

PHYSICAL CULTURE IN SWEDEN

by

George Demeny.

Principal of the Laboratory of the Physiological Station (Annex of the College of France). Reporter of the Commission of Gymnastics for the Minister of Public Instruction intrusted with the mission by the Minister of Public Instruction.

Paris

Society of Scientific Works

Place de l'ecole de Medicine

4 Rue Antoine Dubois.

1897.

(Translation of Georges Demeny's Education physique en Suede

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PHYSICAL CULTURE IN SWEDEN

1.

1.

General view of the ordinary features of Swedish Academic Gymnastics.

The method of Physical Culture in Sweden possesses three grand qualities: Firstly it has for its aim a high standard, a social standard: the amelioration of the physical condition of the student class as well as their intellectual and moral perfection.

Secondly, that all its parts are homogenous and well adapted to its proposed aim.

Lastly, it is composed of simple means with a strong purpose, capable of being communicated to a large number of students at one time.

Starting Point of the Method

In consequence of the scientific idea of the physical perfection of human beings in modern society, we are necessarily led to study: health according to the laws of hygiene, the normal development of the body according to the laws of physiology, and the utilizing of muscular force according to the laws of the mechanism of the human body.

By following this course we prevent any deviation from its teaching, especially one of the most dangerous, which consists in taking the means for the end.

We no longer try to adapt ourselves to those instruments so called "gymnastic engines" where the imagination pictures all sorts of difficulties to be overcome, which cannot even justify themselves by actual improvement of the individual nor by any satisfaction that may be drawn from them. If it is indisputable that we can be altered by artificial exercise following the laws which unite the organs and their functions,

it is also true that if these exercises are not judiciously chosen, if their effect is not tested by experience, it will often happen that the individual adopting them will be no better adapted to the real necessities of life, he will not be improved according to the social idea.

We have an example of this in the athlete and also in such people whose sole idea is to satisfy their vanity or to derive pecuniary benefit from their acrobatic talents. Our aim should be quite different, the search for physical perfection is not the search for the extraordinary; neither is it to seek to charm by the marvelous or that which appears to be so. Our aim is much higher. Our work is to lead the feeble by efficient means to health and strength and thus to diminish each year the number of social invalids which the conditions of modern life only tend to augment.

Wisdom and experience warn us of the danger of sights likely to warp the mind of the public, but we do not mean by this that physical training should be such as only to interest those who are practicing and not to the looker on.

After all, the system of education, to be logical, must be the outcome of the high standard for which we are seeking and viewing it from this standpoint public training in Sweden appears to form such a remarkable ensemble which in our opinion has never been surpassed in any other country. Conceived by one man, the Swedish method is so homogeneous that this of itself gives it great power.

Then, too, never having been practiced until the system was complete in itself, its author was not obliged to sacrifice his ideas in order to effect a compromise with the prejudices of his time. Everything in this system converges towards the general aim and it thus produces fruit with-

out any bitterness in the practice, because the means and materials employed are simple and well chosen.

There are no complicated equipments or machines, nor individual exercises. The exercises are divided into series or groups having different peculiarities, each answering to the effect which it is desired should be produced on the body. These groups of movements are met with in the exercises for both children and adults, for men and women, for the civilian and the military man, but of course care must be taken to regulate the intensity of the effect of these exercises according to the constitution of the individual making use of them. This idea of physical culture is worthy of commanding interest in the minds of the most intellectual, and Sweden shows us this ideal for there we find the most cultured people taking active part in physical training in all its branches.

Thus: a high standard, homogeneousness of method, and the adaptation of means to special conditions of student life, such are the grand qualities which we recognize in the Swedish system and which we are trying to exemplify by means of documents which we have collected during our journey.

Central Institute of Gymnastics at Stockholm.

Foundation. Administration.

The founder of physical education in Sweden was Ling (1777-1839). Poet and historian he framed the ideal of a race possessing all the physical vigour of the ancients together with modern intellectual culture. He was convinced that the three grand manly qualities, will-power, and courage which the ancient Scandinavian races possessed so largely were intimately associated with their manner of living. The practice of fencing caused him to realize to what an extent exercise could change an individual. By the latent working of his synthetic mind he conceived the aggregation of benefits to be derived from exercise and fencing, this latter to be the nucleus of a complete system of corporal education which would lead the human family to enjoy modern society more fully. He was a great-hearted man, his life was systematic. He wished his country to participate in the benefits arising from exercise which he himself had experienced. He did not consider it beneath him to fill the position of Fencing-Master at the University of Lund, where, surrounded by youth, which he loved, he succeeded in making many proselytes.

Nothing thwarted him, not even the answer that "there were already quite enough mountebanks without making them chargeable to the State", given by an unenlightened Minister to a demand for a grant. By dint of perseverance he founded in 1814 in Stockholm a school which still exists and which is called The Central Institute of Gymnastics.

This institution is the nursery of all teachers trained according to the Ling method. Thanks to it one can trace in every part of the Kingdom the same beneficial principles and verify the same useful results. A short description of the management of the Central Institute, an example of the subjects taught, and an analysis of a lesson given

to the students will suffice to show the spirit of the method conceived by Ling and as it is followed even to the present time.

The Central Institute of Gymnastics at Stockholm is managed by an upper council composed of a General, a Doctor and a Teacher.

The Council meets once each month. The Director of the school is chosen from the ranks of the Professors; he is elected by Royal decree for a period of five years.

The successive Directors have been

Ling1813-1839.

Branting.....1839-1869.

Nyblaeus.....1869-1887.

Torngren is the present Director..

There are three upper masters:

One for pedagogic gymnastics.

(Professor Torngren)

" " military gymnastics.

(Captain Balk)

" " medical gymnastics

(Dr. Murray)

These Professors are supplemented by Assistant Masters. They are Swedes belonging either to the navy, the army, or the medical corps.

Students who wish to follow the courses at the Central Institute are enrolled and admitted without competition in the order of their application.

The military Professors are sent by the King. They are always Officers from the Army or Navy and must be at least thirty years of age.

Civilian Professors must have obtained their Baccalaureate and not be over thirty years of age.

Students who are Assistants to Doctors are admitted under easier conditions.

The same certificate of studies is required of the female candidates

as that necessary for entrance to the Primary Normal School.

Every candidate must be able to swim.

The course at the Institute is of three years duration.

The first year is devoted to training instructors.

