,*" nothing is necessary but "*arms change.*"

§ 12. It has been shown that the marking and counting of the time is very essential in the free exercises. It must be understood that if the move-

ment itself has but one tempo, it is not advisable to count. This is the case not only in every absolutely simple movement, but also in those compound movements in which different limbs are moved at the same time. Thus at the order "*arms upwards—bend,*" the movement is done in one motion, although it is not an absolutely single one; for, besides the forearm being bent towards the upper arm, the hand is also bent towards the latter, but both flexions taking place at once there is no need to count. On the other hand, the extension of the arms upwards from the fundamental position is done in two motions, clearly distinguishable from each other, and is done with counting.

§ 13. To execute the free exercises well, the pupils must be placed in a definite order; this is called the formation.

(1.) The formation depends on the kind of exercise, and also the place of exercise. When the space permits, all the pupils are to be placed abreast.

When the pupils have met, and the exercises are to begin, the order is "*fall in,*" on which all the pupils place themselves according to their height, beside each other in one rank, slightly touching each other with their arms. If this formation is to be taken immediately after another mode of formation, then the order is "*formation with touch.*"

(2.) In this close formation only certain exercises are done, as, for instance, twisting, marching exercises, etc. In other exercises each pupil must have sufficient free space to move his limbs in all directions without being hindered; for this purpose the open formation is chosen, which is made from the close

formation at the order "*right (left) distance take—march.*"

Whether the distance is to be taken to the right or left depends upon the free space available. Generally, in the beginning, the right-flank man is placed in such a way that the free space is to the left, and the distance is therefore taken to the left. At the announcing order each individual places his right hand near the shoulder of his right neighbour; at the order "*march,*" the right-flank man remains in his place, and all the rest step so far to the left that each one touches with the tips of his fingers of his stretched arm the upper arm of his neighbour. The teacher, after having convinced himself that the exact distance is taken by all, gives the word "*position,*" and then the stretched arm is placed down by the side.

§ 14. In the above-mentioned formation, the most of those movements mentioned in I. § 17, and many others, are executed. But for some of the movements, as, for instance, the arm extensions on both sides, or some of the leap exercises, the preceding ordinary distance is not sufficient. In such cases, at the order "*double distance take—march,*" wider distance is taken by each pupil placing himself so far from his neighbours, that he can with his stretched arms and fingers touch the tips of the fingers of the stretched arms of his neighbours; this formation requires a greater longitudinal space, and makes it more difficult, if there is a great number of pupils, to overlook them. In such cases it is best to take the flank position directly from the formation with ordinary distance; the order is "*section to the right (left) face.*"

When the pupils are placed according to § 13, (1), the teacher gives the order "*tell off in twos*," the right-flank man calls out *one*, the second *two*, the third *one*, the fourth *two*, etc., alternately, until it comes to the left-flank man. Now follows the order "*twos, three paces backwards—march ;*" on which the *ones* stand with an ordinary distance between them, and so with the *twos ;* and between the two ranks there is also a convenient distance ; in this formation, longitudinal space is saved and supervision rendered easy.

§ 15. As soon as the necessary formation is executed, each individual must assume the fundamental position (§ 4). From this position all others proceed, and also most of the movements. If at the order of the teacher any other commencing position has been assumed, and we wish that the fundamental position shall be taken, it is done at the order "*position.*" When a sufficient series of exercises have been gone through, the word "*at ease*" is given, and a short rest follows, during which each person remains in his place, unless a farther recreation is permitted, such as walking. In this latter case, as soon as the exercises are to recommence, the order is "*fall in,*" on which all the pupils resume their places, and then, at the order "*attention*" or "*position,*" the fundamental position is taken.

§ 16. For several movements it is necessary to fix the arms and to keep the hips firm, by placing the hands on the hips with the thumbs backwards, and the other fingers in front. This is done at the order "*hips firm,*" and principally in the flexion of the trunk for-

wards and backwards, in the twisting of the trunk to the right and to the left, in double knee flexion, in alternate knee flexion, in pass position, in leap movements on the spot, and in some other cases, as, for instance, the long run. The fixing of the hips must not be abused by being employed too frequently or too long, because it easily becomes a habit.

EXERCISES.

I.

MOVEMENTS OF THE LIMBS ON THE SPOT WITHOUT MUTUAL SUPPORT.

(A.) MOVEMENTS OF THE HEAD (all in slow tempo).

§ 17. (1) *Flexions and Extensions.*

HEAD FORWARDS: BEND!—STRETCH! (fig. 18.)

The head is held straight, without any twisting of the neck, and must be bent forwards until the chin slightly touches the chest. The upper part of the body, and especially the shoulders, must be kept firm. At the order "*stretch*," the head is raised into the fundamental position. Both movements are done steadily, and not by jerks.

HEAD BACKWARDS: BEND!—STRETCH! (fig. 19.)

The head is slowly bent backwards, without twisting, and at the command "*stretch*," is raised into the previous position. The head must not remain too long in the bent position.

HEAD RIGHT SIDEWAYS: BEND!—STRETCH!

HEAD LEFT SIDEWAYS: BEND!—STRETCH! (fig. 20.)

The head is exactly bent to the designated side; no

twisting of the face or shoulders, and no raising of the opposite shoulder, or sinking down of the shoulder on the same side, is permitted.

(2.) *Turnings.*

HEAD RIGHT: TURN!—FORWARDS TURN!

HEAD LEFT: TURN!—FORWARDS TURN! (fig. 21).

The head is turned horizontally to the side designated, without the least flexion; if possible, so far that the chin shall be over the shoulder. The shoulders must be kept square in the front line.

(B.) FOOT AND LEG MOVEMENTS.

§ 18. (*a*) FOOT POSITIONS (in a lively tempo).

(1.) *Closing and Opening of the Feet.*

FEET: CLOSE!—FEET: OPEN!

The feet are brought from the rectangular position (fig. 12*a*) into the close position. At the second command they resume the original position. When the two commands are given together as one, "*feet close, and feet open,*" the closing and opening are done repeatedly till the command "*stop.*"

(2). *Stride Position.*

FEET SIDEWAYS: PLACE! (fig. 13*b*).

Done in two motions: first, placing sideways of the left foot one length of a foot; and, second, placing sideways of the right foot also one length, so that the medial line of the body does not change place. Both feet must remain exactly in the front line, and retain their rectangular position with regard to each other.

At the command "*position,*" the feet are again placed in the fundamental position.

(3.) *Pace position.*

RIGHT (LEFT) FOOT FORWARDS: PLACE! (fig. 12 *b*.)

The foot designated is placed forwards one distance in the same oblique direction in which it stood. The upper part of the body is not twisted, but moves in the upright position so far forwards that its weight falls between both feet. At the command "*position*," the foot which is placed forwards is drawn back into the fundamental position. If the left pace position follow the right pace position, the command is "*feet change*," the right foot is drawn back into the fundamental position, and then the left foot placed forwards.

RIGHT (LEFT) FOOT BACKWARDS: PLACE! (fig. 15 *b*.)

The foot designated is placed so far backwards parallel to its former direction, that its heel is distant from the heel of the other foot one length (viz., of the foot). The upper part of the body is not twisted, but moved in an upright position, so far backwards that its weight falls between both feet.

The change of the backwards position, from the right to the left, follows at the command "*feet change*," in two motions. At the command "*position*," the fundamental position is taken.

(4.) *Close pace position* (fig. 14 *b*).

FEET CLOSE! (then the same command as in No. 3.)

The difference between the close pace position and the ordinary pace position is, that in the first the basis is much narrower, because the foot which is placed forwards is straight before the other, and both point in the same direction. The taking up and keeping up of the position is in itself a good balancing exercise, and especially if it is used as a commencing

position for other exercises. The change from right to left follows the command "*feet change.*"

(5.) *Pass position* (with hips firm, figs. 3 and 12, *a*, *c*).

RIGHT (LEFT) FOOT TO THE PASS FORWARD: PLACE! —POSITION!

The foot designated is placed in the same direction in which it stands (consequently in a half right angle towards the front line), two lengths of a foot forwards. The upper part of the body, with the leg of the foot which remains fixed, is so far inclined forwards in the same direction, that the upper part of the body and the back leg form a straight line, which is inclined towards the horizontal floor at an angle of forty-five degrees. The weight of the body rests on the forward foot, the leg of which is so far bent at the knee, that the knee is just over the point of the foot.

Should the exercise be changed from the right to the left, at the command "*feet change,*" this must be done in two motions: in the first, the body, with the foot which was placed forwards, is brought into the fundamental position; in the second, the pass is done on the other side.

(6.) *Pass position from close position* (figs. 4 and 14, *a*, *c*).

FEET CLOSE! (and the command as in No. 5.)

The execution is similar to that of No. 5, but both feet are to be placed in the same direction.

§ 19. (*b*) SOME OTHER FOOT AND LEG EXERCISES.

(1.) *Raising and sinking of the body on the toes,* from the fundamental position, from close position (*a* 1), from stride position (*a* 2), from pace position (*a* 3), from close pace position (*a* 4). As soon as

one of these commencing positions is taken at a previous command, there follows the command—

HEELS: RAISE!—SINK!

At "*raise*," the heels are raised from the ground, with the body upright and immovable. In the raising, the feet are kept in the same relative position which they had in the commencing position; in the fundamental position, and in the close position, both raised heels must be close to each other. The exercise is done slowly. The body remains in the raised position for several seconds, and at the command "*sink*," heels and body slowly and steadily descend. This movement is a very good balancing exercise, especially from the stride position and the close pace position. It is generally repeated several times.

(2.) *Leg sideways raising and sinking* (in slow time).

RIGHT (LEFT) LEG SIDEWAYS: RAISE!—SINK!

At the command "*raise*," the leg designated being firmly stretched, is raised in a vertical plane sideways and upwards, till it makes an angle of about sixty degrees with the other. The upper part of the body is kept upright, and generally with hips fixed. At "*sink*," the raised leg is slowly brought back into the fundamental position. If the exercise is to be executed as "*alternate striding*," the raising and sinking of the right and left leg is done alternately, and repeated several times, at the command ALTERNATE STRIDING OF THE LEGS RIGHT AND LEFT: STRIDE!

(3.) *Double knee flexion* (also called *knee flexion, with extension*, fig. 2).

This exercise with hips fixed is executed in four motions:—

1. *Raising of the heels* (as in *b* 1).

2. *Flexions of both knees* at the same time, uniformly and steadily, with the upper part of the body kept vertical, and not twisted. The flexion is done so far, that the posterior angle of the knee is a right angle, and each knee is placed vertically above the foot of the same leg.

3. *Re-stretching of the knees, and returning into the heels raise position.*

4. *Sinking down of the heels, and returning to the commencing position.*

The exercise is done generally with hips fixed, and first, from the fundamental position, later from the stride position, and other commencing positions; it is first practised by counting, at the command KNEE: FLEXION! ONE! TWO! THREE! FOUR! later it is practised with the extension belonging to it, at the command KNEE: BEND!—STRETCH! (fig. 2.)

Both execution commands must be pronounced in a lengthened tone. As soon as the exercise is so far practised that the counting is superfluous, the movements during the first and second motions become more smooth, and in the same way also the movements of the third and fourth motions; so that as the knees are bent, the heels are raised, and as the knees are stretched, the heels sink down, and in this way, at the moment the stretching is completed, the heels are on the floor. This exercise, which is also a very good balancing exercise, must be done steadily, and the flexion must not be more than to a right angle; if the movement is done from the fundamental position, we

must take care that the heels remain together during the whole movement. However performed, the pupil should remain for a time in the position with knees bent, before the stretching follows.

(4.) *Alternate knee flexion* (with hips firm).

(*a*) *From the pace position.*

RIGHT FOOT FORWARDS: PLACE! (§ 18, 3.)

BACK KNEE: BEND!—STRETCH! (fig. 5.)

The weight of the body, which is kept upright and not twisted, is thrown on the back foot, the knee of which is bent to a right angle, while the heel is raised. The foot which is placed forwards remains entirely on the floor, and this knee bends only so far as is necessary to allow the other knee to form a right angle. After remaining a short time in this bent position, at the second command the stretching is done, in order to reassume the commencing position. Afterwards follows the command "*feet change*," at which the right foot is drawn back and the left placed forwards into the pace position, in order that the right knee may now execute the flexion and extension described.

The alternate knee flexion is done also—

(*b*) *From the pass position* (§ 18, 5).

RIGHT FOOT TO THE PASS FORWARDS: PLACE!

FRONT KNEE: BEND!—STRETCH!

As soon as the pass position is assumed, the projected leg is bent a little further, at the same time rising on the toes, the back leg remaining firmly stretched, with the sole of the foot on the floor. At the second command "*stretch*," the forward foot sinks upon the heel, and the knee returns to a right angle,

but the body remains in the pass position. At the order "*feet change*," the same movement is done by the other knee.

(5.) *Knee upwards flexion* (fig. 6 *a*).

This is also executed with hips firm, and alternately with the right and left leg from the fundamental position, with a somewhat lively motion. The exercise includes a flexion of the foot-joint simultaneously with that of the knee. The knee is raised quickly so far upwards that the thigh is horizontal, and in the same oblique direction in which the foot was in the fundamental position. The lower leg is vertical, The foot is bent simultaneously at its joint, as much as possible, that is, with the toes upwards and backwards. The commands of this exercise are—

RIGHT FOOT UPWARDS: BEND!—PLACE—DOWN! (or POSITION!)

LEFT FOOT UPWARDS: BEND!—PLACE DOWN (or POSITION! or also, RIGHT FOOT UPWARDS: BEND!—FEET: CHANGE!—POSITION!)

The change from the right to the left, at the command "*feet change*," must not be done too quickly; on the contrary, the left knee must not be raised before the right foot is perfectly placed down, and the right leg entirely stretched. In these knee flexions (which, as well as the following exercises in Nos. 6 to 10, are good balancing exercises), the upper part of the body must be kept firmly upright in the fundamental position.

(6.) *Knee forwards stretching.*

This is done with the hips firm from "*the knee upwards flexion*," described in No. 5, and is executed as an alternate movement (right and left).

RIGHT KNEE UPWARDS: BEND! (as in last movement.)

RIGHT KNEE FORWARDS: STRETCH!

At the order "*stretch*," the right knee and, simultaneously, the foot are straightened so as to be as nearly as possible in a straight, unbroken, horizontal line. The stationary leg is kept rigid, and supports the trunk upright.

To do the same exercise with the other knee, the order is given, "*right knee bend;*" at which the pupil assumes the "*knee upwards flexion*" position. Then, at the words "*feet change*," he takes the fundamental position, and then proceeds to move the left leg similarly.

(7.) *Knee backwards stretching* (fig. 6 *b*).

The hips are firm, and the movement done from the "*knee upwards flexion*," and alternately with right and left leg.

RIGHT KNEE UPWARDS: BEND! (as before.)

RIGHT KNEE BACKWARDS: STRETCH!

At the order "*stretch*," the right thigh is slowly brought into the vertical position, the lower leg remaining at a right angle with it, and therefore now pointing backwards. The whole leg is then carried back, and then straightened so that it forms a line of about forty-five degrees with the ground. The body must not be twisted or bent.

To do the movement with the left leg, the order will be—

KNEE UPWARDS: BEND! and then FEET CHANGE!

(8.) *Knee sideways guiding* (fig. 7 *a*).

First, "*knee upwards flexion*" is done, and then, at

the order RIGHT KNEE SIDEWAYS: GUIDE! the thigh is slowly carried round to the right hand, till it is as near as possible in the breast line; the trunk remains untwisted. At the command RIGHT KNEE FORWARDS: GUIDE! the previous position is regained. The order "*feet change*" will be as before.

(9.) *Knee stretching*, from *knee sideways guide* position (fig. 7 *b*).

As soon as the "*knee sideways guide*," described in last paragraph, is executed, the order is given RIGHT KNEE: STRETCH! on which the knee is steadily and slowly straightened. To change from the right to the left, the order will be RIGHT KNEE: BEND!—FORWARDS: GUIDE! and then FEET CHANGE!

(10.) *Foot rolling*, during the "*knee upwards flexion.*"

The hips are firm, and one knee is brought into the position of "*knee upwards bend*," at the order given, and then follows—

FOOT RIGHT: ROLL! on which the foot of the raised leg is moved in small circles, not too slowly, on the ankle-joint as a centre, in a direction towards the right. At the word HALT! the foot reassumes its firm upwards bent position.

At FOOT LEFT: ROLL! the motion just described is resumed, but in a direction towards the left. The lower leg must be kept firm, and the circles described in the air by the toes must be uniform. When one foot has been rolled both ways, the order will be FEET CHANGE!

(*c*) *Leap exercises on the spot.*

§ 20. In these all the parts of the body but the feet and legs are unused. Their object is, first, to ac-

custom the lower extremities to act promptly and vigorously; and, secondly, to serve as preparatory to the leap exercises, properly so called. The upper part of the body must be kept straight, upright, untwisted, and the arms stationary, with hips firm: thus the whole action is thrown on the feet and legs.

(1.) *Close leap from fundamental position.*

This must be practised at first with the teacher counting. It consists of three distinct well-defined motions, performed at the order CLOSE LEAP ON THE SPOT: ONE! TWO! THREE! At "*one*," the pupil makes a prompt and rapid "*double knee flexion*" (§ 19, 3), the upper part of the body being kept perfectly upright. At "*two*," by a sudden straightening of the knees, and a vigorous action of the feet against the ground, the pupil springs into the air without separating the heels, and immediately drops back on the toes into "*double knee flexion*" position from which he just before sprang. At "*three*," by straightening the knees, he retakes the fundamental position.

The motions should be correctly and smoothly performed, and the leap need not be high.

When the exercise has been sufficiently practised with counting, the three motions should be done without intermediate pauses, yet regularly and smoothly, and with the different parts of the movement well distinguished, at the order "*close leap on the spot—leap.*"

(2.) *Stride leap on the spot.*

This leap is also done at first with counting, at the order STRIDE LEAP ON THE SPOT: ONE! TWO! THREE! and afterwards without counting, at the order STRIDE LEAP ON THE SPOT: LEAP! The commencing

attitude is the stride stand position. At "*one*," the knees are slightly bent, and the heels raised from the floor; at "*two*," the pupil springs into the air, at the same time throwing out the legs sideways with some vigour, and with such precision, that at the moment of alighting on the ground again, the pupil receives himself on the toes in the attitude just before left; at "*three*," the knees are straightened, and the heels brought down into the fundamental position.

The trunk must be kept vertical throughout the movement.

(C.) ARM AND HAND EXERCISES.

With the exception of those given in § 22, *b*, 4 and 5, these exercises are to be done energetically, and with tolerable rapidity.

§ 21. (*a*) STRETCHING (in the five fundamental positions.)

The stretch movements of the arms have reference principally to the elbow-joint, and as a limb must be bent before it can be stretched or straightened, a flexion must be the first step in a stretching movement. This first step is shown in fig, 19, and it may be made a special exercise.

(1.) *Bi-lateral stretching*, that is, the same stretching done with both arms simultaneously.

ARMS UPWARDS: STRETCH!—DOWNWARDS: STRETCH! (fig. 1, *b*, *a*.)

ARMS SIDEWAYS: STRETCH!—DOWNWARDS: STRETCH!

ARMS FORWARDS: STRETCH!—DOWNWARDS: STRETCH!

ARMS BACKWARDS: STRETCH!—DOWNWARDS: STRETCH!

These movements (shown in fig. 4) are executed each

separately: at first, with counting "*one, two;*" subsequently, the pupil may pass from one position to another, thus from "*upwards,*" "*sideways,*" or "*forwards,*" etc. Finally, all the stretchings may be done consecutively at the order—

ARMS UPWARDS, SIDEWAYS, FORWARDS, BACKWARDS, AND DOWNWARDS: STRETCH!

Time must be well kept in this movement, that all the pupils may act together, and observe that the hands must be held in a straight line with the arms; in upwards, forwards, and backwards stretching, with the palms toward each other; in sideways stretching, with the palms turned downwards; in the flexion which precedes each stretching, the upper arm is laid vertically down the side of the trunk, the fore arm then turned completely upwards, so as to lie along the upper arm, and the wrist so turned that the fingers, slightly crooked, touch the shoulder.