The second year they become masters in Pedagogic Gymnastics.

In the third year they become Medical Gymnasts.

Females can take the three courses in two years, because they are exempt from taking fencing and military gymnastics.

The courses commence September 1st and terminate May 15th of each year. They are interrupted at Christmas for about fifteen days.

On leaving the school, the students are presented with different degrees. Those who have followed the first course become instructors in the Primary and Secondary Schools. Those who have followed the Medical Gymnastic course obtain the degree of Medical Gymnast and may administer to the sick therapeutic treatment by movements under the direction of a doctor.

Those who have followed the three courses receive the degree of Professor of Gymnastics, and can give lessons in any school in the State.

The courses are divided into two classes Theory and Practice.

First Course.

Theoretical Course
Anatomy

Pedagogic Gymnastics

Military Gymnastics and
Fencing(women are exempt)

Physiology

Practical Course

Exercises in Pedagogic Gymnastics.

Exercises in Military Gymnastics.

Manual Exercise

Exercises in teaching.

Second Course.

Theoretical Course

Anatomy

Physiology

Hygiene

Science of Movements

Pedagogic Gymnastics

Military Gymnastics
(Fencing).

Fundamental principles as a
guide to teaching.

Medical Gymnastics which treats
more especially of the maladies
of children.

Practical Course

Exercises in Pedagogic Gymnastics

Exercises in Military Gymnastics

Fencing (women exempt)

Exercises for learning to give les-
sons in schools.

Exercises in Medical Gymnastics.

Third Course.

Theoretical Course

Pedagogic Gymnastics for women,
Medical Students and Doctors
who have not followed the first
course.

Anatomy (1)

Physiology

Hygiene

Medical Gymnastics, fundamental
rules for the practice and study
of the principal maladies which
can be treated successfully by gymnastics.

Practical Course

Pedagogic Gymnastics

Application of Medical Gymnastics

Pedagogic Course

Medical Students practice teaching
gymnastics in schools if they have
not followed the first two courses.

Foreigners are eligible as students. The study for the Pedagogic course commences at 7 o'clock in the morning and all the studies cease at 4 o'clock.

(1) The study of Anatomy is followed with the aid of the human corpse. There is a Dissecting Room in the Central Institute. There are besides a special library, lecture rooms and a Department for clinical medicine.

Each student must give at least five or six hours a day to the study of both theory and practice.

There are no boarders such as are to be found in all other Swedish educational institutions.

The State grants the Institute an annual sum of 40,000 crowns.

The law demands that instruction shall be given in the Institute to as many students as possible from public and private schools.

Private local societies can also make use of the Institute, on condition of paying a minimum fee which goes into the treasury of the Institute.

Such is the source from which the remuneration of the teachers is derived. Although few students, 10 or 15 at most, leave the Institute each year these scholars had previously received a general education and have only become specialists by the study of physical training. Moreover the study of physical training is always carried on in conjunction with the sciences to which it is so nearly allied. On their leaving the Institute the Professors award the meritorious student every desirable guarantee of capacity. The culture of the mind which is pursued simultaneously with the physical training renders the latter as elevated and as important as any of the other faculties and thus we see that the Professor of Gymnastics in the Universities is treated with just as much consideration as any of the other teachers.

Celebrated Men past and present Professors at the Central Institute.

Ling desired that Branting should succeed him. Branting was of a caustic temperament and knew well how to turn this quality to account when any doctors were disobedient in the matter of therapeutic treatment by movements.

It is a strange thing that these two men who made the greatest advancement in this branch of science were not doctors or at least had no right to the title of such, although their scientific knowledge was certainly commensurate with that of the doctors of their time.

Branting confined himself more particularly to medical gymnastics, like his master Ling he had good reasons for believing in the curative effect of exercise; for out of nine children who died of consumption he was the only one who survived, thanks to gymnastics.

Branting was assisted by Georgii, a very distinguished Professor who wrote some very celebrated works on Swedish Gymnastics. Walfelt who contributed largely to the development of the military branch was also professeur at this time and it is to him we owe the bayonet used in fencing even in our day.

Myblaeus who succeeded Branting as Director of the Institute, made no great changes in the method of teaching but he brought out several works on military pedagogy.

Ling had one son who was 19 years of age at his death. Without instruction but exceptionally gifted, this child worked so hard that two years later he passed his Baccalaureate. He took lessons of a minister, a friend of his father's. He continued his study of Anatomy at Upsuld where he was considerably aided by his brother-in-law who was a homeopathic doctor.

After pursuing his studies for a time alone, he entered the Insti-

tute as a student, became Instructor at 24 years of age and then Professor from 1864-1883. In the latter year he took his leave, and died in 1886.

To this son of Professor Ling we are indebted for a work with diagrams entitled "General Theory of Movements". He bequeathed to a sister, who is still living, about 3,000 original drawings of the movements, all executed in a remarkable manner. These drawings have all been bought quite recently for 5,000 crowns by four persons and presented to the Library of the Institute.

Thanks to the kindness of M. Torngren we were enabled to view them there. Professor Ling's son contributed principally to the development of knowledge relative to the mechanism of movements and their effect from a therapeutical view. For some time he was at Berlin with Dr. Ellenbourg studying medical gymnastics; and at Paris studying Physiology under Claude Bernard.

To him may be given the credit of restoring pedagogic gymnastics to their legal position. He thought out combinations of movements, classed them into groups such as in medical gymnastics. If it had not been for the important work which he left, many traditions would have been lost and the training rendered of little use. He always regarded this work, however, as the work of his father and even went so far as not to sign it.

We are also indebted to him for the expansion of the system of gymnastics for women instituted in 1864.

M. Torngren the present Director of the Institute was a student there in 1862. Being a Captain in the Royal Navy he was elected in 1867 Professor of Gymnastics in the navy school at Stockholm and there conducted the Pedagogic and Military course. Induced by Ling the younger to make a study of the movements he succeeded him in this branch.

M. Torngren is a most accomplished scholar. It is to his kindness we owe nearly all the information contained in this little work. He placed himself entirely at our disposal with a complacency worthy of being recorded. He showed us the historical treasures contained in the Library of the Institute, but which unfortunately through our ignorance of the Scandinavian languages were as sealed books to us. M. Torngren's great ambition is to stretch to its utmost limits the benefits to be derived from a physical education according to Ling's method.

In his popular books he addresses himself more especially to the humble class and the feeble in health, for whose benefit the means employed are reduced to the simplest.

At the time of Nyblaeus becoming Director of the Institute, (thanks to the Board of Directors in office at the time of Branting's death, and of which Nyblaeus was a member) the training was divided into three distinct branches: Pedagogic, Military and Medical.

The Board, however, through the influence of M. Torngren have changed this and now the three studies are no longer separate.

According to a new rule in force since 1887 any candidate wishing to become Medical Gymnast must have previously followed the other two courses namely Pedagogic Gymnastics and Military Gymnastics. In the person of Captain Zilow, M. Torngren has a valuable assistant. He is celebrated for his profound knowledge of the movements. Captain Balck, military Professor, is very popular in Sweden through the interest he takes in the development of gymnastic societies in skating and indeed in all the national games. He has written many interesting articles on these amusements.

111. Method of Swedish Pedagogical Gymnastics.

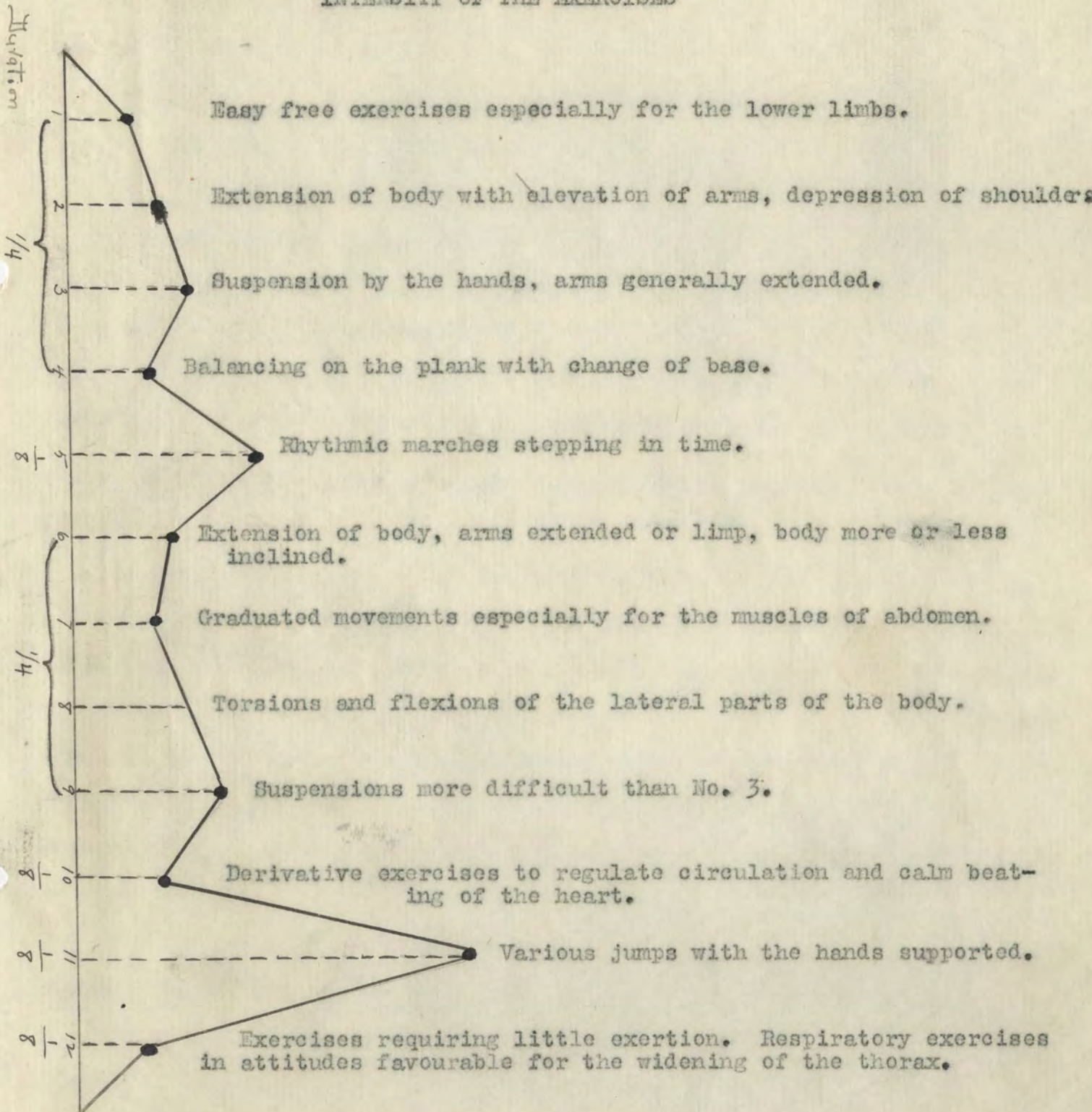
The fundamental outcome of Pedagogical Gymnastics instituted by Ling is that there can only be one unique plan even as there is but one organization of the human body.

A lesson in Pedagogic Gymnastics, which must be given each day is generally of forty minutes duration.

The following is a sample.

- (1) Easy exercises more especially for the lower limbs the object of which is to promote a rush of blood to the head.
- (2) Extension of the body with elevation of the arms and forced depression of the shoulders.
- (3) Suspension by the hands, the arms generally extended.
- (4) Balancing of the plank with change of base.
- (5) Rhythmic marches, stepping in time.
- (6) Extension of the body, arms extended or limp, the body more or less on an incline.
- (7) Attitudes which necessitate a gradual exertion of the flexors of the body the object of which is to strengthen the coatings of the abdomen.
- (8) Torsions and flexions of the lateral parts of the body.
- (9) Suspending and supporting the body by means of the hands. (more advanced than No. 3).
- (10) Exercises called derivatives calculated to regulate respiration and circulation and calm the beating of the heart.
- (11) Various jumps with and without the support of the hands.
- (12) Exercises not requiring a large amount of muscular work, attitudes in which deep inspirations are drawn.

INTENSITY OF THE EXERCISES



The aforementioned lesson together with the time lost in arriving and departing lasts at most one hour.

The aforementioned exercises have a relative intensity as can be seen by the hereinafter diagram, which is a plan of every other lesson.

Class and Grade of Exercises.

The adaptation of the studies to the different ages is based on the amplitude, the duration, and the speed of the movements. The most important factor in the gradation is the fundamental position in which the movement is executed. Without portable apparatus the attitude itself should suffice to produce (by means of the weight of the body) all the muscular contractions that one desires, and to regulate their intensity.