When the bi-lateral stretchings are sufficiently practised, then follow—

(2.) *The alternate arm stretching.*

In which the arms move simultaneously, but in different directions. The orders are—

RIGHT (LEFT) ARM UPWARDS: } STRETCH!—ARMS:
LEFT (RIGHT) ARM SIDEWAYS: } CHANGE!

RIGHT (LEFT) ARM UPWARDS: } STRETCH!—ARMS:
LEFT (RIGHT) ARM FORWARDS: } CHANGE!

RIGHT (LEFT) ARM UPWARDS: } STRETCH!—ARMS:
LEFT (RIGHT) ARM BACKWARDS: } CHANGE!

And so with other combinations.

At "*stretch,*" both arms are moved as ordered. At

"*change*," both arms are brought into the commencing attitude, "*arms bent up*," and then each arm takes the position the other previously had. This change should be repeated several times.

§ 22. (*b*) OTHER ARM AND HAND MOVEMENTS.

(1.) ARMS HALF FORWARDS: BEND!—BACKWARDS: STRETCH!

The upper arms are quickly raised sideways to a level with the shoulders, and simultaneously, the fore arms bent in a forward direction at right angles with the upper arm; hand and fingers well stretched, palm inwards. At "*backwards—stretch*," the fore arm is thrown back till it comes in a line with the upper arm, which is to be kept immovable in its position sideways, so that both arms are in one line with the body. If the movement is to be repeated, the order will be "*bend*," "*stretch*," etc.

(2.) ARMS FORWARDS: BEND!—BACKWARDS: STRETCH!

This exercise is similar to the preceding; the fore arm is, however, laid *along* the upper arm, till the thumb touches the shoulder. At "*stretch*," the fore arm is thrown out till in a line with the upper arm (fig. 16, *a*, *b*). Throughout these two exercises the upper arm is supposed to remain perfectly immovable.

(3.) ARMS FULLY FORWARDS: BEND!—BACKWARDS: STRIKE!

In this the arm is bent at the elbow, as in the last, but the fore arms are so brought forwards, that the tips of the fingers, instead of coming to the shoulder, meet immediately in front of the chest. At "*strike*,"

the whole arm is thrown back as far as the shoulder-joints will allow, but preserving the horizontal position. When the movement is repeated, the order is "*bend*," "*strike*" (fig. 17, *a*, *b*).

After each of the three last-described movements, the fundamental position is taken at the word "*position.*" For the sake of room in these and in all the movements where both arms are stretched sideways, the pupils must be placed either at "*double distance*," or in flank position.

(4.) ARM SIDEWAYS: STRETCH!—FORWARDS: ROLL! HALT!—BACKWARDS ROLL!—HALT!—POSITION!

The rolling consists in a moderately quick circular guiding of the stretched arms on the shoulders as a centre. The circles must be regular, and with both arms at once, and need not be large, the hands reaching to the level of the crown of the head. In the "*forwards rolling*," the hand commences its movement forwards; in the "*backwards rolling*," the hand begins to move backwards. If the arms are to be rolled, the one forwards, the other backwards (simultaneously), the order will be RIGHT ARM FORWARDS, LEFT ARM BACKWARDS: ROLL!—HALT!—LEFT ARM FORWARDS, RIGHT ARM BACKWARDS: ROLL! etc.

(5.) ARMS SIDEWAYS: RAISE!—SINK!

The arms, freely hanging at the side, are slowly and steadily raised, till they are at an angle of forty-five degrees above the horizontal line of the shoulders, the palm being downwards. At the word "*sink*," both arms are steadily dropped. If this is to be done as a "*flying*" exercise, the order will be ARMS RAISE AND SINK! In this case the movement is made repeatedly,

and more quickly than usual. At "*halt*," the flying ceases with the dropping of the arms.

(6.) *Hand turning in the four principal positions.*

These movements are done while the arms are stretched either forwards or sideways. After the arms have been stretched forwards, the command is—

HAND TURNING: ONE! TWO! THREE! FOUR! (fig. 24.)

At "*one*," the hands are turned outwards, with the knuckles down; at "*two*," the hands are turned inwards, with the knuckles up; at "*three*," the hands are turned outwards, with the knuckles outwards, the thumb up, and the little finger down; at "*four*," the hands are turned inwards, with the knuckles inwards, the thumb down, and the little finger up. The movements are done moderately quick, while the hand is always perfectly stretched.

(7.) *Hand cuts.*

These are also hand turnings. They are done with more energy and more suddenly than the preceding, and the hand is at an angle with the arm. The motion "*four*" of the preceding is omitted, and "*three*" done in two ways. Consequently, there are four positions of the hand, and they answer to the four fundamental cuts of the broadsword exercise, viz., quart, tierce, prime inwards, and prime outwards. These terms are used as the word of command, in lieu of *one, two, three, four*. After the arms have been placed in the position "*arms forwards—stretch*," the command is, HAND CUTS: QUART!—TIERCE!—PRIME INWARDS!—PRIME OUTWARDS! At "*quart*," the hands are suddenly turned outwards till the knuckles are

downwards, and at the same moment the whole hand is so strained inwards, that the medial line of the hand forms an obtuse angle with the medial line of the arm. Then follows "*tierce*," knuckles upwards, and at the same moment the hand is forcibly bent at the wrist till the fingers point firmly as much outwards or backwards as the muscles will allow. At "*prime inwards*," the striking is done by a circular movement of the hand downwards and inwards, and finishes in a strong blow from upwards downwards, after which the hand is at an angle downwards, with the knuckles directed outwards. At "*prime outwards*," the back of the hand is at an angle backwards; the circular movement is done from below upwards, and a strong blow downwards, while the hand returns into the previous position, with knuckles outwards.

These four cuts must be done with the hand-joint, while the arms are as immovable as possible in their stretched position. The movement can be done also while the arms are stretched sideways, or one arm forwards and the other sideways.

(8.) *Finger-spreading and closing.*

This is done from different arm stretchings, principally from "*arms forwards—stretch.*" The order is—

FINGERS: SPREAD!—CLOSE!

At "*spread*," the fingers are separated, and at "*close*," they resume their former position. This movement may be done in a slow or quick time.

FINGERS: SPREAD IN PAIRS!—CLOSE!

The separation is made only between the third and fourth fingers.

(D.) TRUNK MOVEMENTS.

These are all done slowly, from various commencing positions, but principally at first from the fundamental and close position.

§ 23. (1.) *Forwards and backwards flexion* (with *stretching*.)

Trunk flexion must be distinguished from trunk inclination, the latter proceeding only from the hip-joint, the spine not bending at all.

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

The trunk, bending at the hips as on a hinge, is thrown forwards without twisting, and the head accompanies the movement so as to be always in a line with the trunk. The face thus inclines a little downwards. The legs and knees firm. At "*stretch*," the trunk returns to its former position (fig. 9).

HIPS FIRM!—TRUNK BACKWARDS: BEND!—STRETCH!

The trunk bends as before, but backwards, and the face is thus slightly inclined upwards.

These exercises must be practised cautiously, and not overdone. At "*stretch*," the trunk returns as before (fig. 8).

(2.) *Sideways flexion of the trunk* (with *stretching*); arms hanging freely down, and generally with the feet in close position.

TRUNK TO THE RIGHT (LEFT) SIDEWAYS: BEND!—STRETCH!

The trunk is inclined to the right (left) so far as is possible, without raising the opposite foot from the ground; the head in a line with the trunk; legs un-

yielding. The hands accommodate themselves to the movement; the one on the side of the inclination by sliding down the thigh to the knee, the other by sliding up the thigh to the hip. The upper part of the body must not be twisted (fig. 25).

(3.) *Trunk twisting.*

This consists in twisting the upper part of the body round its longitudinal axis. The hips are fixed, and the feet placed in the close position.

TRUNK TO THE RIGHT: TWIST!—FORWARDS TWIST! (fig. 10.)

At the first order the body is twisted steadily and gradually to the right so far, that the line of the shoulders forms a right angle with the front line, and consequently the fourth part of a circle is described by each. The head follows the twisting, preserving its original position with regard to the trunk; after a short pause, at the second order, the trunk is steadily brought into the previous position.

Then, TRUNK TO THE LEFT: TWIST!—FORWARDS TWIST!

The movement is similarly executed to the left. At a later part of the exercise, the trunk turnings both ways may be ordered at once, thus, TRUNK TO THE RIGHT AND LEFT: TWIST! on which the pupil moves the trunk first to the right side and then to the left, pausing sufficiently long between the motions for a full expiration and inspiration; such a pause must be observed between each movement.

(E.) INSTANCES OF COMPOUND MOVEMENTS, AND OF MOVEMENTS FROM SOME PARTICULAR COMMENCING POSITIONS.

§ 24. The movements of the limbs in A to D are to be considered as elementary movements, which can be combined and varied in many different ways, so that one and the same movement can be done from different commencing positions. Each movement of the limbs produces a certain effect on the body, which is essentially different if made from another commencing position. Here follow some instances of combinations which are frequently used. It is to be understood that these and similar combinations of movements are not to be practised before the respective single positions and movements can be correctly executed.

(1.) *From head-turn-position—the head bending and stretching.*

HEAD TO THE LEFT: TURN!

HEAD FORWARDS: BEND!—STRETCH! (fig. 23.)

HEAD BACKWARDS: BEND!—STRETCH! (fig. 22.)

HEAD TO THE RIGHT: TURN! etc.

(2.) *From trunk-twist-position,—trunk flexion and stretching.*

TRUNK TO THE RIGHT: TWIST!—then:

TRUNK FORWARDS: BEND!—STRETCH! (fig. 11.)

TRUNK BACKWARDS: BEND!—STRETCH! (fig. 27.)

TRUNK TO THE LEFT: TWIST! etc.

(3.) *From the stretch position* (*i. e.*, at the order ARMS UPWARDS: STRETCH!)

(α) *Raising and sinking of the heels* (§ 19, 1).

(β) *Double knee flexion* (§ 19, 3, fig. 2 *a*).

(γ) *Trunk flexion forwards and backwards* (§ 23, 1).

(4.) *From stretch-stride-position* (*i. e.*, after ARMS UPWARDS: STRETCH! and FEET SIDEWAYS: PLACE!)

The three similar movements as in No. 3.

(5.) *From stretch-pace-position* (*i. e.*, at ARMS UPWARDS: STRETCH! and RIGHT (OR LEFT) FOOT FORWARDS: PLACE!)

The same three movements as in No. 3, with the change of the feet which follow each other (right and left).

(6.) *From stretch-close-pace-position* (*i. e.*, after FEET CLOSE! and ARMS UPWARDS: STRETCH! and RIGHT OR LEFT FOOT FORWARDS: PLACE!)

The same three movements as in No. 3, with change from the right to the left.

(7.) *From yard position* (*i. e.*, after ARMS SIDEWAYS: STRETCH!)

LEFT LEG SIDEWAYS: RAISE! and TRUNK RIGHT SIDEWAYS: BEND!—STRETCH!

RIGHT LEG SIDEWAYS: RAISE! and TRUNK LEFT SIDEWAYS: BEND!—STRETCH!—POSITION! (fig. 28.)

(8.) *From half-stretch-close-position* (*i. e.*, after RIGHT ARM UPWARDS: STRETCH! and FEET CLOSE!)

TRUNK LEFT SIDEWAYS: BEND!—STRETCH!—ARMS CHANGE! etc. (fig. 25 *a*.)

(9.) *From stretch position, or from yard position*, or with hips firm.

RIGHT KNEE UPWARDS: BEND!—BACKWARDS: STRETCH!—HEELS: RAISE!—SINK!

KNEE UPWARDS: BEND!—FEET: CHANGE! etc.

(10.) *From half-stretch-close-pace-position* (*i. e.*,

after the right (left) arm is upwards stretched, the feet closed, and then the left (right) foot placed forwards.)

TRUNK TO THE RIGHT (LEFT) SIDEWAYS: BEND!—STRETCH! (fig. 26.)

ARMS AND FEET: CHANGE!

TRUNK TO THE LEFT (RIGHT) SIDEWAYS: BEND!—STRETCH!—POSITION!

(11.) *Arm striking backwards during march movement* (after the section is placed to the left in flank position).

ARMS FULLY FORWARDS: BEND!—WITH BACKWARDS ARM STRIKING IN SLOW PACE: MARCH!

The pupils begin marching with the left foot forwards, and at the same time they make the first backwards striking with the arms; as they place the right foot forwards they make the fully forward flexion of the arms, and in this way five to six paces are taken; then the order is HALT!—FACE ABOUT!—RIGHT FOOT FORWARDS: MARCH!

The double or alternate arm stretchings are combined with the marching exercise in a similar way.

(F.) TRUNK FACINGS.

§ 25. To the exercises on the spot, besides the single limb exercises, which have been already described, belong also the turnings of the whole body, that is, those movements by which the body turns upon its longitudinal axis so as to change its front direction. The execution order for this purpose is RIGHT FACE!—LEFT FACE!—HALF-RIGHT FACE! HALF-LEFT FACE!—FACE ABOUT!

If these movements are practised one after the

other, they are first announced by the advertising order FACINGS. The execution order is divided in such a way, that the emphasis falls on the word "*face;*" before the order "*face about,*" the advertising order, WHOLE SECTION! is always used, even if there is but one person making the movement. In the fourth and eighth facings, when practised occasionally between other exercises, we use, as an advertising order, the word SECTION! This is similar to the military exercises, and the facings are executed in a military way, with the difference that the *facing about* in the gymnastic exercises is not always done exclusively to one side, but to both in turn. When these exercises are done independently of others, the facings are made at the following orders: FACINGS! RIGHT FACE! LEFT FACE! HALF-RIGHT FACE! HALF-LEFT FACE! WHOLE SECTION: (LEFT) FACE ABOUT! WHOLE SECTION: (RIGHT) FACE ABOUT! If the direction is not particularly designated in the "*face about,*" it is to be done to the left.

Each gymnastic facing consists in the body being turned to the right on the heel of the right foot, or to the left on the heel of the left foot; the change in the front, which is named in the command, is to be quickly executed, with the body kept perfectly upright. After each facing, the feet must stand at a right angle towards each other.

(G.) SOME OCCASIONAL REMARKS.

§ 26. It is not intended in the rational gymnastics to practise the limb exercises already described in the order they are here mentioned. That order has been observed only that all the exercises which are to be

done by one and the same limb might be brought into view at once. In § 97—100 will be found the order in which the exercises are to be practised.

§ 27. It is not the object of this pamphlet to show how each form of exercise affects the body, or to dwell on the advantages of such exercises, etc., but we may be allowed to add some observations.

(1.) It is an indisputable although little regarded fact, that with respect to the fingers and to their functions, as well in the occupations of every-day life as in the majority of bodily exercises, in the way they are usually done, the *bending force* of the fingers is almost exclusively considered and pre-eminently developed in comparison with their *stretching force*. A necessary consequence of this over-energy of the flexors of the fingers is a physiological disproportion of the vital dynamics of the muscles of the fingers and of their nerves, a disturbance of the natural proportion of these dynamics in the flexors and extensors of the fingers. We mention this as showing how useful the arm movements are likely to be as prescribed in C, *a* and *b*. Ling has very rationally arranged that, in the stretchings and other movements of the arms, a strong stretching of the hands and fingers should also take place, thus supplying the above-mentioned deficiency.

(2.) It is advisable not to execute the trunk and head movements in quick time. The head, throat, and trunk contain organs of which the anatomical construction and physiological destination make it most unadvisable to move those parts violently.

(3.) *The sympathetic* movements are known and fre-

quently spoken of by physiologists. It is a principal object of gymnastic exercises, and especially of the free exercises, to prevent these movements as far as possible. Ling has shown also in this respect how good his method is, by prescribing alternate exercises of the upper limbs, because it is principally in these that we observe sympathetic movements most frequently.

(4.) The reason why in the rational gymnastics one and the same movement of the limbs must be done from different commencing positions, is not to produce a certain change, in the sense in which it is understood by the professors of common gymnastics, nor because one and the same exercise in a different commencing position produces different mechanical conditions, of which we may be able to make use for practical purposes, or for a more uniform bodily development. This last motive, although very important, is not the chief one, which is the difference of the physiological effect, varying as that does with the diferent commencing positions. The reason why such simple exercises of the limbs are prescribed with such nicety as to their form, and why the execution mut be exactly according to these forms, is not only tha which is mentioned in § 3 and § 5, but also that theteacher may be able to describe them and refer to then, which can only be done when the movements are definitely laid down, and the directions strictly attended to.

II.

MOVEMENTS FROM THE SPOT WITHOUT MUTUAL SUPPORT.

THE exercises under this head consist in locomotions of the whole body, comprising the different walk, run, and leap exercises, which can be executed without any technical means or apparatus.

(A.) WALK-EXERCISES.

The walk may be considered with regard to time as definitely measured, uniform, and rhythmical, or with regard to the posture of the body; it may also be a well-defined walk or a free walk, in which there is no determined and fixed measure of time for the paces, and in which the body as a whole carries itself more freely. The first kind of walking is the march, the other is the free walk; which of these is to be used in the practice of the free exercises depends upon circumstances.

(*a*) THE FREE WALK.

§ 28. The exercises belonging to this are not intended to teach walking in general, or to make the pupil walk in a definitely prescribed way. Everyone is allowed to walk as is natural to him; and to make this common movement only a matter of teaching and regulated exercise, so far as he may have any manifest

faults or bad habits, such as walking crooked, stepping as if lame, sliding the feet, swinging the arms too much or keeping them too stiff, unequal tread of the feet, too large or too small steps, bending the head, jerking of the body, etc. etc.

These walk-exercises are to be done in three different times, viz.:—

1. *Walking in the usual time;* that is, the pupil walks at the speed usual on ordinary occasions (usual walk).

2. *Walking in slow time,* about half as fast as the last.

3. *Walk in quick time;* that is, such as we use when in a hurry, but still do not wish to run (fast walk). These exercises are not done at word of command, but the gymnast desires each individual alone, or two or three, to come forwards, and he corrects the gait of each.

(*b*) MARCHING. (The teacher is supposed to be acquainted with military marching.)

§ 29. The marchings which belong to the gymnastic free exercises are the following:—

(*α*) *Marching in single file, in straight lines, and with sharp turnings.*

1. At a slow pace, 80 per minute.

2. At a quick pace, 108 per minute.

The march should be commenced sometimes with one foot, sometimes the other.

(*β*) *Marching in rank and file,* taking care to begin at the same pace, to preserve the distances, and the prescribed direction.

1. With single turnings, and

2. With evolutions, in which case the pupils are divided into divisions, subdivisions, sections, etc.

It will be a good plan to practise the exercises in (β) with all the pupils in one rank.

It is unnecessary to enter into details of the extraordinary results produced by these exercises; they are too evident, and can be observed daily in the military drilling of recruits. We would only observe in general, that they have an influence not only on the limbs and their physical capabilities, but that they improve and sharpen the sense of space and time, and the feeling of order.

(B.) RUN-EXERCISES.

§ 30. The exercises under this head consist principally in the *short run* and the *quick run*. In the first, the object is not to develope the velocity of the feet, but to instruct the pupil to run in general with accuracy and steadiness, to preserve a good posture, to increase the elasticity of the foot and knee joints, and to move during the running in definite directions. The *short run* is done only in short steps, and the step is made with the *anterior* part of the foot; only the upper part of the body is inclined a little forwards, the fore arms slightly raised and kept loosely near the hips. The usual speed is about 150 paces per minute. At the order QUICKER! the number of steps is increased per minute, more or less. The short run is also ordered as a run during a definite time, without stopping. Caution should be used in not having too much running on the same day. At

the beginning, periods of about five minutes are enough, and as the pupil gets accustomed to the exercise, a few minutes more may be added. During the run in a definite time, it is not only allowable but advisable to fix the hips. In confined exercising-places, the time of the run must be diminished, because the repeated turnings rendered necessary are very fatiguing.

The *quick run* cannot be practised except in open places. It differs from the *short run* by the greater speed; which is effected by paces at once larger and quicker, by a greater inclination of the upper part of the body, and a freer motion of the arms. The exercises are to be done in such a way that a certain distance must be run through in a short and defined time; or it may be done as a race between two or several individuals. The distance should be at first about 50 paces, and be gradually increased to 200 paces.

With regard to the direction of the running and other conditions, the run exercises (in short run) are to be done in the following order:—

(*a*) In *straight lines, combined with single turnings*, etc.