Thus the movements are grouped into classes and each class is given a rank according to the degree of intensity. Instead of searching for useless complications the effects of which are either unknown or cancelled by destroying one another, the Swedes make use solely of simple movements and attitudes clearly defined and which produce the desired result. The effect produced is even more pronounced with regard to the strength of each pupil than if they had practiced with the more elaborate apparatus of given weight.

"The value of gymnastic exercise", says M. Torngren, "depends principally on the amount of relative effect it assures in the least possible time according to the needs of the feeblest as well as the strongest." A relative but certain effect on the physical development (health, tehc-ity, strength, suppleness). The innate disposition and the amount of time given to gymnastics as well as other circumstances more or less unfavorable allow their influences to be felt.

Then too the value of an exercise up to a certain point depends upon the minimum of incontinuous - defective performance, bodily deformities,

organic disturbances, - which it might cause under unfavorable circumstances, that is to say when the exercise is of no use.

An essential condition to the proper methodical development of these exercises, is not only to divide them into sections according to the principles they contain and the effect they have, but also to arrange them in groups following the best possible progression. By this means one can easily put a new movement suitable to the different ages and development of the pupils, in the place of an old and tried one.

In drawing up the diagram not only must all the forms or groups of exercises be represented which experience has shown are of value, but also when the grouping of a certain exercise is doubtful one ought to try and balance it by other exercises corresponding in effect in order to give all the harmony possible to the program.

The nearer to perfection a method is, that is to say the more it is founded on a scientific basis and upon actual experience the more easily it can be adapted to those following the routine, that is, if the latter possess the following qualifications:

- (1) Having followed a complete practical course as well as theory, and having a good knowledge of the movements.
- (2) Possessing both disposition and special aptitude for the work.

They should have besides a well drawn-up manual and be constantly under the supervision of competent teachers.

Then too even in the upper schools no matter how great the culture or skill of a master an inspection is indispensable."

In the studies for girls greater prominence is given to soothing exercises and special watch is kept for fatigue.

Half of the time set apart for a lesson is employed in ensemble exercises, the hands free, comprising attitudes which necessitate severe and prolonged contractions, having a marked effect on the straightening of

curvature of the spinal column and on the enlargement of the thoracic cage.

A quarter of the lesson is employed in violent exercise, such as leaping, marching, running, climbing. The remaining quarter is, on the contrary, used for free exercises serving to counterbalance the more violent ones.

The attitudes which are called "bent-stiff" attitudes of extension of the body and which reappear frequently in the lessons have for object the straightening of the dorsal and cervical column. To give greater amplitude to the movements, articulation to the ribs, and to unfold, so to speak the fan formed by the pectoral bands, bands which either weight or bad attitudes tend to weaken or crush.

They have especially in view the enlargement of the thorax by mechanical means which produces a widening of the sides and prepares the respiratory organs for working better under the reflex action of the nervous centre.

By the freedom which it gives to the lungs and to the larger blood vessels of the chest it establishes the healthy working of these organs without overcharging them by muscular work or excessive effort.

The Swedish method does not, like the French, exercise equally all parts of the body; nature and the classing of movements decides the actions for the straightening of the body.

It is in this that Swedish Gymnastics have a veritable tendency towards the aesthetic or if you wish orthopedic.

The organism of man, the form that one expects to find in him is that of an expanded, thoracic cage giving plenty of room to the heart and lungs; the abdominal muscles being solid and drawn tight to hold the viscera and the organs of digestion; that is a muscular development, a harmonious whole without being immoderate.

The means employed are the result of the following axioms.

There can never be great development of the lungs without dilation of the thoracic cage and without rectifying curvature of the spinal column. This dilation itself can only be produced by the muscles which elevate the ribs finding a fixed point at the back, when the stump of the shoulder is fixed and when the muscles of the shoulder blade have acquired by constant shortening sufficient strength to struggle against the natural weight and the strain caused by ordinary movements which in time produce convexity of the back and flattening of the chest.

Ling understood the laws of the muscular system when he said that a muscle which becomes shortened when it contracts is not from the hygienic point of view in the same condition as a muscle which performs the same service and allows itself to be drawn out by an exterior resistance. It is clearly shown that complitude of movement influences the development of the red parts or the contractible muscle. If there is constant shortening (concentric movement) the points of insertion of the muscles, at last draw closer to one another because the contractible part adapting itself to the narrow and constant movement, diminish its length.

If there is on the contrary, elongation of the muscles (excentric movement), if the course is elongated, if there is frequent disjunction between the two points of insertion, , the fleshy parts of the muscles adapt themselves to the extended movement and lengthens considerably.

It is, therefore, evident that the constant contraction of the muscles which are nearest to the shoulder blade makes the shoulders draw in and straightens curvature of the spinal column, must have for effect the restriction of the muscles by shortening them and drawing their points of insertion closer together. The attitude of the body dependant at the outset upon the will for correction, in time becomes a settled thing and there is then no longer need of energetic measures as at first. This is the reason that we replace that vague principle of exercising all the mus-

cles of the body equally by the more precise one of bringing into play particularly certain groups of muscles, with the idea of using beneficially in every respect all parts of the skeleton. Swedish movements always have one aim namely to shorten the muscles of the back and lengthen those that contract the chest, or in technical language, the movements of Swedish gymnastics induce concentric contraction of the muscles of the back and eccentric contractions of the muscles of the chest. I would add to all appearances it is the other way about in our French system of gymnastics with equipments.

By the use of the various equipments for climbing, fixed bars, trapezes, rings, etc. the clasping the arms constantly predominates, thus the muscles of the chest become shortened whilst those of the back lengthen. That is the reason we do not find generally amongst our young people studying gymnastics, that fine learning which was so striking during ~~the~~ our sojourn in Sweden.

It is very easy to point out those who have not followed a good course of gymnastics, or those who have not followed any; by the bent shoulders and hollow back, always a certain sign.

The foregoing axioms on which Swedish Gymnastics are based, are all drawn from natural observations. We have had the pleasure of seeing that the "Basis of Physical Culture" which we have been authorized by the Minister of public instruction to determine for the drawing up of a new Manual of Gymnastics is fully in accord with these axioms, and that we agree with the Swedish method, as it must of necessity be if we place it on a purely scientific footing. A system of Pedagogic Swedish Gymnastics really exists but it is strange that this system has so far remained unknown to us or at least that we have only as yet attained to a misconstruction of the system.

The ensemble lesson occupies the highest place in this system. It is

a gymnastic lesson which might be called orthopedic or aesthetic, that is to say a gymnastic lesson whose one aim is the beauty of the body.

In France in this self same lesson, we exercise separately the articulations (junctures of the bones) and the muscles. In the Swedish method they do not aim at the separate contraction of groups of muscles but the united contraction which creates intense actions; they take for instance actions in which the student cannot elude the effort required of him and the effort of which would act upon his frame, straighten the body, raise the sides, and thus increase the scope of movement of the thoracic cage.

The ensemble lesson in France is regarded more as a course of movements called "flexibles" and as a means of accelerating the course of the blood, and as a preparation for exercises with the ordinary equipments, without which, the perfection of gymnastics is not considered possible.

The ensemble lesson in Sweden is given with several intervals, three at least during which time movements on the trellis, with ropes ladders and with the apparatus for jumping are practiced.

The ensemble lesson practiced as in Sweden without portable apparatus, without dumb bells, bars of iron, or clubs produces a strong effect, and a different one to what one would imagine.

In order to judge of the effect more fully we placed ourselves in the ranks of the students and took part in the lesson; the sensations and fatigue we felt were of a totally different nature to what we had been accustomed to.

To obtain these results Ling and his followers have driven their researches in the analysis and science of movements very far. This latter holds a very important place in the theory of teaching, and justly so. Does not both the effect of an exercise, good or bad from a hygienic standpoint, and the application useful or harmful, of muscular force depend on the nature of the movement and on the manner in which this movement is carried

out?

Does not every question of hygienic exercise contain in itself a mechanical problem? This science of the mechanism of movements without which no real instruction in gymnastics can exist is so to speak unknown to us. It is distinct from the science of medicine which by the aid of chemistry practices the healing of diseases. Nevertheless it embraces the greater part of biological phenomena since all the great functions: muscular contractions, respiration, circulation, are controlled by physical and mechanical phenomena. The course embracing the analysis of the movements is developed by the teaching at the Central Institute as fully as the present state of the science permits.

It is conducted by a Professor of Gymnastics having an extensive knowledge of the exact sciences as applied to the human machine.

In Sweden Physical Culture is only considered interesting when it adapts itself to the greatest number. It is from this point of view therefore that their system is most remarkable. It makes it possible for one single master to exercise beneficially a large number of pupils at one time. We were present at Malmo when Lieutenant Berling in two hours gave a lesson to all the divisions in the Athenaeum, that is to about five hundred pupils. This is evidently the true form of academic gymnastics. It is certainly not interesting when only a small minority of the pupils participate in extreme work and acquire an athletic development, if the weaker ones get no benefit from it other than that of looking on and applauding. Above all the error should be avoided of dividing the public into two classes namely the spectator and the participant. This mode of procedure was the turning point of ancient decadence.

Then, too, to be thoroughly logical the Swedes disallow competition for prizes as a means of popularizing, and also rewards as stimulants to the self-esteem and zeal of the pupils. This seems hard, for they could

easily have competition on the conditions that the prize should be given to the largest and most successful group.

But these competitions which affect special studies, the competitions of individuals are evidently the surest means of causing gymnastic instruction to deteriorate by robbing it of its general value.

Then, too, the character of the people, full of sweetness and wisdom is fitted to accept these truths and to welcome methodical and systematic training.

Practical Pedagogic Instruction

Children from the schools as well as students from the neighboring Athenaeum come to the Central Institute to take their daily lesson. This lesson at the same time answers the purpose of pedagogic exercise for the students of the Institute. Sick children or those afflicted with any kind of infirmity have a special lesson to themselves given by an upper officer.

We have seen those afflicted with lateral curvature, with hernia, or with disease of the hip as well as other sick people, derive benefit from gymnastics in spite of their abnormal condition.

The Director of the Institute assists in person at these pedagogic courses. He keeps an eye on all the scholars, surveys the ranks, rectifies their attitudes, and encourages the students with kind remarks.

The greatest animation prevails during the lessons, for silence is only expected during the ensemble lesson. The students themselves carry out all the manoeuvres necessary during the movements with the equipment. They let down the "bommes", or take them from their boxes hidden in the wall; they hoist the ropes and roll along the wooden horses. At a sign from the master in a twinkling of an eye they replace everything, the room is cleared, and the floor is absolutely bare and ready for the resumption of the ensemble lesson.

Exercises with the apparatus are done in sections under the direc-

tion of monitors. We have frequently seen six sections with twenty pupils in each practice at the same time in the same room without inconvenience to one another.

The pupils stimulate one another by encouraging words, but immediately when the master whistles silence is restored, gayety reigns without tumult, liberty without disorder.

The rhythm of the movements is varied, the changes of attitude are executed with great rapidity but the attitudes themselves are sufficiently prolonged to be beneficial. The same movements are not repeated more than three times in succession.

The Professor alone gives orders for the exercises: he counts the time, overlooks the pupils, makes remarks to them, but does not parti-

cipate in the movements himself. The word of command is short, it is immediately followed by execution. After each movement the pupils do not always return to the set position, on the contrary they sometimes remain in attitudes more or less difficult which necessitate intense contractions whilst the master gives the command for another exercise. In this way there is no time lost in verbal explanations and the pupils do not make a halt between each exercise, during which they remain immovable and might get chilled.

They practice, springing with obstacles, and springing, the hands resting on two horizontal bars situated on the same vertical plane. They jump simultaneously with their feet firmly planted on the floor, and at the word of command and after they descend they remain bent and immovable, until a new order is given.

They also jump forward, backward, they spring whilst turning round; they cling to the trellis work on the wall springing all the time down, back, and to one side. The exercises with the wooden horse consist in springing whilst they pirouette, above the jumping platform, springing to

the sloping plank, climbing an inclined rope. The monitors who have not as yet taken part in the exercises have their lesson separately.

In the boarding schools and Athenaeums for young girls the gymnastic lessons are given by the Professors and sometimes by the students from the Central Institute and in this way the latter get practice in teaching. All girls are exempted from these lessons during the period of monthly sickness.