1. In rows or files; that is, one behind another.

2. In rank, with loose touch.

(*b*) *In a circle, one after another.* If "*turn round*" is ordered, the turning is done towards the interior of the circle.

(*c*) In *serpentine lines.*

1. The pupils are placed in distance, and run in a winding direction each round the rest.

2. The pupils are led by the teacher or by one chosen for this purpose, and run simultaneously, following exactly the more or less sharp turnings of the leader.

The order for the short run is, IN SHORT RUN: MARCH! and each turning and evolution is to be done at the word of command. In the circular and serpentine run, the order IN CIRCLE! IN SERPENTINE LINE! must precede the usual order.

(C.) LEAP-EXERCISES.

§ 31. Besides a repetition of the leap movements on the spot, which are described in I. § 20, the following preparatory movements are to precede the special leap exercises; and they are to be executed by the appropriate word of command.

(1.) CLOSE-LEAP ON THE SPOT: LEAP!

The form of execution is similar to that in § 20, only that the upper part of the body is a little inclined forwards in the first motion, and the body is moved forwards by a bound about an ordinary pace. This is a sufficient distance, as the object in these exercises is to make the different motions with accuracy, and not to leap great distances.

(2.) STRIDE-LEAP FROM THE SPOT: LEAP!

The execution is similar to § 20, 2, with the difference that the pupils leap fairly away from the spot.

(3.) LATERAL-LEAP TO THE RIGHT (LEFT): LEAP!

This leap is a stride-leap to one side, and consists in the right (left) leg being in a stride position sideways, while the left (right) foot carries the body

with an energetic spring to the right (left). In the second motion, the right (left) leg, which was in the stride position, is placed on the ground, while in the third motion the left (right) leg is brought quickly to the right (left) leg. This leap is repeated several times to the right at the order "*leap*," and then repeatedly to the left.

(4.) PACE-LEAP FROM THE SPOT: LEAP!

In this leap the first motion consists of a quick forwards flinging of one leg while the body springs into the air by the action of the other foot and leg, and the second motion, which of course is not separated from the first by a special pause, consists of the simultaneous setting down of both feet while the knee flexion is made; the third motion is the stretching of the feet and knee joints, by which the raising of the body into the fundamental position is effected.

These four leap-exercises are done with hips fixed, in order to prevent the twisting of the body, which would be caused by the arms swinging loosely. Here, as in all leaps, it is strictly to be observed, that the down-leap (that is, the setting down of the feet after the leap) should be done with the anterior part of the foot, the ball and toes, and never with the heels.

§ 32. The leap with a run in combination with the stride and pace leap, is practised at the word—

(1.) STRIDE-LEAP FROM THE SPOT WITH THREE PACES RUN, RIGHT (LEFT) FOOT FOREMOST: LEAP!

At the word ONE! the foot named is placed briskly in front, and the upper part of the body inclined forwards. At the word TWO! the other foot is

brought in front one pace, while the upper part of the body is still more inclined forwards. At THREE! the first foot is again advanced, and the pupil at the same moment springs from the ground: at the next moment he alights on both feet, and then, without further counting, the "*stride-leap from the spot*" is done, and constitutes the fourth motion.

(2.) PACE-LEAP, WITH THREE PACES RUN, AND RIGHT (LEFT) FOOT FOREMOST: LEAP!

At the words ONE! and TWO! the motions are performed as in the previous exercises; at THREE! another step is taken, and at FOUR! which need not be counted, follows the pace-leap as described above.

§ 33. When the preparatory exercises are sufficiently practised, then follows the exercise of the leap to a greater distance.

First, three paces run, and then with a much further and freer run. The special leaps in the height or in the depth (upwards and downwards), belonging to the free exercises, will be described in III. In the exercise of long-leaps, it is not sufficient to learn to leap great distances, this can be done without any systematized instruction; but in the practice of gymnastics, the objects in view are correctness and precision, which are very difficult to acquire alone, as we are not aware of the faults we ourselves commit. At the commencement, the distance must not be further than can be leaped over with a moderate effort, and then gradually the leap distances are to be increased. In general, we may begin with the length of the body, and this leap distance is gradually to be augmented a foot length at a time. When the

distance is equal to the double length of the body, it is enough for any purpose; a longer distance might do harm.

The execution of the long-leap is similar to the pace-leap (§ 31, 4; § 32, 2); there is no special order for it, and it is done by the pupils in turn. The teacher must not only correct faults, but also observe that the down-leap is done simultaneously with both feet, closed heels, and great elasticity. Further, that the indicated leap distance should be exactly cleared; this is not merely a formality, but has a practical value. It is often necessary to leap over a gap, of which the edge on the other side is but narrow. The exercises for long-leaps may be varied by the leap being done not only by a single individual, but by two or more at the same time.

(D.) WALK- AND RUN-EXERCISES IN DEFINITE SPACE AND TIME.

The following may be considered as transition exercises to the æsthetic gymnastics. They not only develope the limbs and body, and give suppleness and grace, but they serve also more than the exercises in A and B to develope the sense of space, time, and order. These exercises are done more or less at word of command, but in a less sharp, formal, and detailed manner; they have some resemblance in their execution to the contre-dance and quadrille, etc. When these run- and walk-exercises are done in such a way that the pupils take hold of one another's hands, which is done at the command HANDS GRASP!

they form the *chain-walk* or *chain-run.* Frequently, the grasping of the hands is done by the pupils in pairs only.

In several of the following exercises, a series of movements once performed is immediately continued, and repeats itself; such a combination of movements, forming a complete whole, is called a "*tour.*" It must be observed that the exercises given in the following paragraphs are only instances of similar movements.

§ 34. WALK, or SHORT-RUN, WITH RHYTHM, marked by a heavy pace or by clapping the hands, or both.

This exercise is to be done in walk or in short run, the pupils keeping step. If done in walk, the gait must be easy, elastic, and graceful; in the short run, the unaccented steps must be as light as possible. The teacher must first indicate which step is to be marked by a strong tread, say the third or fourth. The advertising order will be WALK (or SHORT RUN) WITH RHYTHMICAL HEAVY STEP—THIRD (FOURTH) PACE MARKED BY HEAVY TREAD (CLAPPING HANDS), and then the command is, SECTION: MARCH! or, IN SHORT RUN: MARCH!

If the heavy step is to be marked by clapping the hands, these can be brought together on the side on which the foot makes the heavy step; the upper part of the body may also make an easy flexion to this side.

The exercise is done in rank or file.

§ 35. THE HOP RUN.

It consists in one foot only advancing, while the other is always drawn up to the first till it

touches, with the middle of its inner edge, the heel of the first. Both feet tread only with the ball and toes, and with as much elasticity as possible. The paces must not be too large, and not quicker than in the usual short run. It is executed in the chain or otherwise. The direction of this run is given in the order—

(1.) HOP RUN FORWARDS, WITH RIGHT (LEFT) FOOT FIRST: MARCH!

The direction of the run is forwards at a right angle to the front line. The shoulders are not twisted.

(2.) HOP RUN BACKWARDS, WITH RIGHT (LEFT) FOOT FIRST: MARCH!

The execution is similar to the preceding, but backwards.

(3.) HOP RUN TO THE RIGHT (LEFT) SIDEWAYS: MARCH!

The movement is done sideways in the prolongation of the front line; the shoulders are kept in the same direction.

(4.) HOP RUN TO THE HALF-RIGHT (HALF-LEFT) FORWARDS: MARCH!

The direction of the run is at half a right angle to the front line.

(5.) HOP RUN TO THE HALF-RIGHT (HALF-LEFT) BACKWARDS: MARCH!

Similar to the preceding, but backwards.

(6.) COMBINATIONS.

The hop run, even in an open place, must not last too long, and should continue only for a few paces in the same direction; for instance, ten or twelve. When it is sufficiently practised in each of the directions, a

combination of the whole is performed in the opposite directions. The teacher announces the combination and the number of the hop steps to be made, and then follows the execution order HOP RUN: MARCH! As soon as the last step is done in one direction, the advancing foot is placed firmly on the ground, and the other, which now becomes the advancing foot, continues the movement in the new direction, etc. In the combination of the half-right and the half-left, the run forms a zigzag line, the branches of which are more or less long, according to the number of paces taken in each direction. This change of the direction, which is at the same time a change of the step, can be ordered for the second pace; but it is best at first to make the paces as many as from eight to ten.

§ 36. *The chain passage.*

Is an exercise which is done in the short run or in the hop run.

The pupils are divided into two sections (A and B), which are placed at a convenient distance (about twenty paces), face to face, in a chain, and the usual distance between the pupils of each chain. At the order CHAIN PASSAGE: MARCH! the sections advance in a graceful walk, keeping time and pace till they are close to each other. At this moment the section A raise their arms, and those in B loose themselves from each other, pass under the arms of A, and immediately form the chain again; each section then proceeds onwards till it arrives at the spot from which the other section set out; here they face about, walk forwards as before, and once more the B section passes under the arms of the section A; the walk is continued till all are standing

in the original positions, when they stop and face about. In the passage under the arms, the pupils pass one another, each to his right hand. Two of such passages form a *tour* of the "*chain passage.*" This exercise can be also combined with other movements, which precede it, in the following manner:—

1. Both sections approach, then face about, and return to the first position, and face about again, and

2. Immediately approach once more, and on meeting, each pupil claps hands with his opposite, then face about and return, and then immediately

3. Approach third time, and pass through, repeating once more the process just described.

All the movements of the third periods, executed in this way so as to form a whole, constitute a *tour*.

Another variation can be made by the execution of the movements of the first period in the hop run, of the second in the short run, and of the third in the usual walk.

If there are too many pupils to be conveniently divided into two sections, they can be divided into four (A, B, *a*, *b*), and placed in such a manner as to form four sides of a square, so arranging that the sections *a* and *b* begin to approach each other as soon as A and B, after meeting, face about to return.

§ 37. *The satellite run.*

All the pupils are placed in one rank, and are told off in *ones* and *twos* (refer § 14, 4); they face to the right at the word of command, and are led, at an even step, so as to walk in the circumference of a circle, in the centre of which the leader places himself. At the words SATELLITE RUN: MARCH! the *ones* con-

tinue to walk in the circumference as before, in quick steps, while each of the *twos*, setting off at a quick, short run, goes round his No. *one*, who advances all the while. Each *two* forms a circle like the moon round the earth. At the words IN PACE! which should be given in a drawling way, so that the voice dwells on them, the *twos* cease to run, and take up the pace of the *ones*, and then fall in with them in the circle. Afterwards the run is done by the *ones* round the *twos*.

That these exercises may be done with accuracy, the whole section should not contain more than from ten to twenty pupils; if there are more, they must be divided into two or three sections. The circle must be described of such a size that there is sufficient interval for the satellites to move freely, for instance, three to six paces between the *ones;* and the *ones* must take care to preserve the same distance from each other. When the whole exercise is done correctly, each No. *two* will be at any moment on a similar point of the satellite's orbit. The *run tour* must not last too long, so as to fatigue the satellites. This exercise has different variations; for instance, the satellites may move in the same or in the opposite direction to their principals, or the principals may move in the marked step, etc.

§ 38. *The weavers' run* (fig. 44).

This exercise is done by two sections, the *ones* (fig. A, B, C, D) stand in a chain with distance in front, the *twos* (*a*, *b*, *c*) stand in a row one after the other, sideways with regard to the *ones*, and a few paces in advance. At the word WEAVERS' RUN:

MARCH! the *ones* walk abreast in chain walk straight forwards at quick step, the *twos* at the same moment begin the short run in a transversal direction, passing the front of the *ones*, when the last *two* (that is *c*) comes in front of the interval between A and B, and the other *twos* in front of the other intervals, they turn sharply and pass between A, B, C, D, the *ones* breaking the chain for a moment; as soon as they have passed the intervals, they turn behind A, B, C, D, and run round D, so as to come once more in front of A, B, C, D; they then pass through the same intervals, and then turning sharply, pass round A, and come once more in front. When this has been done five to ten times (according to the space at disposal), the sections change in the movements. To do this exercise with one section, there must not be less than seven persons, and not more than from twenty to twenty-four, and they must be divided in such a way that those who advance straight on should consist of one more than the others, that there may be an interval for each *two*. That the interval passage may be done uniformly, the *ones* must for several seconds *mark time*,* with the feet, while the others run round and come in front.

§ 39. *The wheel run* or *wheel walk* (fig. 47).

Is executed by sections of eight or twelve individuals. If there are eight, they are divided into pairs; if twelve, they are divided into *threes*. We will describe here the movement as done by four pairs. As soon as the pupils are placed in line, and told off

* This signifies that the feet are moved as if walking, but no advance is made.

in *ones* and *twos*, the exercise proceeds according to the following orders:—

(1.) TWOS: DOUBLE FILES! (§ 44, 1).

(2.) SECTION: TO THE RIGHT FACE!—HANDS GRASP! (in pairs.)

(3.) WHEEL WALK: MARCH!

The pairs advance, keeping time and step, and moving gracefully and easily, six paces forwards; then the first pair faces to the half-left, and proceeds again six paces (the other pairs still following), then faces on the spot to the left about in a full circle, and the other pairs, on arriving at the turning point, also face to the left. Meanwhile the first pair having done the second six paces, again face to the left, and move in the circumference of a circle, and each pair, on arriving at the same point, turn and describe the same course, so that a line drawn from the first pair to the third, or from the second to the fourth, will be a diameter of the circle, and then the inner one of the first and third pair, and of the second and fourth pair, take each other's hands across. When the wheel is formed, the order is—

(4.) SHORT RUN: MARCH!

On which the *short run* commences. After several runs in the same direction, the run is done in the opposite direction, for which purpose the order is—

(5.) SECTION: FACE ABOUT! or, IN PAIRS: FACE ABOUT!

In the first case, all let go their hold, and each pupil turns independently of the rest; the hands are again grasped, and the run continued. In the second case, only the crossed hands let go, each pair face

about as a pair, and the hands are again grasped, and so on.

When the exercise is to be closed, the order is given drawlingly—

(6.) PACE!

And as soon as all are in an even pace, follows—

(7.) FIRST PAIR STRAIGHT FORWARDS!

The crossed hands release themselves, and the first pair advances straight forwards in a direction which leads to the original formation, the other pairs follow, and then the whole section halts in front.

It is advisable to execute the whole *tour* of the *wheel run* several times at the walking pace only, before we try the short run.

§ 40. *The chain-double-turn* (fig. 45).

The number of pupils must be from eight to ten. They are subdivided into two sections of four (or five), which are placed opposite each other, and facing each other, about twenty paces apart, each section forming a chain (fig. 45, A—D, and *a*—*d*). From this formation the *tour* of the double turn is done in the following manner:—

(1.) *Both sections approach in chain walk:* at the moment of meeting—

(2.) *Hop run to the right sideways*, till the left-wing men D and *d* clasp their left hands; then, without interrupting the movement—

(3.) *To the left face, in the short run, one and a half circle*, and then—

(4.) Immediately D and *d* again let go their hands and the sections, turning their backs to each other, move to the left in the hop run, and, finally—

(5.) *Straight forwards in chain*, the whole returning to their original place of formation.

This exercise can also be done very well in such a way, that two pairs stand opposite each other as one group, and then several groups in the same front at a sufficient distance. Then all the groups simultaneously make the movement just described for eight individuals (fig. 46).

III.

EXERCISES WITH SUPPORT (OR ASSISTANCE).

(A.) EXPLANATIONS.

§ 41. We have already mentioned, in the introduction (§ 1), that the support which we want in the free exercises is a living one, and given mutually by the pupils, and that the word "*support*" inadequately expresses the nature of the action, inasmuch as its aim is not only to assist or fix a limb, but the so-called supporter must, by an appropriate placing of the hands on the limbs of the other pupils, not only fix and steady them, but also frequently oppose a certain amount of resistance to the action of the other, or produce actively a movement in another person, while this latter resists; or it may be required to produce, by the application of a living support, those movements which, in Ling's system, are called combined active movements.

§ 42. With regard to combined movements, in which one resists while the other makes the movement, it may be mentioned, that to prescribe and exactly apply them requires a perfect knowledge of Ling's system, and the necessary accessory sciences. By their abuse or their false application, or a bad execution, great

damage may be done to the pupil, while they are of the greatest use and importance under skilful direction.

Only a few of the most simple combined movements, and such as are easily understood, will be given here; they will serve as instances of the exercises meant, and show that Ling's free exercises form a complete series, having no gap or deficiency.

§ 43. With regard to the movements with support, we must remark, in general, that their usefulness consists principally in the following particulars.

1. They allow the specific application of actions, either for the sake of increasing the strength in general, or in case of a definite indication, as, for instance, of weakness in a particular part.

2. They develope and improve the sense for definite and exact movement.

3. They effect a farther development of the sense of equilibrium.

4. By giving a nice perception of movement in our own limbs, they give the same nicety with regard to the movement of the limbs of others, and to the power exerted by them.

5. By the various multiform placing of the hands, fixings, etc., which must be done in a quick, prompt, clever way, we habituate the pupil to sharp and ready action, and give him the aptitude to afford prompt and ready assistance to others in the vicissitudes of life.

6. We learn by these exercises to apply our strength and direct our movements in concert with others, for one and the same purpose.

§ 44. The support given during the free exercises by a single individual will be called "*single support*,"

to distinguish it from that given by two or more persons. The formation for the support exercises is partly that given in § 12, etc., partly also of another kind, according as the single, double, or manifold support is to be applied.

For the exercises with a single support, the pupils are told off in *ones* and *twos*, and then the order is—

(1.) Twos DOUBLE FILE! The *twos* take one pace backwards with the left foot, and then one pace to the right with the right foot, *i. e.*, behind No. 1, and then bring the left foot up to it. In this way the *ones* and *twos* stand behind each other, forming two deep. Or it is ordered—

(2.) Twos: OPENINGS COVER! on which the *twos* step one pace back, and stand behind the interval between the *ones*. If the full front is to be re-established from one of these two positions, the order is—

Twos FRONT RANK: MARCH! on which the *twos* take up their position between the *ones*.

The formation for the exercises with the double and manifold support are done in a similar way.

§ 45. As to the *hand-placings* which are to be used during the exercises, with support, we mention only the most simple and frequent, observing that when a hand is said to be placed on a joint, it is in reality placed in the immediate neighbourhood only, so as not to interfere with the free movements of the joint. The hold must be free and easy, without fettering the joint.

(*a*) *Placing the hands to the head.* The place where the hands are put on the head is the circle above the eyebrows, and the upper edges of the ears.

(1.) THE HEAD FORWARDS SUPPORTED! The hands are placed transversely towards the forehead.

(2.) THE HEAD BACKWARDS SUPPORTED! The hands transversely on the back part of the head.

(3.) THE HEAD TO THE RIGHT (LEFT) SUPPORTED! The hands are placed transversely on the respective side of the cranium.

(4.) THE NECK SUPPORTED! The hand, with the tips of the fingers upwards, and the fingers on the back part of the head; the palm of the hand on the neck, and the fore arm along the spine.

(*b*) *Placing of the hands on the trunk*

(*α*) *Hand-placings on the upper part of the trunk.*

(1.) THE SHOULDER FORWARDS SUPPORTED! The hand, with the fingers upwards, is placed on the anterior or chest side of the shoulder.

(2.) THE SHOULDER BACKWARDS SUPPORTED! The hand, with the fingers upwards, placed on the posterior or back part of the shoulder.

(3.) THE SHOULDER UPWARDS ASSISTED! The hand placed on the shoulder from above, with the thumb separated from the other fingers, and placed either before or behind.

(4.) THE SHOULDER BELOW SUPPORTED! The hand placed from below in the armpit, the thumb separated from the other fingers, and placed either before or behind.

(5.) THE SHOULDER OUTWARDS SUPPORTED! The hand placed on the external side of the shoulder on the upper arm, with the thumb either before or behind.

(6.) THE RIGHT (LEFT) SHOULDER-BLADE SUP-

PORTED! The extended flat hand placed on the designated shoulder-blade, with the fingers upwards.

(7.) SUPPORT BETWEEN THE SHOULDER-BLADES! The extended flat hand, with the fingers upwards, is placed between the shoulder-blades on the spine.

(β) *Placing of the hands on the lower part of the trunk.*

(1.) ABDOMEN SUPPORTED! The hands placed transversely on the region of the navel.