The young girls wear a costume composed of a knitted waistcoat generally striped blue and white, a sailor vest with deep facings, a short skirt, short trousers, woolen stockings, and canvas shoes. Neither corsets nor waistbands are permitted during the lesson. The exercises for girls are just the same as for men. We even noticed that the female students had a pronounced taste for exercises with the wooden horse, springing from the bars to the trellis, etc. That which struck us most during our visit was the physical training of the women. The young girls seemed to derive so much pleasure from attending the exercises which were in addition to the compulsory courses of the schools and Athenaeums; and the voluntary course of the Institute itself established for young working girls who find in the exercises of the evening an antidote to their sedentary life.

These reunions take place twice each week, the director being a lady student of the Institute, a student who finds delight in teaching in the evening after having worked all day.

Then, too, there are other societies composed exclusively of teachers and former scholars of the school; amongst these we saw women of all ages up to forty. The result gained by the formation of these institutions is easy to see; arising as it does from the great importance that is attached to physical training in Sweden.

The students at the Institute belong to some of the best families, and the daughters of the nobility do not consider it beneath them to take

the title of Professor of Gymnastics.

In the Primary Schools where there is no gymnastic hall, the lesson is given in the class rooms, making use of what equipments they have; the movements are simple but nevertheless energetic, just those that are in the general program.

As soon as the Professor finds that the children are not giving him individual attention he stops the lesson and ventilates the room. The pupils spring on the tables, lie down on their backs or on their chests, and with their feet holding on to their benches practice the extensions and flexions of the body.

It was not only in the Primary Schools that we saw these exercises practiced in the classroom.

At the Athenaeum in a large room we saw several hundred scholars carrying out written exercises. Mr. Zilow, professor at the Institute, came and gave a gymnastic lesson in this room.

The students seemed very pleased at this diversion from their ordinary studies. The excellent training in the art of gymnastic instruction is largely responsible for the amount of method and sound judgment in the lessons given to the children in the schools.

Mr. Torngren has instituted at the Central Institute a course of pedagogy in which the spirit of the method is made more impressive by practical demonstrations. The students under his direction learn to analyse and decompose the motion of the body. He points out the principal defects to be corrected; shows the best means of aiding a pupil, to hold them back when descending, and shows the best means for exercising the largest number of pupils at a time by the proper placing of the sections and the disposition of the equipments.

The pedagogic lesson ^{often} takes place in different neighborhoods and pu-

pils are trained to make use of anything available which would serve to make a good gymnastic lesson.

These useful lessons are everywhere very popular, and all the students of the Institute, officers, doctors and teachers are expected to take part in the practical gymnastic lesson.

These lessons are given in a very able manner by Captain Zilow under the supervision of Professor Torngren.

Hall for Gymnastics and Equipment.

The Gymnastic Halls are very large, that in the Athaeum, for instance, being thirty metres by twelve, and nine metres in height. The floor, the walls, and the ceiling are all of pine, either varnished or oiled. The floor is kept scrupulously clean; after each meeting it is washed with a kind of broom made of a bar of wood to which are attached boney threads of rough undressed hemp which is drawn all over the floor whilst wet.

No pupil is allowed to enter the room without having first changed his costume and shoes in the adjoining vestibule. The premises are kept in winter at a temperature of from 12 to 14 degrees centigrade. The windows are large to allow plenty of light and fresh air, which is renewed, before the commencement of each lesson.

The equipment necessary for a gymnastic hall is as follows:

The trellis, which consists of a number of wooden horizontal triangles fixed at a given distances on the wall. These triangles which are not sharp angles are from eight to ten centimetres apart and cover the wall to the height of three metres above the floor.

It is on this trellis that the pupils support themselves whilst executing the movements and maintaining energetic attitudes. This is something peculiar to Sweden as well as the rectangular ladder, composed of a number of vertical beams, united by rounds placed very wide apart. This

ladder is suspended by ropes in a vertical, oblique, or horizontal position. On these ladders the pupils pass through the frame formed by the rounds and the beams, and go in pursuit of one another, which amuses them highly, creeping from top to bottom, they follow a winding course which had been determined upon in advance. These exercises require a great deal of agility and skill, they render body supple by reason of the number of torsions they set in motion.

They have also a rope on an incline, vertical, and oblique perches, fencing stage, and sometimes rope ladders.

The apparatus which is most used is the horizontal beam with oval section, showing on one of its faces a longitudinal groove which gives to this section the form of a heart, as on a pack of cards.

These beams are made of pine and often run the whole width of the room.

In ancient gymnasiums they were suspended by tackle and iron chains from the ceiling. They could be let down to the desired height by means of hook fastenings.

From the noise of the chains and the words of command given for the manoeuvres one might almost fancy oneself on board ship.

In the recently constructed gymnasiums the "bommes" with their upright posts are embedded in the floor. At a given moment the pupils raise the trap doors which cover them and in a few seconds, 4 or 5 of these machines rise from the floor and are ready for use.

The exercises capable of being performed on these "bommes" are numerous; students are coupled in pairs on the same vertical beam, they adjust a saddle which admits of several pupils vaulting at the same time. They also use it in connection with the fencing stage.

One can perform on these "bommes" all the necessary exercises for suspension, and support without need of turn about and other acrobatic movements.

When there is no other support for the "bomme" two students place it

on their shoulders resting it against the wall, whilst their companions resting their hands on it vault over it. All along the walls are arranged little wooden benches on which children recline and with their feet hooked into the trellis practice the flexions and extensions of the body.

These benches resting against the wall adapt themselves to fencing stages, and by drawing back certain little horizontal beams they are suitable for balancing exercises. The apparatus for jumping consists of a wooden horse covered with leather of which the neck and shoulders are lower than the flank, the jumping platform, stirrups and the ordinary jumper.

These are all of various heights and either fixtures or on casters.

They sometimes place on the horse a sack which represents a cavalier and which raises the height to be cleared to 1.80 metre. The appeal is given from the floor; in case of a fall whilst springing a thin carpet made of firmly plaited cord is used.

The materials used are always of pine and constructed according to a plan emanating from the Central Institute. The locality, heating, light, and ventilation are all important points. In the modern gymnasiums there are wash-bowls and bath rooms.

They also have games with a javelin, velocipedes, roller skates, and shooting at a target with small sized arms.

Application of Gymnastics. Military Gymnastics.

Military gymnastics as they are taught at the Institute at Stockholm consists of pedagogic gymnastic lessons and fencing. There are three different kinds of fencing. Fencing with a foil, fencing with a sabre, and fencing with a bayonet.