(2.) THE HIPS RIGHT (LEFT) SUPPORTED! The hand placed transversely on the respective hip-bone and on its upper edge.

(3.) THE CHINE SUPPORTED! The hands placed transversely on the chine-bone and lowest lumbar vertebræ.

§ 46. *Placing of the hands on the upper limbs.*

(c) *Supports on the arms.*

(1.) THE ELBOW BACKWARDS (FORWARDS) SUPPORTED! The hand encircles, with the thumb before or behind, the lower part of the upper arm; the little finger being next the joint itself (fig. 29).

(2.) THE ELBOW INWARDS SUPPORTED! The hand encircles the lower part of the upper arm in front, the thumb being next the joint.

(3.) HAND-JOINT SUPPORTED! The hand encircles the fore arm near the hand-joint, so that the thumb and fore finger are next the joint (fig. 30).

(4.) THE HAND-JOINT INWARDS SUPPORTED! so that the little finger is next the hand-joint (fig. 31).

(5.) THE HAND-JOINT UPWARDS SUPPORTED! The hand of the support passes from behind, under the half-forwards bent arms of the pupil, and then, by an upward side movement, takes hold from above of the

fore arms, so that the thumb and fore finger are on the hand-joint, the rest of the fingers on the fore arms (fig. 32).

(*d*) *Supports on the hand.*

(1.) HAND SUPPORTED! (also, HANDS GRASPED!)

The two pupils grasp each other's hands in such a manner that one flat hand lies in the other flat hand, the thumb of each behind the knuckles of the other's hand, and the rest of the fingers encircling it.

(2.) HAND INWARDS SUPPORTED!

The supporter places his flat hand with the back part towards the inner surface of the forwards-stretched hand of the other pupil (fig. 33).

(3.) HANDS OUTWARDS: SUPPORTED!

The supporter places his hands with their inner surface on the back of the other's hands (fig. 33).

(4.) FINGERS SUPPORTED!

Each pupil applies his fingers by their palm surfaces to those of the other, either straight, or crooked so as to hook together.

§ 47. *Placing of the hands on the lower limbs.*

(*e*) *Hand support for the knee.*

(1.) KNEES FIRM!

The pupil takes hold of his own knees, immediately above the knee-pan, with the thumb and fingers on opposite sides, and the arms stemmed on the knee.

(2.) KNEES FIXED WITH THE BACK OF THE HAND!

The pupil places the back of the hand on his knees, immediately above the knee-pan. The inner part of each hand being bent a little hollow (fig. 37).

(3.) KNEES INWARDS (OUTWARDS, UPWARDS, DOWNWARDS) SUPPORTED!

The pupil places his hand on the designated side of the knee; at the order KNEES DOWN: SUPPORT! the hand is so far placed under the raised thigh that the fingers encircle the inner side of the thigh, and the thigh presses partly on the fore arm.

(*f*) *Hand supports on the foot.*

(1.) FOOT-JOINT BELOW SUPPORTED!

The raised lower leg is encircled from below by the hand of the supporter just above the ankles, and held suspended by it.

(2.) FOOT-JOINT ABOVE SUPPORTED!

The supporter places his hand on the instep, with the finger and thumb separated, and placed on opposite sides (fig. 38); both of these foot supports are usually applied simultaneously.

The lower limbs of one pupil are often fixed by the corresponding limbs of another.

(1.) *On the knee*, at "KNEE WITH KNEE INWARDS (OUTWARDS) ASSISTED!"

The supporter places his knee with the inner side against the inner side of the other's knee, or with the outer side against the outer side.

(2.) *On the foot*, at "FOOT WITH FOOT INWARDS (OUTWARDS) ASSISTED!"

The supporter places his foot with the inner (outer) edge against the inner (outer) edge of the foot (or respectively of the heel) of the other pupil.

As soon as the teacher has shown and explained these and similar applications of the hands, etc., and the pupils are familiar with them, then commence the

combined movements of which we give here only a few instances.

(B) INSTANCES OF EXERCISES WITH SINGLE ASSISTANCE.

§ 48. (1.) We must observe beforehand that the formation is, if not otherwise ordered, the double file (§ 44, 1), or, after the front is closed, the flank position to the right or left (§ 14).

(2.) The sign W. R., means that the movement is done with resistance. The signs 1 R., 2 R., that the pupil designated by the number resists while the other moves.

(3.) That the *ones* and *twos* may both go through the whole of a movement, they must change places after the exercise is finished, and commence again.

(4.) Resistance is to be given steadily, and in proportion to the power of the person resisted; there must be no violence, and the resistance must not be so strong as to stop the movement of a limb altogether.

The aim is not to determine the relative strength of the two parties, but gradually to develope and increase the strength of each.

(5.) As soon as the commencing position is taken and the support set up, the supporter must fix his feet and so ply the upper part of his body, as to accommodate himself to the movement of the other pupil, and be always prepared to oppose.

(6.) When the action is finished, the *ones* and *twos* change places. At the word POSITION! all assume the fundamental position, and at ASSISTANCE PLACE!

(or, ASSISTANCE and COMMENCING POSITION CHANGE!) the *ones* and *twos* change places.

(*a*) INSTANCES OF SINGLE LIMB MOVEMENTS.

§ 49. First instance. *Backwards and forwards guiding of the upper arms*, W. R. (fig. 29.) The order is—

No. 1. HIPS FIRM!

No. 2. LEFT FOOT FORWARDS AND ELBOW (BEHIND) ASSIST! (SUPPORT!)

No. 2. ARMS BACKWARDS: GUIDE! (1 R.)

The *ones* hold their hands firmly on the hips; the backwards guiding of their arms by the *twos*, while the *ones* resist, is not carried so far as to bring the elbows together.

No. 1. ARMS FORWARDS: GUIDE! (2 R.)

No. 1 brings his arms again forwards into the front line; then follows—

POSITION!—WHOLE SECTION FACE ABOUT!—ASSISTANTS PLACE! etc. (*i. e.*, *twos* take the position of the *ones*.)

§ 50. Second instance. *Stretching upwards of the arms*, W. R. (fig. 30.)

No. 1. ARMS UPWARDS: BEND!

No. 2. LEFT FOOT FORWARDS, and HAND-JOINTS ASSIST!

No. 1. ARMS UPWARDS: STRETCH! (2 R.)

The stretching is done slowly, No. 2 resisting.

No. 2. ARMS DOWNWARDS: BEND! (1 R.)

The arms of No. 1 are bent down by No. 2 into the commencing position, while No. 1 resists; then follows—

POSITION!—WHOLE SECTION FACE ABOUT!—ASSISTANTS PLACE! etc.

§ 51. Third instance. *Bringing downwards and upwards of the arms sideways* (W. R.)

(*a*) *From stretch position* (fig. 31.)

No. 1. ARMS UPWARDS: STRETCH!

No. 2. LEFT FOOT FORWARDS, and HAND-JOINT INSIDE: ASSIST!

No. 2. ARMS DOWNWARDS: BRING! (1 R.)

No. 2 brings the stretched arms of No. 1 sideways down to the horizontal position; then—

No. 1. ARMS UPWARDS: BRING! (2 R.)

No. 1 brings his stretched arms again into the commencing position.

POSITION!—WHOLE SECTION FACE ABOUT!—ASSISTANTS PLACE! etc.

(*b*) *From yard position.*

No. 1. ARMS SIDEWAYS: STRETCH!

The hands are turned palms downwards. The rest is similar to the preceding, only the bringing downwards of the arms is continued to the thighs, and the carrying upwards to the horizontal line of the shoulders.

§ 52. Fourth instance. *Bringing down and upwards of the fore arms*, W. R. (fig. 32.)

No. 1. ARMS HALF FORWARDS: BEND! (§ 22, 1.)

No. 2. LEFT FOOT FORWARDS and HAND-JOINTS UPWARDS: ASSIST!

No. 2 puts his arms beneath the arms of No. 1, and then takes hold from above of the hand-joints of No. 1.

No. 2. ARMS DOWNWARDS: BRING! (1 R.) The movement is done only so far that the fore arms of No. 1 hang down vertically.

No. 1. ARMS UPWARDS: BRING! (2 R.) The movement is done till the fore arms are in the horizontal position.

POSITION!—WHOLE SECTION FACE ABOUT!—ASSISTANTS PLACE! etc.

§ 53. Fifth instance. *Backwards and forwards bringing of the arms*, W. R. (figs. 33, 34.)

This action is done from open position, and a turn of one-eighth of a circle; the order for this position is—

No. 2. OPENINGS COVER!

No. 1. FACE ABOUT!

Nos. 1 and 2. HALF RIGHT: FACE! then follows—

No. 1. RIGHT FOOT BACKWARDS, and ARMS FORWARDS: STRETCH!

No. 2. LEFT FOOT FORWARDS, and HAND-JOINTS INWARDS SUPPORT!

No. 2. ARMS BACKWARDS: BRING! (1 R.)

No. 2 gradually bends the upper part of his body forwards. The movement is continued to yard position.

No. 1. ARMS FORWARDS: BRING! (2 R.)

No. 2 brings the upper part of his body gradually back into the upright position.

POSITION!—ASSISTANCE, and COMMENCING POSITION CHANGE! etc.

§ 54. Sixth instance. *Drawing the arms sideways to and fro*, W. R. (fig. 35.)

Formation in line, with distance (according to § 12), then FEET SIDEWAYS: PLACE!

No. 1. ARMS UPWARDS: BEND! and No. 2, HANDS GRASP!

No. 2. ARMS SIDEWAYS: PULL!

This pulling is done with resistance till the arms of No. 2 are in the bent position, and the arms of No. 1 are stretched.

No. 1. ARMS SIDEWAYS: PULL!

The same movement executed by No. 1, while No. 2 resists.

POSITION!

§ 55. Seventh instance. *Stemming* of the arms* (W. R.)

In double file position.

No. 1. FACE ABOUT!

Nos. 1 and 2. LEFT FOOT BACKWARDS: PLACE! and ARMS HALF FORWARDS: BEND! (according to § 22, 1.)

HANDS GRASP!

In this mutual support of the hands, they are a little bent backwards.

No. 1. ARMS FORWARDS: STEM! (2 R.)

No. 2. ARMS FORWARDS: STEM! (1 R.)

Each, in his turn, stems his own arms towards those of the other, till they are quite straight.

§ 56. Eighth instance. *Alternate knee flexion while one leg is raised forwards.*

This exercise is done without resistance, one pupil merely securing the other in his position.

Formation in open position, and No. 1, "*face about.*"

FINGERS: ASSIST!

No. 1 places his hands, a little bent and with the knuckles turned downwards, so far forwards that No. 2 can conveniently reach them.

* Stem, to thrust or push against.

No. 2 places his fingers on the offered hands. Then follows the order for the commencing position—

No. 2. RIGHT LEG FORWARDS: RAISE!

The leg is stretched to about forty-five degrees, then follows the exercise itself—

No. 2. LEFT KNEE: BEND!—STRETCH!

During this flexion the upper part of the body must be as vertical as possible, and the raised leg remains stretched in the air. At the order "*stretch*," the left leg resumes its straight form; at "*change*," the change of the feet follows for No. 2, as well as the whole action for his right knee; and then the Nos. change their position, in order that the exercise may be done by No. 1.

§ 57. Ninth instance. *Bending and stretching of the head* (W. R.)

(*a*) *In the lateral direction.*

Formation in closed front, then the *twos* to the "*right face.*"

No. 2. RIGHT FOOT FORWARDS: PLACE! and HEAD ON RIGHT: ASSIST!

The right foot is placed with its internal edge close behind the heels of No. 1. The assisting hands are placed to the head in such a way that the right hand passes round the back, and the left hand round the forehead, till they meet, and the fingers of one hand are over those of the other, so that the right side of the head lies imbedded in the hollowed palms (§ 45, *a* 3). The right hand is that which assists principally, therefore the right elbow is made to lean firmly on the back of No. 1. As soon as the assistance is given, follows—

No. 2. HEAD TO THE LEFT SIDEWAYS: BEND! (1 R.)

No. 1. HEAD STRETCH! and TO THE RIGHT SIDEWAYS BEND! (2 R.)

After the flexion to the left, the assisting hands leave the head, which No. 1 steadily brings back to the upright position. By this action with resistance, only the muscles of the right side of the neck of No. 1 are brought into action; in order that the muscles of the left side should also come into action, then follows—

No. 1. FACE ABOUT!

No. 2. GIVE ASSISTANCE! etc.

After this change of the assistants, the movement of the head for No. 1 is done similarly to the previous. In order that the *twos* may go through the same movement, the order is for the *ones*, who still stand in the "*face about*" position—

No. 1. TO THE RIGHT FACE!—ASSISTANTS PLACE! etc.

(β) *In the direction from forwards to backwards. Head bending and stretching.*

The formation is either the flank position or the file position for all.

This exercise is similar to the previous, but the assistant places his right foot close to the right of the other, and the assistance on the head is given with both hands on the forehead, or the back part of the head.

(*b*) INSTANCES OF OTHER EXERCISES WITH SINGLE ASSISTANCE.

The following instances belong to another series of exercises, the aim of which is not, as in the preceding, to strengthen single limbs, or produce a specific effect

on certain parts, but to give suppleness and strength to the body generally, to develope the sense of equilibrium, and to habituate the pupil to maintain his body firmly and steadily in a defined position, even when pressed by weights, or acted on by sudden and violent impulses from without.

§ 58. Tenth instance. *Leap with assistance in the hang position with support.*

To be done in the file position.

RIGHT (LEFT) FOOT FORWARDS: PLACE!

No. 1. HIPS FIRM! and No. 2, ON THE SHOULDERS: LEAN!

No. 2 places his hands, with the elbows raised, on the shoulders of No. 1.

No. 2. IN THE HANG POSITION WITH SUPPORT: LEAP!

No. 2 leaps upwards, and remains propped up by his own arms upon the shoulders of No. 1.

No. 2. DOWN!

No. 2 leaps down, his hands remaining on the shoulders of No. 1, in readiness to repeat the leap, if ordered, which is usually done several times.

POSITION!—WHOLE SECTION FACE ABOUT! etc.

§ 59. Eleventh instance. *Double arm bending and stretching in the hang position with support.*

The formation is the open position.

No. 1. FEET SIDEWAYS: PLACE! and HANDS GRASP!

No. 2. RIGHT (LEFT) FOOT FORWARDS: PLACE! and ON THE SHOULDERS LEAN!

The leaning with the hand on the shoulder is done in such a manner that the *twos* are afterwards between two *ones*, in the hang position with support (fig. 41).

No. 2. IN THE HANG POSITION WITH SUPPORT: LEAP!

No. 2 raises himself with a leap and with the assistance of his arms into the hang position with support, so that his body hangs vertically between two *ones*.

No. 2. ARMS BEND!—STRETCH!

The arms are bent to a right angle at the elbow, and then straightened.

No. 2. DOWN!—POSITION!—WHOLE SECTION FACE ABOUT! etc., on which the *ones* make the same movement.

If the two *ones* between whom the No. 2, has to take his hanging position with support are of a very different height, this inequality must be compensated by the foot position, or by the greater flexion of the knee of the taller individual.

Assistance for the double arm flexion may also be given at first by the supporters, who can assist No. 2 to leap, at the order, SHOULDERS DOWN: ASSIST! and by the same means the arm bending and stretching can be made easier.

§ 60. Twelfth instance. *Stride-leap with support.*

The formation is file position, and then the No. 2 THREE (OR MORE) PACES BACKWARDS: MARCH! Then follows—

No. 1. GIVE SUPPORT!

No. 1 places one foot a little in advance, bends himself somewhat forwards, and stems his hands at KNEES FIRM!

No. 2. STRIDE-LEAP WITH SUPPORT: LEAP!

No. 2 with a run, approaches the supporters from behind, and then, leaning with his hands on the shouldes of two *ones*, he makes the stride-leap (§ 31, 2), so as

to go right over the head of No. 1, and alights on his closed feet beyond.

No. 2 then places himself a few paces from No. 1 as a supporter, and then No. 1 leaps in the same manner over No. 2. This exercise can be done also in other formations; for instance, in the open flank position, in which case the last in the line has to leap over all those who are before him. It is advisable to practise this leap for some time as first described.

§ 61. Thirteenth instance. *Catch-and-throw leap.*

Formation as above, in the twelfth instance. Then—

No. 1. FACE ABOUT! and GIVE SUPPORT!

As soon as No. 1 has faced about, he places one foot, with a little flexion of the knee, in advance; the upper part of the body is bent a little forwards, and the arms raised in front, ready to grasp with the hands.

No. 2. LEAP!

No. 2 approaches with a vigorous run, leaps simultaneously with both feet from the floor over No. 1, and about two paces beyond; he bends the upper part of his body strongly forwards, and with the arms raised, he leans immediately (just at the moment of up-leaping) on the shoulders of No. 1, and is caught by him, at the same moment, by the thighs. In this supported position, in which his perfectly stretched body is almost horizontal, No. 2 remains for a few moments. At the order—

No. 2 DOWN! he presses vigorously with his own arms, and thus impels himself backwards. No. 1 at the same time throwing him back.

Then follows immediately, without change of the formation, the leap by No. 1, No. 2 placing himself

as a support. When this leap is sufficiently practised, it can be repeated several times without pause, and also alternately by *one* and *two*.

§ 62. Fourteenth instance. *Climbing on the shoulders and deep leap.*

This exercise, besides being useful to increase the general strength, serves as a balancing exercise, and is one likely to be practically useful in life. Besides, the position on the shoulders of another person gives an opportunity of enlisting the deep leap among the free exercises. The formation is double file position.

GIVE ASSISTANCE!

Nos. 1 and 2 place the right (left) foot forwards.

No. 1, with his arms hanging down, turns the palms backwards, and curls up his fingers, so that No. 2 can put his foot in the hand, as in a stirrup.

No. 2 leans his hands on the shoulders of No. 1, and places the left (right) foot gently in the respective hand of No. 1. Then the order is—

No. 2. CLIMB ON THE SHOULDERS!

No. 2 raises himself quickly with the assistance of his own arms, and places his right foot immediately on the right shoulder of No. 1, while he takes his right hand from the shoulder of No. 1, and grasps with it the hand of No. 1, raised up for the purpose. He then takes his left hand from the shoulder, and grasps the left hand of No. 1, raised for the purpose. At the same time he draws up the left foot towards the left shoulder of No. 1. Leaning in this way on both hands of No. 1, he raises himself, by a gradual and cautious stretching of his knees, till he stands upright, and without any hand-support.

After a few moments, the order is—

No. 2. FORWARDS: DOWN! or BACKWARDS: DOWN!

On which he leaps down on both feet in the prescribed direction; then—

CHANGE OF THE NOS., etc.

This exercise can be done in such a way that No. 2 climbs on the shoulders of No. 1, in front. In this case the supporter makes a greater flexion of the knee of the advanced leg, and places his hands forwards; then—

1. The other takes hold of the offered hands, and places the foot gently on the bent knee.

2. In the second motion he raises himself on this knee, assisting himself with his arms, and places the other foot on the other shoulder of the supporter.

3. In the third motion he raises the first foot on the corresponding shoulder, and brings himself cautiously into the upright position, facing in the opposite direction to the supporter.

The leap down and backwards can be easily done from this position, with mutual hand assistance.

Besides the above-mentioned exercises with single support, many other heaving, lifting. and bearing exercises and leaps could be described, all belonging to the same series. These instances may, however, suffice, and the more so as many similar exercises, but more easy and effective, can be executed with double assistance.

(*c*) INSTANCES OF EXERCISES WITH DOUBLE ASSISTANCE.

The pupils standing in front are told off in "*one, two, three,*" so as to form groups of threes. The

change of the Nos., by which each pupil is made to go through all the parts of a movement, takes place when the exercise is finished. The more simple and easy exercises can be done by all the groups at once. The more difficult exercises should be practised first by each group separately, till the pupils are familiar with all the positions.

The exercises with double and manifold assistance must be also executed and commanded according to certain rules, but the order is given only for the principal features of the action, and not for each single foot position, hand-placing, etc.

§ 63. First instance. *Double arm bending and stretching in the inclined standing position, with or without resistance.*

The formation for this exercise is the close-front position with loose touch. Then at an order, the *ones* face to the left, the *threes* to the right. Then follows—

GIVE ASSISTANCE!

No. 1, THE RIGHT FOOT, and No. 3, THE LEFT FOOT IN THE PASS POSITION (according to § 18, 5), FORWARDS PLACE, and KNEES FIX WITH THE BACK OF THE HAND! (§ 47, 2.) Then No. 2 bends forwards with stretched arms, places his hands on those of *one* and *three*, while his feet are placed so far backwards, that the body is perfectly stretched in the inclined position, and rests only on the hands and toes (fig. 37).

No. 2. ARMS: BEND!—STRETCH!

He bends his arms at the elbow to a right angle, or even a little more, and then again straightens them.

If this movement is to be done with resistance, Nos. 1 and 3 place their free hands in the shoulder-support position (§ 45, *b* 6), and resist by a proportionate uniform pressure.

POSITION! (that is, return to the formation.)

Nos. 1 and 2 CHANGE!—GIVE ASSISTANCE! etc., and as soon as No. 2 has made the movement, then follows—

Nos. 1 and 3 CHANGE!—GIVE ASSISTANCE! etc.

§ 64. Second instance. *Trunk backwards bending, and stretching in stretch-standing position.*

Formation, close front with loose touch; then

No. 1, THE LEFT FOOT, No. 3, THE RIGHT BACKWARDS: PLACE! Then follows, GIVE ASSISTANCE!

No. 2 stretches his arms upwards, Nos. 1 and 3 place their respective hands on the chine of No. 2 (fig. 36).

No. 2. TRUNK BACKWARDS: BEND!

He bends the trunk gradually back, Nos. 1 and 3 bending their bodies a little forwards, so that the support may have a greater firmness, and that No. 2 may be able, with perfect security, to execute the backward flexion, made more difficult by the stretch position. After the stretching is done, the order is—

POSITION! etc.

§ 65. Third instance. *Down pressure and raising of the thigh with resistance.*

Formation as in Instances 1 and 2; then—

GIVE ASSISTANCE! etc.

No. 1 places the right, No. 3 the left foot forwards.

No. 2 leans with his hands on the back shoulder of Nos. 1 and 3, and bends the right knee upwards (ac-

cording to § 19, 5), upon which No. 1 immediately makes the knee support upwards (according to § 47, 3).

No. 1. KNEE PRESS DOWN! (2 R.)

The pressing is done while No. 2 resists, till the thigh is in a vertical position.

No. 2. KNEES RAISE! (1 R.)

No. 2 again raises the knee, while there is a proportionate resistance given by No. 1; then—

No. 2. FEET CHANGE!

He places the right foot down and raises the left knee, on which No. 3 resists, etc.

§ 66. Fourth instance. *Stretching of the lower leg with resistance.*

Formation as in Instances 1 to 3; then—

GIVE ASSISTANCE!

To be executed according to fig. 38; afterwards—

No. 2. RIGHT KNEE STRETCH! (1 and 3 R.)

No. 2 stretches the knee till it is in stretch position, while Nos. 1 and 3 resist proportionately.

Then follows the change of the feet for No. 2, etc., and then the change of the Nos., etc.

§ 67. Fifth instance. *The high leap.*

Formation, open position, while Nos. 1 and 3 remain in the front line, and Nos. 2 being from three to six paces in the rear.

GIVE ASSISTANCE!

Nos. 1 and 3 take the position of fig. 39, the fore arms stretched towards each other, giving the fingers assistance (according to § 46, *d* 4).

No. 2. LEAP!

No. 2 approaches with a run, and leaps freely over

the arms of Nos. 1 and 3, which at first should be held about the height of the knees, and later in the exercise be gradually raised to the height of the stride, of the hips, of the chest, etc.

Nos. 1 and 3 hold the free arms in readiness to catch No. 2, should he stumble.

The high-leap can, in this position of the assistant, be also practised as a close-leap from the spot, while the leaper approaches so near his supporters that he can leap from the spot with closed heels, over the arms extended before him.

§ 68. Sixth instance. *Round-leap with support.*

Formation, the open position, as in the fifth instance; then—

GIVE ASSISTANCE!

Nos. 1 and 3 take the position as in fig. 40; No. 2 advances a little, and leans his hands, with the thumb-grasp, on the assisting hands of Nos. 1 and 3, whose elbows are placed firmly on the hips.

No. 2. LEAP!

He springs with both feet from the floor in such a way that the feet (closed) are up in the air, and the head downwards; by the impulse the whole body is turned over and the feet come down again on the floor, on the further side of the support. The supporting arms thus form an axis of rotation, and the supporting Nos. assist by an adjustment of the body to the movement, and hold their free arms and hands in readiness to assist the leaper, if necessary, on coming down.

It is advisable that this exercise should be first done by each group separately.

When the exercise is sufficiently practised in the manner just described, it may be performed with the preparatory run.

§ 69. The leap exercises described in 5 and 6, and many other exercises, may be done by groups of three; as, for instance—

1. *The leap in the hang position with support, with double-arm-flexion.*

2. *The through-leap with support from the spot, or with a run.*

3. *The climbing on the shoulders, with deep leap.*

The climbing is to be ordered in such a way, that the climber is to stand with a foot on one shoulder of each supporter.

§ 70. *Heaving exercises.*

These can be also done by groups of two, consequently with single assistance (but more easily by groups of three, with double assistance). These exercises may be done in different ways.

Seventh instance. *Burden-heaving (deep).*

Formation in front, the *twos* one pace forwards, No. 1 face to the left, and No. 3 to the right.

GIVE ASSISTANCE!

Nos. 1 and 3 take each other's hands in such a way that the hands of No. 1 are flat, and with the palms upwards, and No. 3 takes hold of them at the order—

HAND-JOINT DOWN: SUPPORT!

As soon as this is done, No. 2 bends backwards and lies horizontally and perfectly stretched upon the arms of the supporting Nos.

Nos. 1 and 3. KNEES: BEND!—STRETCH!

The supporters bend their knees and then straighten

them again, by which the burden is lowered and raised.

Eighth instance. *Burden-heaving (high).*

No 2 leans with his hands on those of No. 1, who has bent and raised his fore arms. On this, No. 3 grasps the legs of No. 2 at the knees, and raises them till each leg lies on one of his shoulders. At the order RAISE! Nos. 1 and 3 stretch their arms upwards and thus lift No. 2, who is lying stretched; at the order SINK! he is brought slowly down, etc.

§ 71. *Carrying-exercises.*

These also can be done in different ways, for instance—

Ninth instance. *Carrying on the arms.*

Formation as in the seventh instance. Then—

GIVE ASSISTANCE!

Nos. 1 and 3 take each other's back hands, and hold firmly; No. 2 sits on the arm-support, and places his arms round the neck, upon the outer shoulder of the supporters. At FORWARDS: MARCH! the supporters carry No. 2 in pace, or later, in a short run, a certain distance.

Tenth instance. *Carrying on the side.*

Formation, open-flank-position; then No. 2 steps a little to the right (left) sideways.

GIVE ASSISTANCE!

No. 2 bends backwards, and is held round the upper part of his body by the right arm of No. 3; the fore arms supporting his back.

Afterwards No. 1 takes hold of the knees of No. 2, and raises the legs till No. 2 lies horizontally on his right side.

The burden is carried forwards, as in the last, at the command FORWARDS : MARCH !

No. 2 may also be placed with the back downwards, outwards, or inwards.

§ 72. Eleventh instance. *Swinging up and down on the arm-support.*

Formation, open position, No. 2, however, being a little in the rear.

GIVE ASSISTANCE !

No. 1 brings the right foot, No. 3 the left foot, forwards, and both give the arm-support to No. 2. This support is made by Nos. 1 and 3 raising their near arms sideways, and laying them along each other, and then fixing them mutually by the thumb-grasp on the upper arm near the shoulder.

When this is done, No. 2 places himself to swing up, grasping with the hands under the arm-support. Then follows the order—

UPWARDS SWING : SWING !

On this No. 2 springs from the ground forwards upon the supporting arms, which form the turning axis, and swings round into the hang position with support. At the order DOWN ! he leaps backwards, down, or at the order—

DOWNWARDS SWING : SWING ! he changes the position of the grasp (so that the thumb is placed forwards and the other fingers backwards), and swings himself forwards, round, down.

Before the down swinging is done, immediately after the upwards swinging, it is better to practise the down swinging by itself. No. 2 leaps immediately from the standing position into the hang position

with support, and then executes the down swinging.

§ 73. If space permitted, many other exercises might be here enumerated. The following may be briefly mentioned.

(1.) *The stride-leap in a distance with support.*

Here the support is given by two pupils, over whom the third leaps as over a vaulting horse.

(2.) *The knee-hang-position*, executed on an arm-support, as mentioned in the eleventh instance.

(3.) *The tumble-standing-position upon the hands.*

The same position, with double-arm-flexion, can also be well executed on the knees of the two supporters.

The exercises with three or more supporters, the pupils being divided into groups of four, belong to a more extensive work. We will merely mention *the placing in pyramids*, an exercise which developes strength, flexibility, the sense of equilibrium, etc., and which may also be of practical value in the chances of life.

§ 74. If we consider the exercises mentioned in C, many may think that several of them are altogether superfluous and inadmissible; as, for instance, those with the turning-over and tumble position, as in Examples 6, 11, and § 73, 2 and 3. But there are good reasons for including even these and similar exercises. If we wish, by the free exercises alone, to attain the direct object of all gymnastics, namely, the harmonious development in all directions of the man as man, then in the organic influence of the position and movements no essential gap can be

allowed, as would be the case if the free exercises did not contain some of this kind. The tumble position and the swinging-round movements have a particular specific influence on the human body, and indirectly on the psyche of man, so that they cannot be substituted by any other free exercises. We will, however, observe that if, besides the free exercises, those with apparatus are also practised, the kind of positions supposed to be objected to can be omitted in the course of the free exercises. When, however, they are used, considerable care and caution are necessary.

IV.

WRESTLING EXERCISES.

(A.) SCHOOL EXERCISES.

§ 75. The pupils range themselves according to their height in one rank, and are told off, as in § 14, in *ones* and *twos*. The *ones* form the first, and the *twos* the second section. It is advisable in the school exercises, and at first in the contra-exercises, that each wrestling pair should consist of two as near as possible of the same height.

The school exercises must be done on level ground, and the last lessons, as well as the contra-wrestling, on a soft or loose soil.

The wrestling exercises, and indeed all gymnastic exercises, should be done equally to the right and left side; here therefore, as in the fencing exercise, the change of the guard must be noticed.

§ 76. First lesson. *Formation: taking up the guard position, change of the guard, approaching and taking distance,*

The two sections face each other at a distance of ten to twenty paces; each section with a distance between the pupils (§ 13, 2). Then the order is—

WRESTLING FIGHT RIGHT FORWARDS: GUARD!

The two wrestlers standing opposite each other,

and facing half to the left, place the right foot two distances forwards. The left knee is bent, so that the point of the knee is vertical over the toes. The knee of the right foot is also bent, but not so much as the other; the upright trunk rests on the back leg, and is a little twisted to the right, and the head still more so. The forward arm is bent, so that while the upper arm is a little removed from the body, the fore arm is vertical; the back upper arm is placed a little forwards, near the left side, and the fore arm is kept at a right angle with it, which the hands are ready to grasp. This position is taken as soon as the wrestlers are three paces distant from each other.

The guard position is taken by all (fig. 50).

The taking of the guard position is practised several times successively; at the order FUNDAMENTAL POSITION! the pupils resume that position.

FORWARDS CHANGE: GUARD!

The pupils turn on the heel of the forward foot, and bring the other foot in advance, so that the other side of the body is now in front, and the position of the arms changed.

BACKWARDS CHANGE: GUARD!

The turn is made on the heel of the back foot, the forward leg is brought back, so that the side which had been previously in advance is thrown back.

FACE ABOUT: GUARD!

The facing is done on the heels of both feet, about the fourth part of a circle; the trunk is at the same time turned so that the pupil faces in the opposite direction.

In each of these exercises, it is advisable, when the

guard position is taken, to order from time to time the so-called *appel treading*. By *appel treading* is meant a short, quick, lively raising and dropping of the forward foot two or three times (tapping the floor with the foot), the back foot remaining immovable, and the whole body resting well balanced upon it; as also the facings to the right and left, which are done by turning on the back foot. Then follows the order—

WRESTLING RIGHT (LEFT) FOOT FORWARDS: MARCH!

The sections approach and take their distance, walking freely and resolutely towards their opponents, till about three paces distant; then all place themselves in the designated guard position, and approach with very short paces and ready for the struggle, till the opponent can be seized with the stretched arm; and this is the *distance* generally to be understood as taken in these exercises. At this moment the teacher orders several times the change of the guard, and then—

FACE ABOUT!—MARCH!

On which each section returns to its previous place. This exercise is several times repeated.

§ 77. Second lesson. *Practice of the arm-grasp* (fig. 51).

(1.) WRESTLE WITH ARM-GRASP, RIGHT (LEFT) FOOT FORWARDS: MARCH!

Approaching, taking up the guard position, and the distance, as in the first lesson.

(2.) GRASP!—GUARD!

At "*grasp*," follows the arm-grasp. The arm-grasp is made by each wrestler seizing firmly the arms of his opponent just above the elbow (fig. 51). At "*guard*,"

they quickly let go their hold, and again take the guard position and distance. The grasping and letting go are done two or three times, and repeated after the change of the guard. The antagonists may also, without giving up the guard position, go back at the order THREE PACES BACKWARDS: MARCH! and again advance at the order TAKE DISTANCE!

(3.) FACE ABOUT!—MARCH!

They return to their original position, as in the first lesson.

§ 78. Third lesson. *Practice of the grasp of the back* (fig. 52).

(1.) WRESTLE WITH BACK-GRASP!

The back-grasp is made by each wrestler taking hold of his opponent round the body, so that his hands are nearly or quite together on the lumbar region of the vertebræ of the opponent.

RIGHT (LEFT) FOOT FORWARDS: MARCH!

Approaching, taking up the guard position and distance, as in the first lesson.

(2.) GRASP!—GUARD!

Done in the same way in the second lesson, only that now the back-grasp is executed uniformly by the respective opponents.

(3.) FACE ABOUT!—MARCH! (as before.)

§ 79. Fourth lesson. *Practice of the stride-grasp* (fig. 53).

(1.) WRESTLE WITH STRIDE-GRASP!

The stride-grasp is made by the pupil specified placing his forward arm and hand between the thighs of his opponent, and endeavouring to lift him from the ground.

RIGHT (LEFT) MARCH! (as in the previous lessons.)

(2.) No. 1 GRASP!—GUARD!

As the stride-grasp is always done by one person only, the pupil who executes the grasp must be specified. When the grasp from the same guard position has been several times repeated, the opponent removes at the order THREE PACES BACKWARDS! the distance is again taken, and then follows—

(3.) No. 2 GRASP!—GUARD!

On which No. 2 grasps. Then follows the change of the guard and the repetition of the grasp, first, of No. 1 and then of No. 2.

(4.) FACE ABOUT!—MARCH!

§ 80. Fifth lesson.

An exercise consisting of mutual stemming and pulling, with repetition of the previous lessons.

(1.) STEM WITH ARM-GRASP RIGHT (LEFT) FOOT FORWARDS: MARCH!

As in the previous lessons.

(2.) GRASP!—STEM!

The opponents take hold of each other with the arm-grasp, and at the order "*stem*," begin to thrust each other from the place by mutual straight stemming (with arms and feet). When this has lasted a few seconds, the order is—

(3.) HALT!—GUARD!

At "*halt*," the stemming ceases, but at "*stem*" it again begins. At "*guard*," the wrestlers let go, place themselves on guard position, and take the distance.

Then follows the change of the guard, and the stemming is resumed; the order is—

(4.) FACE ABOUT!—MARCH!

(5.) PULL WITH ARM-GRASP, RIGHT (OR LEFT) FOOT FORWARDS: MARCH!

Approaching, etc.

(6.) GRASP!—PULL!

As in 2, with this difference, that the opponents now try to pull each other from the spot; the rest as in 3 and 4.

The stemming and pulling are combined with arm-grasp, because this exercise is used later under this form in the contra-wrestling; but it can be practised also under other forms, as, for instance, the stemming can be done by the mutual placing of the hands on the shoulders forwards also, and the pulling with the hands grasped.

§ 81. In the following lessons the exercises are done as in the previous lessons, but the wrestling itself follows at an order; therefore the pupils of each section are to be placed at a little greater distance, so that, after the approaching, the wrestling pairs are about three paces from each other.

The wrestling in this lesson is not to be continued till the opponent is thrown on the ground, therefore the teacher must give the order HALT! at a suitable time.

Sixth lesson. *Wrestling at the word of command.*

(*a*) *With arm-grasp.*

(1.) WRESTLE WITH ARM-GRASP RIGHT (LEFT) FOOT FORWARDS: MARCH!

(2.) GRASP!

(3.) WRESTLE!—HALT!

After "*halt*," follows (after a short pause) either the command "*wrestle*," or—

(4.) GUARD! and then—

(5.) GUARD CHANGE!—GRASP!—WRESTLE! etc.

(6.) FACE ABOUT!—MARCH!

(*b*) *With the grasp of the back.*

As in (*a*), only done with the grasp of the back.

(*c*) *With stride-grasp.*

As in (*a*), only when GRASP! is ordered, the No. that has to execute the stride-grasp must be specified.

(B.) CONTRA-WRESTLING.

§ 82. The contra-wrestling consists in this, that each wrestler tries to throw his opponent down, or to compel him to acknowledge himself vanquished. It is advisable in these exercises to allow only one pair, or at most two or three, to wrestle at once, partly for the sake of order and necessary superintendence, and partly that there may be alternate recreation for the single wrestling pairs. At the commencement, each pair of wrestlers should be as near as possible of the same height; afterwards they should be of unequal height, so that even the shortest and the tallest should form one wrestling pair. Care must be taken that the struggle shall not be a vulgar street fight, but a real wrestling, the antagonists trying, by the strength and flexibility of their limbs, by pulling, stemming, jerking, pushing, heaving, bending sideways, pressing, and similar actions, to throw each other down, and to keep themselves firm on the ground. All unnecessary grasps, all pushing with the feet towards the limbs or body of the opponent, all pinching, scratching, tearing, must be avoided. If the teacher should observe any fault committed against

the rules, he must instantly stop the fight by the order HALT!

§ 83. First lesson. *Contra-wrestling, with the application of a previously-determined grasp.*

(*a*) CONTRA-WRESTLE WITH ARM-GRASP: MARCH!

The opponents approach each other, and, without waiting for a further order, they place themselves on guard and at distance, and it depends upon each of them to choose the moment of attack.

(*b*) CONTRA-WRESTLE WITH BACK-GRASP: MARCH!

Executed as in (*a*), with the application of the grasp of the back, and it depends upon each of the wrestlers to make this grasp inside or outside of the arms of his opponent, or inside of one and outside of the other.

§ 84. Second lesson. *Free contra-wrestling.*

CONTRA-WRESTLE: MARCH!

The opponents approach each other without a further order, and begin the fight, each choosing the moment and the manner of attack (with the permitted grasp). During wrestling each pupil may pass to another method of attack, and he may try to liberate himself, in order to make this new attack.

As a further exercise, a fight between several wrestlers may be ordered, so that each may choose his opponent in the opposite party; a mutual assistance may take place, etc.; but to prevent this exercise becoming a common street fight, not more than from six to eight wrestlers should be formed, into two parties of from three to four each.

V.

SOME ELEMENTARY EXERCISES OF THE ÆSTHETIC GYMNASTICS.

Under this head will be mentioned only a few elementary exercises of the æsthetic gymnastics, although these consist entirely of free exercises (§ 2), and therefore an explanation of this part of gymnastics is very incomplete when restricted only to the following paragraphs.

§ 85. With regard to the arrangement of the following elementary exercises, it is to be observed that the formation of the pupils in open position, according to § 14, 4, is the most advisable.

We must observe that the exercises of the æsthetic gymnastics in general, and these elementary exercises, are not done at the word of command, but the teacher, after having explained and even shown the exercise which is to be done, designates it only by a clear and intelligible expression, and by a second expression (for instance, PLACE!) he directs the action to be commenced.

If the exercises consist of several parts, they are to be distinguished by ONE, TWO, THREE, etc.