In these three kinds all the thrusts and parries are taught symmetri-

cally both with the left hand and the right.

Fencing with a foil or with a sword is the French mode in which attack is not the principal thing and indeed all idea of combat is excluded. There is no record of a dual having taken place for 80 years in Sweden.

During the fencing lesson with a sabre the students wear a mask and an iron cuirass thus allowing them to thrust with all their force as if it were a veritable fight. It is a very picturesque sight to watch this little phalanx of men resembling divers more than anything else causing sparks to flash forth from the clashing of their rapiers.

Fencing with a bayonet is a special kind of fencing; it is a concise game in which the bayonets cross one another and miss. The practice of gymnastics as it is taught in the pedagogic lesson is quite sufficient although little developed.

We also noted peculiarities which appeared to us quite conventional. For instance in springing, both at the preparation and the fall the position of the arms is left to the pupil.

On coming in contact with the floor the knees are wide apart, the heels united, the thighs forced into the abduction so that the feet describe an angle of 90° . We do not see the reason for this inasmuch as it does not aid the jumping at all. Then too in the upright position they keep their feet at right angles. This is plainly a great effort; and of what use is it? We regard this practice as a contradiction of the principles of economy which is our standpoint when applying the use of muscular force.

A gymnastic lesson is given daily to the recruits; and is the same as that given to the students at the Athenaeum.

The rooms of the barracks are very large. That belonging to the Infantry at Stockholm is 46 metres by 20 metres and newly decorated. Instructors are mostly chosen from the Officers; there are but four or five

recruits as Instructors. These under-officers received their training at the special school under the direction of officers who have passed through the courses at the Central Institute.

At the naval school and at the school for sailors there is a lesson given each day in a very large gymnasium set apart for the purpose.

The lesson is given by a Lieutenant of the Navy formerly a student at the Central Institute. It is just the ordinary pedagogic lesson with the addition of exercise in the open air. Its special application to the navy is not gone into until later, when they are on the training ship.

Measurements of the students are taken at the beginning and end of each course. Here is an example of the measurements taken this year (1892) of 300 men belonging to the recruits of the navy.

Lowest age.....	19 years
Weight.....	130 lbs. (about)
Height.....	1 ^m , 681
Breadth of hips.....	57 ^c , 8
Breadth of shoulders.....	26 ^c , 5
Diameter of thorax (lower).....	26 ^c , 9
" " " (posterior).....	19 ^c , 6
Thoracic circumference (maximum).....	86 ^c , 9
Circumference of abdomen (minimum).....	72 ^c , 6
Capacity of respiratory organs.....	4lb., 25

These proportions are certainly superior to those of our young people (French) of the same age and class.

Medical Gymnastics

Medical gymnastics in Sweden is one of the most highly developed branches. It is a thorough system of therapeutics by means of exercise, which reach a ^{large} number of diseases and includes the treatment of orthopedic cases.

It is not by means of equipments or new and complicated machines that the Ling system has obtained such good results, but rather through the wise direction of the treatment, engendered by a perfect knowledge of the movements that they are able to direct the effect without thwarting or diminishing it. In Stockholm there are it is true special establishments which possess more perfect equipment for the gymnastic training. The establishment of Dr. Zander is one of the most remarkable of its kind. All the movements both passive and active are executed by means of the most ingenious machines and without the aid of any opposing gymnast.

Other private establishments, under the control of Doctors make use of several methods, in which equipments play a subordinate part but great attention is given to the practice of massage and the passive movements. But to go back to our subject, the apparatus used in gymnastics taught officially is much simpler.

For instance the furniture of the gymnastic room at the Central Institute comprises six beds for massage, and six folding beds, trellis, one ladder on the incline, one inclined beam, one top gallant mast, fixed vertical perches, cushions and mattresses.

The students during their stay at the school practice amongst themselves the practical part of medical gymnastics; they practice, under the supervision of a medical professor, the treatment of the sick who come each day to the Institute, and on leaving the school they have the right to administer medical treatment under the supervision of a doc-

tor. The prescriptions are not only pharmaceutical productions but consist of movements active and passive., of massage, percussion and special original movements. We will not now give more details respecting Swedish medical gymnastics, which has already a world wide reputation, and which merits more study than could be given to it in these pages.

Gymnastics for students and National Games

Students are at liberty to take gymnastics or not, just as they feel inclined, but as most of them have been benefitted by their practice at the Athenaeums where gymnastics are compulsory, they mostly regard them with favour. Then, too, the same method is adopted everywhere; so that it is easy for the student to continue the regular course conducted daily by a Professor at the University in which he is studying. This professor is on the same footing in the University as all the other professors, and receives as salary about 3,000 francs annually. What struck us most during these lessons to the student class was the voluntary discipline imposed.. This arises from the conviction of their possessing the most perfect gymnastic method. This conviction is also shared by the other Professors of the University for the Professors of Art and Sciences may often be seen in the ranks of the students and taking part in the lesson.

At Lund we saw the lesson conducted in a masterly manner by Captain Norlander. The gymnastic hall is old fashioned being only 30 metres by 15. Above the door is a bust of Ling with the inscription "Mens sana in corpore sano". Ling himself conducted classes in fencing in this room and the town of Lund is full of souvenirs of him. The floor is covered with linoleum. The apparatus though old is of the same kind as in other gymnasiums in Sweden; there is some old armour and a few of the original cuirass which were used in former fencing lessons.

At the side of the gymnastic hall is a bath room and a cloak room where sometimes banquets are served.

National Games

Besides gymnastics the method of which is not so severe as to exclude mirth and high spirits, the Swedes have open air exercises which are peculiar to them and constitute as it were national games.

In winter the promenades and roads are thickly covered with snow, the water of the great lakes is covered with a thick coating of ice. Everywhere can be seen crowds of parents and children full of joy with sleighs and skates. All the school children, boys and girls take to their little sleds which are made of rough wood and light iron work covered with cloth, entirely without value or elegance. They lie down on them on their sides, and allow themselves to glide down the steep descents directing their course from time to time by giving a kick on the ground with the foot of the leg that is free and which answers as a helm.

One often sees the mother of a family seated on one of the little sleighs with her children and amusing herself with their outbursts of joy.

The sleighs for young people are of a different form: they are like chairs placed on long wooden runners and are propelled by a skater who rests one foot on the sledge and skates with the other at the same time supporting himself on the back of a chair. Thus the skater has the double pleasure of skating and of not being alone.