Instead of this counting of the parts and the directions to begin, the teacher may also give suitable hints by looks and gestures; thus, by the direction of

his arm or the quickness and manner of its motion, he may point out the exercise which is to be done.

The execution of the following elementary exercises is done by all the pupils simultaneously and equally, so that each action is begun by all at the same moment, and is executed in the same time.

LESSONS IN SOME ELEMENTARY EXERCISES.

§ 86. First lesson. *Foot positions.*

In all the following foot positions, the feet must be placed at a right angle to each other.

(1.) *Pace positions.*

These positions are executed as in § 18, *a* 3. At ONE, TO THE RIGHT FORWARDS! TWO, RIGHT BACKWARDS! THREE, LEFT FORWARDS! FOUR, LEFT BACKWARDS! FIVE, FUNDAMENTAL POSITION! The movements must be neither stiff nor heavy. An interval of the length of the foot should be strictly kept from heel to heel.

(2.) *Walk positions* (fig. 48).

ONE! Right foot is placed forwards in a curve, with an easy and moderately quick swing, while the heel is raised forwards in such a way that when set down, it is one length of the foot distant from the toes of the left foot, which has remained still. The weight of the body is thus thrown on the forward foot, and the heel of the back foot is a little raised.

TWO! The right foot is brought in a curve, and with the heel raised so far backwards that its toe is distant one length of the foot from the heel of the foot which remained fixed; then follows a sinking of the right heel, while the weight of the body is thrown on

the same foot, and the heel of the anterior foot is a little raised.

THREE! From position *two;* the left foot is brought in a curve behind the right, in a similar manner as in *two.*

FOUR! The left foot in a curve before the right foot, and finally—

FIVE! The left foot in the fundamental position.

(3.) *Standing positions* (fig. 49).

ONE! The right foot is brought from the fundamental position in a short curve, in such a manner before the left, that its heel touches the middle of the inner edge of the left foot.

TWO! The right foot in a curve behind the left, so that it touches the heel of the latter with its own middle part.

THREE! The left foot from position *two,* in a curve behind the right, so that it touches with its middle part the heel of the right.

FOUR! The left foot in a curve forwards till it touches with its heel the middle of the inner edge of the right foot.

FIVE! The left foot in fundamental position.

In all standing positions the weight of the body is to be thrown on the foot which is placed forwards.

§ 87. Second lesson. *Head turning.*

(1.) *Turning of the head to the right and to the left.*

The head turns with the face to the specified side, first with the eyes in the same direction, and then with the eyes in the opposite direction.

(2.) *Turning of the head to the right upwards, and to the left upwards.*

The movement consists of turning and backwards flexion of the head done simultaneously; the eyes following the movement.

(3.) *Turning of the head to the right downwards, and to the left downwards.*

The movement consists of turning and forwards bending of the head; the eyes following.

§ 88. Third lesson. *Hand twisting.*

Executed with the arms raised easily forwards as high as the chest, first with one hand, then with both.

ONE! The arms are raised without straining, the hands horizontal (knuckles down).

TWO! The hands are turned knuckles up.

THREE! The hands are turned with the knuckles outwards, and the thumbs upwards.

FOUR! The hands are turned knuckles inwards, and thumbs downwards.

FIVE! Turn back the hands into the position *one*, and then bring down the arms into the fundamental position. All movements are well rounded, and the hands must not be kept stiff.

§ 89. Fourth lesson. *Raising of the arms.*

ONE! Parallel forwards at the height of the chest.

TWO! Parallel to the left at the height of the chest.

THREE! Parallel to the right at the height of the chest.

FOUR! Parallel upwards at the height of the head.

FIVE! Diverging sideways at the height of the chest.

SIX! The fundamental position.

The bringing of the arms from one position into another is done in flat curves; the arms are neither stretched firmly nor bent at an angle. The hands are

gently and naturally arched or vaulted, and in the first-turn position. The eyes generally follow the direction of the arms; in *five*, they are directed straight forwards.

The position of the feet, either the fundamental or the first standing position.

We must observe that the elementary movements for the arms are not at all exhausted by these instances.

The arm movements form in the æsthetic gymnastics a very large field of exercises.

§ 90. The movements of the trunk which belong to this division are the same as those mentioned in I., D, but they are modified in different ways, principally by compositions of the different directions of the movement.

We mention here a few combinations in which the trunk participates.

§ 91. Fifth lesson. *Bows.*

(*a*) *Bows on the spot.*

(1.) *In the first stand position.*

ONE! The upper part of the body bends gently forwards, without twisting the shoulders; the knees stretched; the arms slightly bent, and hanging down a little in front; the hands slightly curved; the eyes directed first straight forwards, and then, during the bow, downwards. When the bow is finished, the upper part of the body is raised, and the eyes again directed forwards.

Two! The bow is done in a similar manner to the right, the body being turned a little in this direction (but only the eighth part of a circle). In the last

moments of the turning the bow begins. As soon as the body is again raised, follows—

THREE! Turn and bow to the left, and when the body is again raised, return to the fundamental position, or second stand position.

(2.) *In the first walk position.*

ONE! While the right foot (§ 86, 2) is being placed in the first walk position, in the last moments of this movement, the bow begins (straight forwards) as in the stand position; but the knee of the anterior foot is a little bent, and only the right arm hangs down as before, while the other is slightly raised and the hand brought near the chest, or it may press easily against it. During the raising of the body, the forward foot is brought backwards into the fundamental or second stand position.

(*b*) *Bow with stepping forwards.*

(1.) *With three paces forwards.*

Begin with the left foot; walk forwards three paces. As soon as the third pace is done, and consequently the left foot is in advance, instead of the fourth pace the right foot is drawn forwards in a slight curve to the second stand position, and at the same moment the bow is performed, and is finished as soon as the right foot is fairly placed on the ground; then immediately this foot is brought back in a curve in the second stand or fundamental position, while the upper part of the body raises itself from the bow.

(2.) *With unlimited stepping.*

As in 1, only that the pupil walks forwards from a farther distance, in a free and graceful walk.

§ 91. Sixth lesson. *Arm and hand movements, with foot positions.*

(1.) *Pace positions with arm raising* (figs. 42, 43).

ONE! Place into the pace position to the right forwards. While the right foot is put down, the heel of the left is raised and turned inwards, so that the foot is directed a little outwards. At the same time the weight of the body is thrown on the forward (right) foot, the arms are slightly raised, and brought into the first position of arm raising. the hands in the first position of the hand turning, but forming at the joint a small angle downwards. The upper part of the body and the eyes are turned in the direction of the anterior foot.

Two! This action consists of two parts, viz., first return into the fundamental position, and, secondly, take the pace position to the right backwards. The weight of the body is on the back (right) foot, and the heel of the forward (left) foot raised and turned inwards (forwards). The arms are raised as before, but the hands are turned in the second position of the hand-turning, and at an angle directed a little backwards (fig. 43).

THREE! and FOUR! are executed respectively as *one* and *two*, only the left foot makes here the movements.

§ 92. Seventh lesson. *Other easy combinations.*

(1.) *Pass position to the half right* (§ 18, 5), with turning of the trunk to the right backwards, and the arms parallel downwards in the second hand-position. The head is turned with the trunk; face and eyes directed downwards.

The same action in the pass position to the half left.

(2.) *Pass position to the half right, with twisting of the trunk to the left forwards*, and turning of the head to the left upwards; parallel raising of the arms to the left upwards in the second position of the hands, and at an angle backwards.

The same action in pass position to the half left.

(3.) *Pass position to the half right*, raising of the heel of the back foot, which is turned a little inwards, turning of the trunk to the left forwards, and of the head to the left upwards; left arm raised in the "*shelter*" position, with strong flexion at the elbow; the right arm stretched, and a little back; both hands clenched; the left with the knuckles upwards, the right with the knuckles downwards (fig. 54).

VI.

FINAL REMARKS.

(A.) ON THE VALUE OF THE APPLICATION OF FREE EXERCISES.

§ 93. Those who have not a right idea of rational gymnastics conceive that the free exercises are but the A B C of gymnastic development—mere preparatory exercises to those which are thought to belong to a higher order, viz., the exercises with apparatus and instruments. This opinion is altogether untenable, when the aim of gymnastics and the rational use of the free exercises are understood. A glance at the ancient Greek gymnastics and their results will show the fallacy of the opinion. Although the present exposition of Ling's free exercises is very incomplete, from the limited space of a pamphlet, it is sufficient to show that the whole of the free exercises cannot be considered as such an A B C, though there may be certain portions of them (for instance, the elementary limb exercises) which may possibly be so regarded; even of these, however, such an opinion would be unfair.

We would call attention to a circumstance which appears to be but an incidental advantage of the free exercises, but which is in reality a very important and

essential one, viz., that the free exercises do not require furnished exercising-places, and that they render unnecessary the expense of constructing and keeping in order apparatus and other instruments. It is this which will allow the practice of gymnastic exercises in schools as well as at home, even amongst the poorer classes.

§ 94. There is another erroneous opinion prevalent, that the free exercises are suitable only for youths, and not for adults. As long as gymnastics are not made a part of education generally, the free exercises are useful also to adults, even if we consider them only as preparatory exercises.

§ 95. We do not wish to disparage exercises with apparatus, as long as they are practised with caution and within certain limits, but we are anxious to mention a particular circumstance which is very much in favour of the free exercises.

If the exercises with apparatus are exclusively or too frequently practised, the body loses its natural instinctive sense for equilibrium, instead of having it developed by practice; the sense for form and graceful position and movements of the body is rather repressed, while the sense for equilibrium in certain artificial positions, such as rarely or never occur in real life, is more developed.

(B.) RULES FOR THE PRACTICE OF THE EXERCISES.

§ 96. It is supposed that the teacher has all the personal faculties and that general education which his position requires; he must be able to act in the

right manner with pupils of different ages. We will only mention the following points with regard to his qualifications.

1. In the arrangement, form, and aim of Ling's free exercises it is necessary that the greatest quietness, order, attention, precision, etc., should be observed, and that there should be the most exact obedience to the instruction and orders of the teacher; and yet at the same time all harsh, stiff, and unpleasant treatment must be avoided. A cheerful earnestness and an earnest cheerfulness should prevail during the practice of the exercises.

2. While giving the word of command the teacher should be in front of the pupils, at such a distance that he should be clearly understood by all, and that he himself should be able to see everybody. He must not always remain in the same place, but as soon as a given movement begins he should pass along the front, or repair to any part where he wishes to make a correction.

3. Such corrections are to be made by calling the attention of the pupils to the fault, but not by the teacher placing the limb in the right position. In this manner the correction will be the result of an exertion of the pupil's will, and his sense and consciousness for exactitude of position and movement are more surely developed. Only when it is unavoidable, may the teacher correct a fault with his own hands.

4. For the same reason, the teacher must not permit the pupil to look at the limb or part the position of which is to be rectified, or to make use of his eyes in the correction. Every limb and part should have in

itself the sense for right position and movement, or must acquire it by practice.

5. All movements must be done uniformly with both sides of the body (right and left), and in general, for every motion in one direction there will be a corresponding opposite one, and it must be executed equally often in each direction, if there are no particular reasons for the contrary.

6. Between the order for a commencing position and that for the movement itself there must be a sufficient pause to allow all the pupils to take up the commencing position accurately; it is advisable, in the beginning of the exercises, to let the pupils remain for some time in the commencing position before the movement is commanded. The position which the body assumes in the exercise itself is also to be kept up for a short time, and not to be changed immediately.

7. If single individuals amongst the pupils are prevented by some weakness or stiffness in a limb, or by general weakness, from executing the movements simultaneously with the others, such individuals must be separated from the others, and made to practise the exercises alone. In general, all those individuals who, in consequence of the state of their health or condition of body, are to be treated according to medical advice must form separate sections.

8. In all the exercises with support, in which the movement is to be done with resistance, it must not be forgotten that this resistance should not be too violent, but in proportion to the moving power.

§ 97. With regard to the manner in which these

exercises should be practised, whether in different courses or in single lessons, the following three cases may occur:—

I. The pupils are private persons who, either for the sake of their health or for love of gymnastics, pass through a short or long course of exercises, or—

II. The pupils are youths belonging to a school, and must adhere strictly to the rules and discipline of such an institution, and are obliged to participate in the gymnastic exercises in the same way as in any other branch of instruction.

III. The pupils are soldiers, on whom the gymnastic exercises are obligatory, and form a part of their discipline.

The first case must not be considered, because there are so many different circumstances influencing private persons that it would be useless to speak of any arrangements, the more so, as there is, more or less, a curative gymnastic treatment required for persons of the first class.

§ 98. With regard to the second case, we will give here only an instance of the arrangement in a much-frequented college or large school, in which we suppose six different classes, formed of pupils ranging from eight to eighteen years of age, and we assume that there is at least a lesson twice a week.

1. Each of the six classes forms a separate class for the exercises, only the sixth and the fifth, if not too numerous, may be combined in one class.

2. The course for the practice corresponds to the course in the school, and is supposed to be a yearly one.

3. The practice of the exercises in each lesson takes place according to the exercising-tables, which vary in each class, and contain more difficult exercises for pupils of a more advanced age (on the composition of such tables refer to § 100).

4. The first class (pupils of eight to ten years) practise the different formations to the free exercises according to § 13 and 14, and then only the exercises mentioned in I., § 17 to 23, and § 25. Further, those in II., § 28 and 29, but the march exercises not combined with the different evolutions. Further, II., B, the usual short run in straight, circular, and serpentine lines; the run during a determined time to five minutes.

5. The second class of pupils (ten to twelve years) the exercises in I., § 17 to 24; then those in II., § 28 and 29; the march with the most simple evolutions; also the walk and short run according to § 34; the run during the determined time of eight minutes; the race run fifty paces distance; leap exercises according to § 31 and 32.

6. The third class (pupils of twelve to fourteen years) practise I., § 17 to 24; II., § 28 and 29. Short run as the previous class; marching, with evolution; the run during the determined time of ten minutes; race run to 100 paces; leap exercises according to § 31 and 33; the leap in distance not more than two lengths of the foot beyond the length of the body; high leap the height of the stride (fork) on the spot, and also, with a run. Further, II., D, § 34 and 35.

7. The fourth class (pupils of fourteen to sixteen) practise all the exercises of the third class: the run

to a determined time of fifteen minutes; the race run to 120 paces; the leap to a given distance (three lengths of the foot beyond the length of the body); the high leap the height of the hips; the deep leap gradually increased, till equal the height of the body; also, II., § 34 to § 37, and occasionally explanations and practice of III., § 44 to 47; also, IV., wrestling according to § 75 to 80.

8. The fifth and sixth class (pupils of sixteen to eighteen, and more years) practise all the free exercises described in this pamphlet; but in the exercises with support, as well as in the walk and run exercises which belong to II., D, different variations and new forms may be executed. The run a determined time of fifteen to twenty minutes, or still more; the race run to 150 paces; the leap to a distance equal the double length of the body; the high leap the height of the chest, and the deep leap more than the height of a man.

9. It is advisable, at the end of each yearly course, to combine two consecutive classes, and thus to perform the exercises several times on a large scale, for which purpose the exercises in II., A, *b*, § 29, are suitable.

10. In the combinations, and on other suitable occasions, the exercises II., A, *b*, and those in II., D, should be arranged in such a way that one portion of the pupils execute the movements, while the other accompanies them by their song, for which purpose such musical compositions must be used as have a rhythmus to correspond with the rhythmus of the movements.

§ 99. For the third case, viz., when the pupils are

soldiers, and consist of recruits (or such persons as have not passed through the whole course of their military education) and of soldiers who have passed at least once through the whole circle of instruction:—

1. Recruits practise gymnastic exercises from their first entering into the service, during the first three weeks, I., § 17—24, and II., A, *a* and *b*; but as the exercises in *b* already belong to the military exercises, they must be practised in each army according to the prescribed regulations. Further, short run on straight and circular lines, the run to a determined time of eight minutes, and the race run to fifty paces.

2. In the following two weeks they practise only four times a week: first, exercises of I., § 17 to 24; II., B, short run as before; the run to a determined time of ten minutes; the race run to 100 paces; also, II., C, § 31 to 33, but in these leap exercises only short distances.

3. In the sixth week, repetition of the previous exercises; then II., B, short run in short ranks; the run to a determined time of fifteen minutes; race run 120 paces; II., C, leap exercises to gradually increased distances.

4. After the six weeks, and during the second and third period of their education, the gymnastic exercises of the recruits may be done once a week. In the military education of the recruits, three periods may be discerned: first, elementary instruction; second, the garrison service (the watch service, etc); and, third, the field service. No new exercises are prac-

tised, but the previous ones are done, with different variations and increased difficulties; for instance, the run in whole-column formation, the run and the leap with the musket in the hand, etc.

5. For those soldiers who are no longer recruits, the regular practice of gymnastic exercises might be restricted to those two months which the other duties of the service would render most convenient, and then a practice of two or three times a week would be sufficient; during the rest of the year the gymnastic exercises must be occasionally resumed.

6. The gymnastic exercises for the other soldiers could be also increased by adding to the exercises of the recruits the wrestling; for the infantry the bayonet fencing; and for the cavalry, the sword exercise.

(C.) THE EXERCISE-TABLES.

§ 100. With regard to these tables, of which we give some examples, the following is to be observed:—

1. Each table contains those exercises which are to be done in one lesson, and during the time of this lesson, no further exercises are to be performed.

2. Each exercise-table must contain a series of ten to twelve movements of the limbs, according to § 17 to 25, which put in motion uniformly all the limbs of the body. They are divided into two groups, between which, as an intermediate group, the other exercises are placed.

3. The first and the last movement of each group, and especially the first and last movement of the whole table, must be one which is of a quiet easy character.

4. In each of the two groups of the limb move-

ments the pupil begins with a movement of the feet, and proceeds to the movement of the limbs towards the upper part of the body, and finishes with a movement of the head, or the contrary order is observed, viz., from the head downwards. The movements necessary for the respective commencing positions are not here taken into account.

5. In the intermediate group are the movements from the place, the exercises with support, the wrestling, etc.

6. In the course for the same class of pupils the exercise-tables must contain a certain gradation in the exercises, and in the same way the exercise-tables of the classes which follow each other must also advance proportionately in difficulty; this remark relates principally to the intermediate group of movements in the table.

7. One and the same exercise-table is practised for a longer or shorter time, according to the duration of the course, and according to the progress in the gymnastic development of the pupils during a few or several lessons.

8. In the following examples, only such exercises are mentioned in the intermediate group as are contained in this pamphlet.

INSTANCES OF EXERCISE-TABLES.*

FIRST EXERCISE-TABLE.

The first table contains only the practice of rapid and orderly *falling in* to the first formation to the exercises, and the correct taking and keeping up of the fundamental position.

The *falling in* is repeatedly practised at the command FALL IN! (§ 13.) It is done in such a way that the right or left-flank man is placed on a different spot, each time with his face in another direction, in order to accustom the pupils to find their places in the rank. After each *falling in*, it is necessary to see that the fundamental position is well taken.

1. Fall in! break rank! (several times repeated.)
2. Fall in!—position!
3. Left (right) distance take: march!—position! —stand at ease! (without leaving the place.)
4. Position—to the left (right) close: march! After the closing the taking of the distance is repeated; then—
5. Feet close!—feet open!
6. Hips firm!—position!
7. To the right (left) close: march! (the right or left-flank man remains in his place)—stand at ease!

* The first exercise-table will be found not to be constructed on the principles laid down in § 100; it is an exception.

8. Position!—tell off in twos!

9. Nos. 2 three paces backwards: march!

10. Head right: turn!—forwards: turn! head left: turn!—forwards: turn!

11. Section to the right: face!—to the left: face! the whole section: face about!—the whole section: front!

12. Nos. 2 advance: march!—stand at ease!

13. Position!—to the right (left) double distance take!—march!

14. Heels raise!—sink!

15. To the right (left) close: march!

SECOND EXERCISE-TABLE.

(Formation with distance § 14, 4.)

1. Heels raise!—sink! (repeated.)

2. Feet sideways: place!—position! (repeated.)

3. Hips firm!—knees bend!—stretch!—position! (repeated.)

4. Hips firm!—trunk forwards: bend!—stretch! trunk backwards: bend!—stretch!—position!

5. Arms upwards: bend!—position!

Arms upwards: stretch!—downwards: stretch! (This movement is done first with counting one, two.)

6. Head forwards: bend!—stretch! head backwards: bend!—stretch!

Break rank! (then as the intermediate group.)

(*a*) Marching in a slow pace (eighty paces per minute) in ranks, with distance, and on straight lines.

(*b*) Short run in rank with distance, on straight lines. The run, however, is not to be continuous, but

the command "*pace*" is often given, to alternate the walk with the run.

(*c*) Free walk.

7. Head right: turn!—forwards: turn!—head left: turn!—forwards: turn!

8. Arms sideways: stretch! —downwards: stretch! (repeated, first with counting one, two.)

9. Trunk right sideways: bend!—stretch!—trunk left sideways: bend!—stretch!

10. Hips firm, and feet sideways: place!—knees bend!—stretch!—position! (two or three times repeated.)

11. Right (left) foot forwards: place!—heels raise!—sink!—feet change!—heels raise!—sink!—position!

FIFTH EXERCISE-TABLE.

1. Head to the right sideways: bend!—stretch!—head to the left sideways: bend!—stretch!

2. (To the right face!) Arms sideways: stretch!—arms forwards: roll!—halt!—backwards: roll!—halt!—position!

3. Arms upwards stretch!—trunk forwards: bend!—stretch!—backwards: bend!—stretch!—position!

4. Hips firm!—right foot in the pass position forwards: place!—feet change!—position! (repeated.)

5. Feet sideways: place!—heels raise! sink! (repeated)—position!

Break rank! (then as an intermediate group.)

(*a*) Short run in rank (also as a run of five minutes).

(*b*) March in the quick pace (108 paces per minute), with turnings and evolutions.

6. Head forwards: bend! -stretch!—backwards: bend!—stretch!

7. Right arm upwards: left arm forwards: stretch!—arms change! (repeated)—position!

8. Hips firm, and feet close!—trunk right: twist!—forwards: twist!—trunk left: twist!—forwards: twist!—position!

9. Hips firm!—right knee upwards: bend!—forwards: stretch!—bend!—feet change! etc. (*i. e.*, the same movement for the left leg.)

10. Arms upwards: stretch! and feet sideways: place!—heels raise!—sink! (repeated)—position!

NINTH EXERCISE-TABLE.

1. Arms upwards: stretch!—knees bend!—stretch! (repeated.)

2. (Hips firm!) Right leg sideways: raise!—sink!—left leg sideways: raise!—sink! (twice repeated.)

3. (Hips firm, and feet close!) Trunk right: twist!—forwards: bend!—stretch!—backwards: bend!—stretch!

Trunk left: twist! etc.—position!

4. Right arm forwards, left sideways: stretch!—arms change! (repeated.)

5. Head right: twist!—forwards: bend!—stretch!—backwards: bend!—stretch!

Head left: turn! etc.—position!

Break rank! (then as an intermediate group.)

(*a*) Close leap from the spot. (The close leap on the spot is supposed to have been done before in a previous table.)

(*b*) Pace leap with three paces run.

(*c*) Sideways leap to the right and left. (Besides also repetitions of marching exercises.)

6. Head right sideways: bend!—stretch!—head left sideways: bend!—stretch!

7. (Face to the right!) Arms sideways: stretch!—hand cuts: quarte!—tierce! (four times repeated.)

8. Hips firm!—trunk forwards: bend!—stretch!—trunk backwards: bend!—stretch!

9. Hips firm!—right foot to the pass position: place!—right knee: bend!—stretch!—feet change! etc.

10. Arms upwards: stretch!—heels raise!—sink!

TWELFTH EXERCISE-TABLE.

1. (Hips firm!) Knees bend!—stretch! (twice repeated.)

2. Hips firm, and feet close!—right foot to the pass forwards: place!—feet change!—position!

3. (Hips firm!—to the right face!) Stride leap on the spot: leap! (repeated)—position!—front!

4. Hips firm, and feet sideways: place!—trunk forwards: bend!—stretch!—backwards: bend!—stretch!—position!

5. Arms upwards, sideways, forwards, backwards, and downwards: stretch! (repeated.)

6. Head forwards and backwards: bend!—stretch!—break rank! (then as an intermediate group).

(*a*) Leap in distance the length of a man.

(*b*) Walk and short run in ranks, with marked heavy pace.

(*c*). Marching.

7. Head to the right and left sideways: bend!—stretch!

8. Arms forwards: stretch!— fingers separate in pairs!—close! (repeated)—position!

9. Hips firm!—right leg sideways: raise! and trunk left sideways: bend!—stretch!

Left leg sideways: raise! and trunk right sideways: bend!—stretch!

10. (Hips firm!) Right knee upwards: bend!—sideways: bring!—forwards: bring!—feet change! etc. (repeated.)

11. Feet sideways: place!—trunk forwards: bend!—stretch!—trunk backwards: bend!—stretch!—trunk right and left sideways: bend!—stretch!

12. Arms upwards: stretch! and feet sideways: place!—heels raise!—sink!—position!

TWENTIETH EXERCISE-TABLE.

1. Head to the left: turn!—to the right: turn!—forwards: turn!

2. (Face to the right!) Arms half forwards: bend!—stretch! (repeated)—position!

3. Feet close! right arm upwards: stretch! and left foot forwards: place!—trunk to the left sideways: bend!—stretch!—arms change! etc.—position!

4. (Hips firm!) Trunk forwards and backwards: bend!—stretch!—position!

5. (Hips firm!) Right knee upwards: bend!—backwards: stretch!—upwards: bend!—feet change! etc.—position!

6. Arms upwards: stretch! and feet sideways: place!—heels raise!—sink!—position!

Break rank! (then as an intermediate group.)

(*a*) Exercises with support (for instance, § 59, § 63, § 67).

(*b*) Walk and run exercises (for instance, § 35, 36).

7. Repetition of the first movement.

8. Right arm forwards, left arm sideways! stretch!—hand cuts: quarte!—tierce! (repeated)—arms change! etc.—position!

9. Arms upwards: stretch!—trunk forwards: bend!—stretch!—backwards: bend!—stretch!—position!

10. Arms upwards: stretch! and right knee upwards: bend!—right knee backwards: stretch!—heels raise!—sink!—right knee upwards: bend!—position!

11. The same movement, with the left knee stretched backwards.

12. Hips firm!—knees bend!—stretch!

THIRTIETH EXERCISE-TABLE.

1. Feet close, and arms upwards: stretch!—right foot forwards: place!—heels raise!—sink! (twice repeated.)

2. (Hips firm!) Right knee upwards: bend!—right foot right: roll!—halt!—left: roll!—halt!—feet change! etc.—position!

3. Arms upwards: stretch! and feet sideways: place!—trunk forwards: bend!—stretch!—backwards: bend!—stretch!—position!

4. Arms sideways: raise!—sink! (three times repeated.)

5. Head right: turn!—head forwards and backwards: bend!—stretch!—head left: turn!—head forwards and backwards: bend!—stretch!

Break rank! (then as an intermediate group.)

(*a*) Exercises with support (for instance, § 60, § 68).

(*b*) Wrestling exercises (§ 77, § 83, *a*).

(*c*) Wheel-walk (§ 39).

6. Head forwards and backwards: bend!—stretch!

7. Arms upwards, sideways, forwards, backwards, and downwards: stretch! (twice repeated.)

8. Hips firm, and feet close!—trunk to the right and left: twist!—forwards: twist!—position!

9. (Hips firm!) Right foot backwards: place!—right knee: bend!—stretch!—feet change! etc.—position!

10. Arms upwards: stretch! and feet sideways: place!—heels raise!—sink! (twice repeated.)

THIRTY-SECOND EXERCISE-TABLE.

1. Head to the right and left: turn!—forwards: turn!

2. Arms forwards: stretch!—hand cuts:—quarte!—tierce!—prime inwards!—prime outwards!—position!

3. To the right face!—arms fully forwards: bend!—While marching, arms backwards strike: in slow pace forwards march! (from four to five paces.) Halt!—face about!—with the right foot forwards, the same: march!—halt!—position!—front!

4. (Hips firm, and feet close!) Trunk right and left: twist!—forwards: twist!—position!

5. Right foot backwards: place!—heels raise!—sink!—feet change! etc.

Break rank! (then as an intermediate group.)

(*a*) Exercises with support (§ 68, § 70).

(*b*) Walk and run exercises (§ 37).

(*c*) Wrestling exercises (§ 83).

6. Arms upwards: stretch! and feet sideways: place!—heels raise!—sink!—position!

7. (Hips firm!) Right knee upwards: bend!—knee sideways: bring!—forwards: bring!—feet change! etc.

8. Right arm upwards: stretch!—trunk left sideways: bend!—stretch!—arms change! etc.

9. (Face to the right! Arms upwards: bend!) While marching, alternate arm stretching upwards and downwards: in a slow pace forwards march!—halt!—face about!—The same movement with the right foot: forwards!—halt!—front!

10. The head right sideways: bend!—stretch!—the head left sideways: bend!—stretch!

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APPENDIX.

LING'S BIOGRAPHY.

PETER HENRY LING, the inventor of a new system of movements for the development of the healthy body, and for the cure of many diseases, Professor at Stockholm, Knight of the North Star, and Member of the Royal Swedish Academy of Sciences, was born on the 15th of November, 1766, at Smaland. His father, who was a curate, died soon after his son's birth, and his mother, who married again, died a short time afterwards. The young Ling was sent to the schools of Wexiö for his further instruction. He was soon distinguished for his great talents, and his energy and devotion to study.

When Ling left the schools, he found himself exposed to incessant vicissitudes, reduced at times to absolute poverty and the extremest want. During this period he resided for the most part in Upsala, Stockholm, Berlin, and Copenhagen; but it is not known in what manner he was employed. All we know is, that he studied at Upsala, and passed his theological examinations at Smaland, in December, 1797; afterwards he was tutor in some families; at one time at Stockholm, at another in the country. Suddenly he left for Germany, and then went to Denmark. In 1800 he studied in Copenhagen, and the following year took part in the sea-fight against Nelson, as a volunteer in a Danish ship. He afterwards returned to Germany, and passed on to France and England, from whence he returned to Copenhagen,

with a perfect knowledge of the languages of these different countries.

During this period he received on different occasions military appointments, the details of which are unknown to us. It is said, that during his travels he was frequently reduced to the most trying circumstances, and had to endure the pangs of hunger. At one time he was glad to shelter himself in a miserable lodging in a garret in Hamburgh; he was even forced to wash, with his own hands, the only shirt he possessed.

All these privations, however, did not depress him; although without means, the desire of continuing his travels, to develope and improve his knowledge, buoyed him up, and enabled him to surmount all difficulties. He was proud of his ability to endure privations, and to do without what are thought by others indispensable necessaries.

The same impulsive energy which previously induced him to take part in a sea-fight, determined him to study the art of fencing during his second sojourn at Stockholm. Two fencing-masters, French refugees, had founded there at this time a fencing-school. Ling was there every day, and his great skill in this art was generally acknowledged; the more skilful he became, the more he valued it. His reflections upon fencing, and his own experience (for he suffered then from gout in his arm), taught him to appreciate the wholesome effects which may be produced on the body, as well as the mind, by movements based on rational principles, a circumstance that suggested to him a new and elevated idea, the full development of which could not be effected by fencing only.

This idea was, that an harmonious organic development of the body, and of its powers and capabilities by exercises, considered in relation to the organic and intellectual faculties, ought to constitute an essential part in the general education of a people.

The realization of this idea now became his grand

aim, the more so as he pictured to himself the brilliant image of mankind restored to health, strength, and beauty. Ling thought not, like his predecessors, of merely imitating the gymnastic treatment of the ancients, but he aimed at its reformation and improvement.

At this period of Ling's life begins that part of his history which for us possesses the deepest interest. Versed in several modern languages, and a thorough master of fencing, he began to teach them both, and being proud of all that concerned his fatherland, he lectured with enthusiasm on the old Norse poetry, history, and mythology, at Lund, in 1805.

Ling wished to put gymnastics in harmony with nature, and began in 1805 to study anatomy, physiology, and the other natural sciences.

Ling looked on anatomy and physiology as the basis of gymnastics essentially necessary, and opened a new field for physical investigation, hitherto almost unknown, even to the most learned physicians and naturalists. He conducted his researches with the most scrupulous exactness, and frequently in the most earnest manner recommended his companions to do the same. He did not acknowledge a new movement to be a good one, until he was able to render to himself an exact account of its effects. His intention was to make gymnastics not only a branch of education for healthy persons, but to demonstrate it to be a remedy for disease.

This latter circumstance has contributed much to awaken the public interest in Ling's ideas, and to ensure for them the consideration of even such laymen as had always looked upon bodily movements as a deception, yet who in their sickness, anxious for the re-establishment of their health, were forced to seek relief for their ailments in these movements, and were not disappointed.

The curative movements were first practised in 1813, whilst Ling remained at Stockholm.

During his stay at Stockholm, he became the director of the Central Institution, founded at his own instigation. He projected such an establishment at Lund, and addressed himself, in 1812, to the Minister of Public Instruction, to obtain the support of the Government. He received the following answer:— "There are enough of jugglers and rope-dancers, without exacting any further charge from the public treasury." This did not at all diminish his energy, for, active and indefatigable, Ling continued the execution of his great ideas with scanty means, and pursued it with a disinterestedness and self-denial which can be attributed only to his enthusiasm for the cause, and to his patriotism and humanity. Not only by the zeal and circumspection with which he accomplished his duty as director, but by the manner he practised his art and taught it, the public were at last forced to acknowledge his merits, and the importance of the science he taught. Although in the last days of his life he may have seen his task not quite accomplished, he was still enabled to enjoy a feeling of satisfaction, in comparing the degree of perfection his art had already attained with the state in which he found it at the beginning of his gymnastic career.

Ling's gymnastics were introduced many years ago, not only into all the military academies of Sweden, but into all town schools, colleges, and universities, even into the orphan institutions and into all country schools. In the rooms of the Central Establishment at Stockholm, persons of every condition and age, the healthy as well as the sick, executed, or were subjected to, the prescribed movements. The number of those who adopted the use of the therapeutic movements increased every year, and among them were even physicians who, in the beginning, had been the most opposed to Ling.

In the Central Institution clever teachers are educated, and no one obtains a diploma, or any authorization to the pædagogical practice of these movements,

without having finished the course, and passed an examination in anatomy, physiology, and the bodily movements, which have become in Sweden a popular and necessary part of education.

In the year 1826, the Swedish authoress, Mrs. Ehrenström, said, "Sweden will never be able to acknowledge all it owes to the great art of Ling." She might have said this of the world at large.

We have mentioned that Ling, during his stay at Lund, lectured on the Norse mythology and poetry, and inspired great interest for both; being a true patriot, he wished to influence the moral education as well as the physical development of his countrymen. In the year 1812 he composed his poem, "The Gylfe," in fifteen cantos, which he re-wrote on a larger scale, in thirty songs, under the title of "Asame," published between 1816 and 1833. Another poem, "The Tirfing," and a series of dramatic poetry, the matter of which he took from the history of his country, with the intention of continuing it till the epoch of Charles XII., as well as his smaller lyric poems, were collected at a later period.

In his last years he suffered from severe bodily pains, which he endured with the whole energy of his will, and with humble confidence in God. Even when on his death-bed he spoke till the last hour, and gave instructions about the science to which he had devoted himself during the greater part of his life. He died on the 3rd of May, 1839. The officiating clergyman said well of him at his grave, that few names were more entitled to a grateful memory than his, since we can scarcely appreciate all he has done for humanity and science; the happy consequences of his labours remain for future ages.

Ling was a man of high moral tone, pious, sincere, honest in all his dealings with his fellow-man. His intellectual powers were of a very high order; he loved with the same energy with which he worked, the objects of his home-affections, his friends, the

poor, his country, and mankind. His life is another proof to be added to many illustrious examples, that learning, science, and genius shine most when associated with moral worth, generous affections, and piety. The best praise of Ling is that he was a genuine humanist.

SOME HINTS ON DRESS.

Dress, as affecting health and comfort, is of more importance than is generally understood. I refer those who wish to know the injurious effects of tight or ill-adapted dress to a chapter on this subject in my book, "The Cure of Chronic Disease by Movements." A few remarks only can here be made.

No part of the dress must be tight, because the natural movements of the body are hindered, and compression impedes the circulation in proportion to the extent of the parts which are compressed; in men, the stock, waistcoat, trousers, and the collar of the shirt—in women, the petticoats and stays, are most frequently faulty in this respect.

The most common faults in the dress of boys and men are the following: the collars of the shirts and the sleeves are very tightly buttoned, the stock too tightly bound or buckled, the jackets so tight that the expansion of the chest necessary for deep breathing is prevented. I have seen boys belonging to charity or parochial schools who, to save a piece of cloth, are made to wear such jackets, that when fastened the wearers are obliged to bring the shoulders forward and to compress the chest. Braces should be entirely dispensed with, especially during growth, and working men would find their labour much easier without braces, which hinder the free action of the arms, and are superfluous, for the trousers can be fastened by straps which run from the hip-bones to the chine-

bone, where they can be buckled. The pressure on the stomach and abdomen can be prevented by a half-circular cut on the front side of the trousers; the waistcoats are also frequently too tightly fastened, so as to compress the stomach, especially after meals.

Women tie their hats, caps, and petticoats too tight; these latter should be cut in front in a half-circle, and also fastened like trousers on the chine-bone, which would prevent the pressure on the abdominal organs. Shoulder straps are as bad as braces. The stockings should never be so tight as to leave an impression of the material on the skin; and instead of fastening them in the usual way by garters, it is better to do so by elastic tapes, fixed on a waistband on the hip-bones, and passing through a loop on each side of the stocking. That stays and busks are injurious is not sufficiently known. Medical men and those intrusted with education should not be able to plead ignorance in this respect, and ought to do more for the suppression of a fashion which kills yearly more than the most violent pestilence, and produces deformities (as seen in the figures 55, 56, 57, and 58). The best dress for girls is a blouse, without stays and bustles, which become very soon superfluous if the free exercises are well done and used in moderation.

Boots and shoes have generally too small a sole, which prevents the flattening of the vault of the foot, as well as the natural development of the toes, which lose their round form, become square, and give less support in standing and walking; therefore the measure should be taken while the foot is flattened by the standing position, and placed on a paper on which the whole outline of the sole is to be drawn.

REPORT OF DR. ROTH'S INSTITUTION FOR THE TREATMENT OF DISEASES BY MOVEMENTS.

When I published my work, "The Cure of Chronic Diseases by Movements," several medical and literary journals took the opportunity of reviewing it, to speak in condemnation of Ling's system, which it advocated. The following table, and extracts from the letters of a few of those patients who have been benefited by this system, may serve as an answer to those gentlemen who, without taking the trouble of an inquiry, judge of a scientific system confirmed by the practice of nearly half a century, and of which they are perfectly ignorant.

NAME OF DISEASE.	PATIENTS. Received.	Cured and improved.	Under treatment.
Atrophy of the leg	1	1	—
Beginning consumption	6	6	—
Chorea	1	1	—
Contracted and narrow chest	4	4	—
Contracted knee	3	2	1
Constipation	2	2	—
Curvature of the spine—first stage	6	6	—
" " second and third stage	27	21	6
Deformities of the chest	2	1	1
Deformity of the knee	2	2	—
Deformity of the right shoulder	1	1	—
Disease of the bladder	1	1	—
Disease of the liver	2	1	1
Emphysema of the lungs	1*	—	—
Headache (chronic)	6	6	—
Paralysis of the legs	1*	—	—
" of one leg	1	—	1
" of arms and legs	1	1	—
" of right side	1	—	1
" of arm	1	1	—
Pains of the spine	1	1	—
	71	58	11

The reason why the above table shows but favour-

* Two discontinued the treatment.

able results is, that only those cases are received where there is a probable chance of improvement or cure.

The youngest patient was a boy of four years, and the eldest a lady of seventy-five. The majority of patients were treated not singly, but in parties or classes; one hour and a half being devoted daily to gentlemen, and as much to ladies. Two male and two female assistants help to execute the movements, of which a certain number, suitable to the individual case, are put together in the form of a prescription for each patient. Healthy persons execute those movements which, according to Ling's system, are arranged specially for the development of the healthy body, and which form also the elementary and a most useful part of the movements for medical purposes. The interest in Ling's system is daily increasing, and its value more and more acknowledged by the profession; the majority of patients having been sent to the Institution by medical men.