Every one knows how to skate; it would be considered shameful not to be able to stand upright on the ice. It is so exhilarating to cleave the air without effort, surrounded by a goodly company and lost to view to the rest of the world on the great lakes.

For the snow and in the mountains the skates are made of light wood;

they are sometimes two metres long, in order to give a larger surface for support.

(skis)

Provided with these "skidor"[^]the country people trust themselves on steep declivities, acquiring as they descend a giddy speed, and if a crevasse appearsthey clear it by springing and come down fifteen or twenty metres farther on. There may also be seen sleighs with sails on the frozen lakes. Some amateurs, especially Captain Balk, have done everything possible to extend these national games. They organize fetes and parties to which they invite champions from the neighboring provinces to compete with them.

To these winter recreations may be added the summer games such as shooting, that with a short javelin, canoeing and swimming. As the short days of winter continue till so late in the season the Swedes tired of the long nights to which they have been subjected, in the Spring wake up to a new existence out of doors which is totally different to the old winter life.

If we add to the methodical exercises the preceding games as well as original recreations peculiar to the country people, we can see that every country and city school has its share of amusements and exercise.

Manual labor has also made great strides. The method of Naes has a universal reputation: a special work would have to be written to describe and explain fully its extent.

Conclusion.

Attempt to organize Gymnastics in France on the plan of Swedish Pedagogic Gymnastics.

Convinced of the urgency of raising our generation from the decay into which it must inevitably fall through physical inaction, abuses, artificial pleasures, and excessive nervous excitements; energetic, devoted and resolute men have imposed on themselves the task of reviving a taste for the practice of bodily exercise.

The Apostles of Physical Culture have had their role of trainers who guided by the love of country or of humanity have sought to spread amongst the masses a taste for vigour, and a horror of everything which degrades and effeminates.

We must aid these patriots by showing them the most direct means of acquiring this physical vigour which they worthily extol, for if they have to convince and persuade they cannot bear the burden of teaching.

The doctor does not leave the choice of remedies to his patient, nor should the choice be left to the pupil who is ignorant of what constitutes the best means of instruction in physical culture. This manner of procedure would in consequence leave the method quite undecided and vacillating according to the caprice of fashion; and at last we should see bodily exercise abandoned with as little reason as it had been adopted with enthusiasm.

If the system of education is not established on a scientific basis, it becomes the object of aimless movement; but it will never lead reasonable men to conviction, that is, the conviction necessary to its definite conservation. The elaboration of a plan of education should precede the attempt to popularize it. It is just this plan of procedure which has given such power to the Swedish system.

Methodically framed by one man it possesses homogenous qualities which will not admit of its regime being elaborated by a commission

where necessarily the most diverse dispositions, opinions and ideas have to be taken into consideration.

The training having been undergone at the Central Institute to the exclusion of any other, it should expand without alteration and should produce good results.

We ourselves have seen from private enterprise and from courses of gymnastics instituted by teachers more than 10 years ago how much a regular course of physical training has been appreciated by the individual who does not actually know where to find the necessary instruction to perfect him in his training.

A manual of physical training it is true is being drawn up by the ministerial Commission. This manual tolerably complete will disseminate truths established by experience. But a manual is merely a guide for a bona fide professor, and is powerless to take the place of instruction in theory and practice.

The Swedes show us what can be done with a homogeneous system established more than half a century ago on a practical and good working basis. We must imitate this example, it has been tried by experience; it will succeed just as well with us in France. Ling said: "The time will come when physical training will occupy the minds of men of rank, and this time is near". He also added "When France occupies herself with gymnastics the result will be of importance". We must not lose sight of the words of an Apostle convinced that he knew our qualities and who admired the aptitude of our race for applying precision to anything in which it is interested, and the exact way in which it is consummated.

We must not be indifferent to the teachings afforded by the foreigner. It is hardly to be credited that we (the French) should have been the first to seek permission to study the management of the Central Institute, and this too not until it had been established seventy years. Foreigners resort thither annually for technical instruction and they also send regu-

lar students. Let us do the same. We have much to learn from the Swedish system, from the pedagogic and medical point of view. It would be a good plan to send to Sweden a delegation consisting of a teacher, a doctor, a military officer, a physiologist specially versed in the movements, and a governess. This delegation to follow a complete course at the Institute under the direction of an interpreter. On returning to France, after having drawn up an account of their work full of accurate documents, they could perfect the programme of instruction made by the Commissioners of Gymnastics. They could then visit the different Academies in the provinces and form centres of instruction by means of lectures personally conducted. It would then be necessary to establish periodical inspection and a central bureau under the management of the Minister of public instruction.

If no such organization as this exists, both the efforts and the knowledge of each delegate will be scattered without any lasting result. A complete system of physical education consists of

- 1) Imitating the English in hygienic matters, in their open air recreations without the abuse of competition which only appeals to a minority of the elite.
- 2) Borrowing from the Swedes their pedagogic and aesthetic gymnastic system.
- 3) Preserving our own military gymnastics with its wide application just as it is taught at the school at Joinville -le-pont.

We do not need to dwell on the importance to us of the establishment of physical culture on a sound basis.

How it would elevate us, if like intellectual education it were taught in several grades.

It is indispensable to penetrate these truths and not to allow side by side of so many accomplished reforms, the instruction of physical cul-

ture to fall into a degeneracy unworthy of our country, according to our power we have the right to elevate it in all its manifestations.

If we wish to put a limit to the veritable gymnastic anarchy which reigns at this moment, we must certainly create a centre of pedagogy, a school in which professors can be trained who will ultimately teach, in the normal and primary schools, in the colleges and higher schools.

The pupils leaving this school with degrees by a very extensive knowledge of the subject, both practical and theoretical, will be capable in their turn of training instructors who will teach practical gymnastics in the primary schools, following the course adopted by the central school and under its control and direction.

The teacher will not then be hesitating at every moment, he will have confidence and believe in the efficacy of the instruction which he is intrusted to give.

In order to effect this, we must decide upon a homogeneous, simple, and practical method, established upon a scientific basis and governed by experience.

Training cannot be effectual amongst children in general unless it is rendered interesting, and unless it is practiced a sufficient length of time without change. It is only by elevating the doctrine of physical culture, that we can accord it the position it should occupy side by side with intellectual education, or that we can extend to the professor all the consideration they so justly deserve.