Among the more remarkable cases, we will mention only the following.

Spinal Curvature.—Lateral and anterior curvatures have been cured in younger persons, and considerably improved in persons between thirty and forty. No machine, or stretching-bed, or artificial stay was used in these diseases; the patients were recommended not to walk longer than they could bear without fatigue, and, when sitting, to lean always with the whole back on soft supports. The only accessory mechanical means occasionally used is a little padding in the shoes, corresponding to the vault of the foot which is deformed. Many patients affected with spinal curvatures are scrofulous and very nervous, suffer frequently from headache, short breath, and are easily affected by change of weather; all these accessory symptoms diminish gradually. In several cases the patients continued their medicinal treatment prescribed by their own medical advisers.

Spinal Curvature and General Weakness.—Mrs. F—,

thirty-three years old, had been for six years unable to do anything for herself; could not even tie her cap or cut her meals, masticate her food or turn the handle of a door. She was suffering from a lateral curvature, combined with a very strong stooping, so that she was obliged to wear a stay with steel crutches, in order to support her body; very sensitive to external influences. The patient was during her treatment in the Hahnemann Hospital, and being so very feeble, could come to the Institution only after the first ten weeks; in the course of the next ten weeks she improved by the movements (of which several were used in the hospital) so far that she returned home without the stay and steel crutches, and wrote a letter full of gratitude, of which the following is an extract: "I am happy to inform you that I still enjoy the use of my limbs. I can do light work. When I think of the state I was in, I wonder at myself that I am what I am. . . . . Many people, if they had not seen with their eyes my case, would not believe the improvement. A short time after my return, being out for a walk, I met a medical gentleman. I made myself known to him; he was struck with astonishment, and much pleased." This poor patient was seen by several of the medical officers of the Hahnemann Hospital, and of the London Homœopathic Hospital.

Double Spinal Curvature.—Miss —, twenty-six years old, double curvature of the spine for many years; continual pain in the back; cannot sit or walk without pain; the head turned to the left, and bent forwards and downwards; the shoulders so much drawn up towards the head that there is scarcely any neck to be seen; impossibility of breathing deep. This lady thought that nothing could be done for her, because she was so far advanced in age and her complaint of such long standing. She began the treatment only to please her parents. After three months, although the treatment had been interrupted for ten days on account of a violent cold, her figure had entirely changed; she could sit two hours in church without pain, and walk

more than an hour; her spirits were much better, and she felt herself quite different. This lady, who was sent to me, I may observe, by Dr. Black, of Clifton, expresses herself in the following manner upon her present state:—"I asked Dr. Black to spend an evening with us on purpose that he might have an opportunity of seeing me at leisure, and talking over the system; he seemed very much struck indeed with my greater ease of carriage and look of health, and the marked improvement in my figure. You would, I think, be gratified could you hear the remarks made on the improvement in my figure, and especially in my walking. I feel so much more sensible of this, and find I am quite able to take walks that were quite impossible for me to think of last year. I am very thankful for this, and also that I *never* have any pain between my shoulders, and my general health is better than it has been for years."

Chronic Headache.—Chronic headaches, generally combined with cold hands and feet, have been cured and considerably improved in those cases where circumstances did not allow the patient to continue visiting the Institution.

Mr. W—, nineteen years old, was sent to the Institution by Dr. Cronin. He had suffered since his ninth year from violent continued headache, which made him incapable of any occupation; besides this he had a slight spinal curvature. He was treated allopathically and homœopathically, but was never in the slightest degree relieved. In three months he was considerably improved; continued then at home the prescribed movements, and derived so much benefit, that he returned this year for six weeks in order to gain, if possible, still more strength; his appearance has entirely changed, and he looks now stout and strong.

Miss ——, twenty-eight years old, suffered for many years from chronic headache, which sometimes attained to such a degree that she was unable to pursue any occupation. Having been six weeks under

treatment, she writes, "Dr. Roth will be glad to hear that Miss —'s head is all but well, and that she is thought to be looking wonderfully better and stronger."

Disease of the Bladder.—Mr. —, fifty-four years old, was affected with hemiplegia a few years ago, but gradually regained the use of his limbs, only the bladder had not the power of contracting. A bougie had been used twice a day for the last six months; he had consulted Sir Benjamin Brodie, who prescribed diosma, without effect. The urine emptied by the instrument contained pus and mucus in considerable quantities. He wasted more and more; got weaker and weaker; had a very unhealthy colour; was easily affected by cold. Fourteen weeks later, partly by movements, partly by the use of cold water, he was sufficiently improved to be able to travel and pass a very good winter in Rome. He returned a few days ago, and neither slime nor matter is seen in the urine. His health is perfectly restored.

Swelling and Pain of both Knees.—Mrs. —, seventy-five years old, but still very strong, caught cold ten years ago by bathing in the sea, and suffered from this time from pain and stiffness in both knees when the weather changed, or when walking up stairs. Six weeks were sufficient to remove the swelling and pain. Eight months later the improvement still continued.

HOW CAN WE DIMINISH THE POOR-RATES AND THE NUMBER OF WORKHOUSES?

The natural answer is, by diminishing poverty, or, rather, those circumstances which are its principal source. Although the parish is obliged by law to provide for the poor, in health as well as in sickness, for the infant, the adult, the aged, and the orphan, when unable to provide for themselves, nothing has been hitherto done to prevent, as is possible in numerous cases, that state of the parishioners which is constantly tending to swell the ranks of paupers, and thus to increase the poor-rates.

Pauperism may result from a variety of causes, of which one and the smaller part comes under the head of accidents, such as calamities produced by fire, inundations, bad harvests, etc.; while the other and larger part is traceable to constant causes—ignorance, neglect of physical training, disease, etc. There is no doubt that great efforts are making to remedy, or rather to palliate, the evil when it has arrived; but I think it not only the duty of parish authorities as philanthropists, but even their pecuniary interest, to remove the causes of the evil, so far as they are removable; for prevention is better than cure.

My object is to show how considerably the number of poor and ailing persons can be diminished, and consequently the expenses of the parish lessened, by preventing disease among the working-classes, and especially by arresting the development of scrofulous and rickety diseases, and of consumption, the three great scourges of the children of those classes; afflictions by which these children are often so crippled and deformed, that during their whole ailing existence they are dependent on the parish.

Some of the causes of disease and poverty among the working-classes, as intemperance, want of cleanliness, bad dwellings, etc., are beginning, in single cases, to be encountered by Temperance Societies, by the excellent Public Baths and Washhouses, by Model Lodging-houses, etc.

Other removable causes of disease among workpeople have hitherto not been at all thought of, as, for instance, ignorance of those simple regimenal rules by which health may be preserved, and incipient disorder arrested in its course. They have not been taught to counteract the bad effects of their respective trades by simple hygienic means, nor favoured with an opportunity to avail themselves, at an almost nominal price, of a mode of treatment which would prevent many disorders, trifling at the commencement, from becoming painful diseases—inveterate ailments which disable the workman from providing for his family, and throw on

the parish all dependent on his labour for their maintenance. Undoubtedly disease is one of the most prolific sources of poverty among the working-classes, and the removal of such an important item of the causes of poverty must necessarily be followed by a great diminution in the number of the poor.

For a parish to reduce its poor-rates to a minimum, it must aim at having a maximum of healthy able-bodied parishioners. It is therefore the interest of a parish not only to promote education in general, the introduction of public baths and washhouses, of good sewerage, of well-ventilated lodging-houses, of temperance societies, etc., but to introduce any other means which can be shown to tend to the above object. And there are three means which, with this view, I venture to suggest, viz., the establishment of *cheap* and public Russian baths, of gymnastic institutions according to Ling's principles, and the distribution of popular hygienic tracts among the working-classes, as well as the gratuitous instruction of those classes in that entirely neglected branch of education, Hygiene.

By the introduction of cheap (so called) Russian baths, with the necessary attendants, a workman would often have the means of being relieved from his indisposition, and of remaining the support of his family, when, in the absence of such a facility, he is apt to neglect his indisposition, and a long and serious illness involves him in irretrievable difficulties; should he have saved anything, it is swallowed up; even his few household goods find their way to the pawnbroker, and finally he and his family fall upon the parish. Nor is it in a small number of cases only that these simple means would be effective; they would tell powerfully upon a large amount of the suffering to which the working-classes are most subject, in common colds, at the beginning of many rheumatic and gouty affections, and in others which follow suppression of the activity of the skin, and to which the working-classes are exposed by being compelled to work and live under so many unfavourable influences. Such baths could

be very readily added to the present public baths, because the supply of vapour and of hot and cold water is already so considerable, that, except for extra space, there is no reason for any great additional expense. Similar public baths are become national in Russia, Turkey, Egypt, etc., etc., and, indeed, from the time of the Greeks and Romans they have been known as preservatives of health, by diminishing the sensibility to external influences, by increasing the activity of the great emunctory, the skin, and by their power of preventing many diseases. For information on the material difference between these baths and the common vapour bath, as well as for further illustration of their power to ward off disease, especially to such as workmen exposed to all the vicissitudes of the weather and changes of temperature are most liable, it will be sufficient to refer to a pamphlet lately published.*

Other important means for preventing healthy children and those adults who work in constrained positions from becoming deformed and crippled, and for the cure of such complaints when contracted, are presented in Ling's system of movements, a system national in Sweden, where it is introduced in every school. This Swedish system consists in a scientific application of certain bodily movements to the development of the healthy body, and to a similar application of active and passive movements, principally for the cure of such chronic diseases as have baffled other modes of treatment, especially deformities, to which so many poor children are predisposed by their constitutional peculiarities.

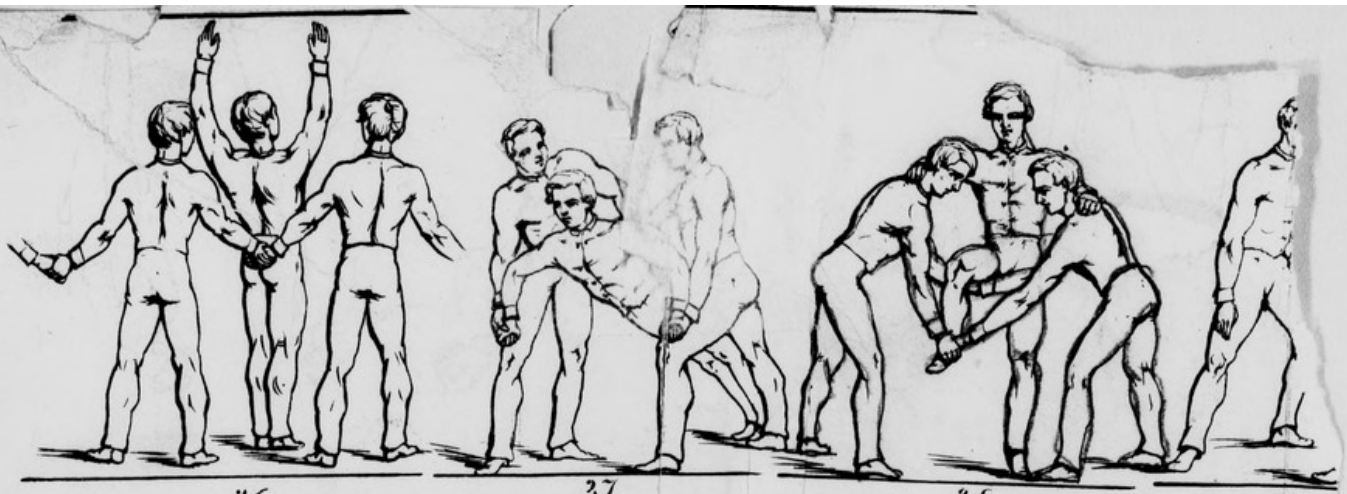
Every parish should have its schoolmasters and mistresses, and especially those employed in workhouses, instructed in this system as far as it contributes to strengthen the healthy, and improve the bodily development. Scrofula, rickets, and consump-

* The Russian Bath, published with a view to recommend its Introduction into England, for Hygienic as well as Curative Purposes, by Mathias Roth, M.D. London: Groombridge and Sons, 5, Paternoster Row.

tion might thus become only the exception, while they are now the rule; with regard to the infirm and ailing, as well as to those who have a predisposition to the diseases above mentioned, and to deformities of the spine or limbs, the time of infancy and youth is the most favourable for counteracting their constitutional defects, and preventing the dreadful diseases which so frequently cripple children, and condemn them for life to be a burden on the parish. The introduction of gymnastic institutions, according to the Swedish system, which differs entirely from those at present in use, would also give an opportunity to persons, not paupers, but still far below affluence, of availing themselves, at a moderate expense, of means all important, yet in this country scarcely known. Their value has been acknowledged by the official support of the Swedish Government for the last forty years, by the Russian for several years, and lately by the Prussian Government, which sent an eminent physician to inquire into the system, and in consequence of his favourable report, has lately established a central model institution at Berlin; in Vienna, Dresden, Cassel, Stettin, similar gymnastic institutions, according to the Swedish system, are established.

With regard to the third suggestion which I am desirous of making, viz., the removal of the prevailing ignorance as to hygienic means of preserving health, I would urge the necessity of making the workman acquainted with them by popular lectures, by frequent meetings, and the distribution of intelligible popular tracts on the subject; for which purpose it might be advisable to offer a suitable reward for the production of a pamphlet on Hygiene, which should take up the subjects of food, drink, dress, air, exercise, etc., and which should be widely distributed among the classes it is intended to enlighten, and serve them as a guide in their every-day life and habits.

THOMAS HARRILD, Printer, Silver Street, Falcon Square, London.



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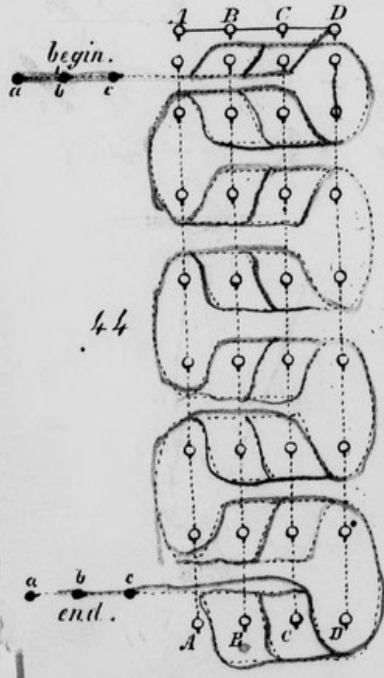

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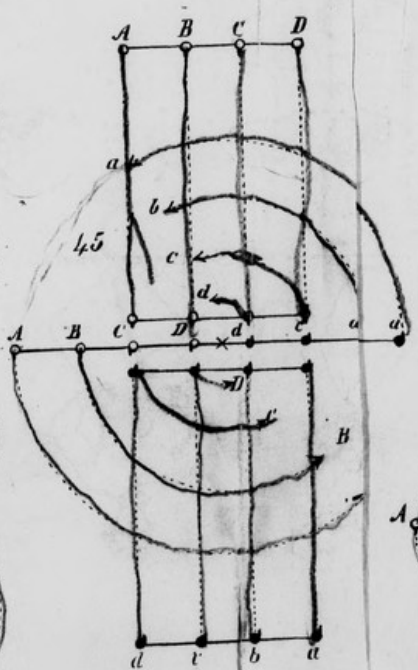

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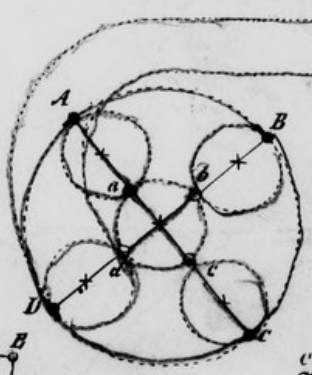

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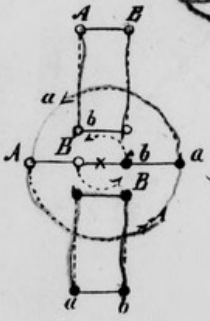

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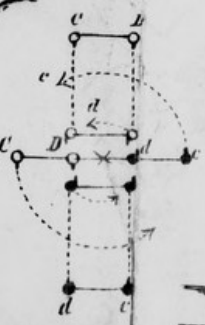

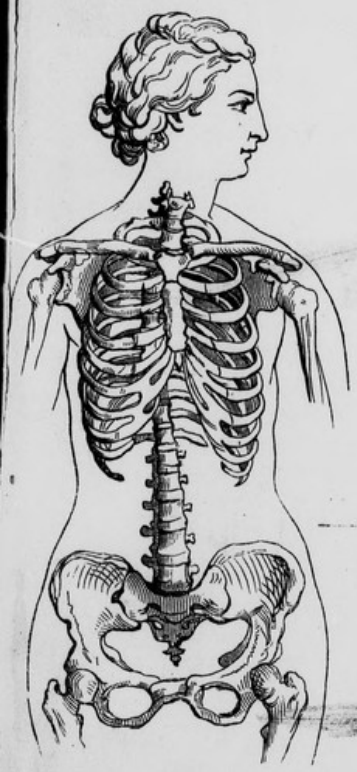

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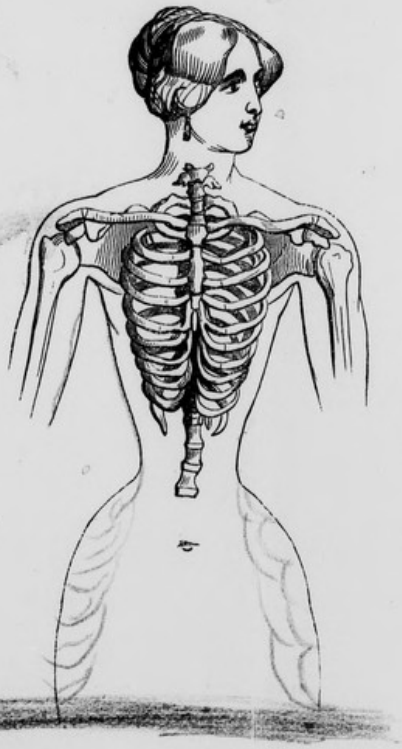
The anterior view of the thorax in the Venus of Medicis.



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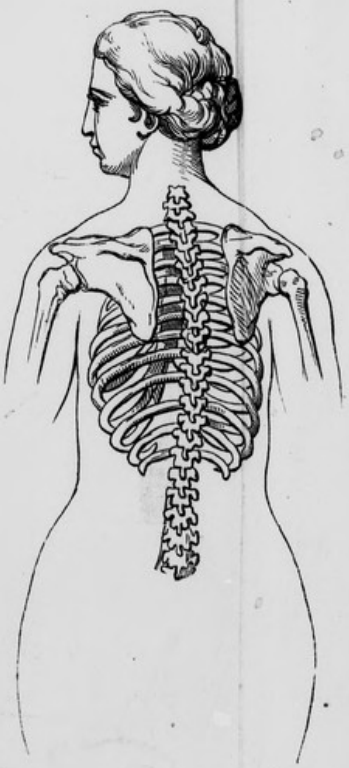
The same in a lady deformed by stays.



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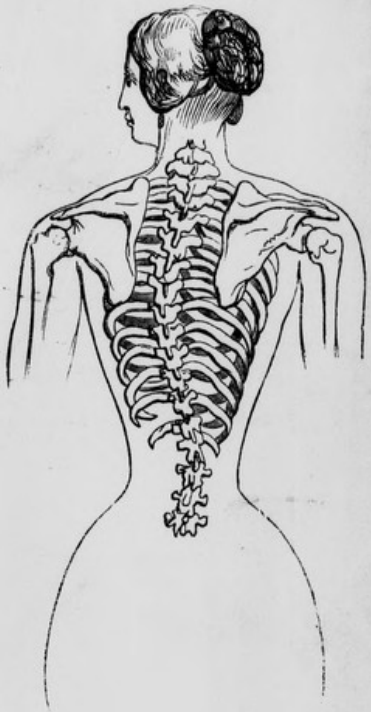
Posterior view of the thorax in the natural state.



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Posterior view of the thorax compressed and deformed by stays.

THE

Prevention and Cure

OF MANY

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WITH NUMEROUS ENGRAVINGS.

BY DR. ROTH,

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London: JOHN CHURCHILL, Princes Street, Soho.