

**The science and art of physical development : hints on the Sandow system
/ by W.R. Pope.**

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THE
SCIENCE
AND
ART
OF
PHYSICAL
DEVELOPMENT

By
W. R. POPE

Edgar F. Coyne

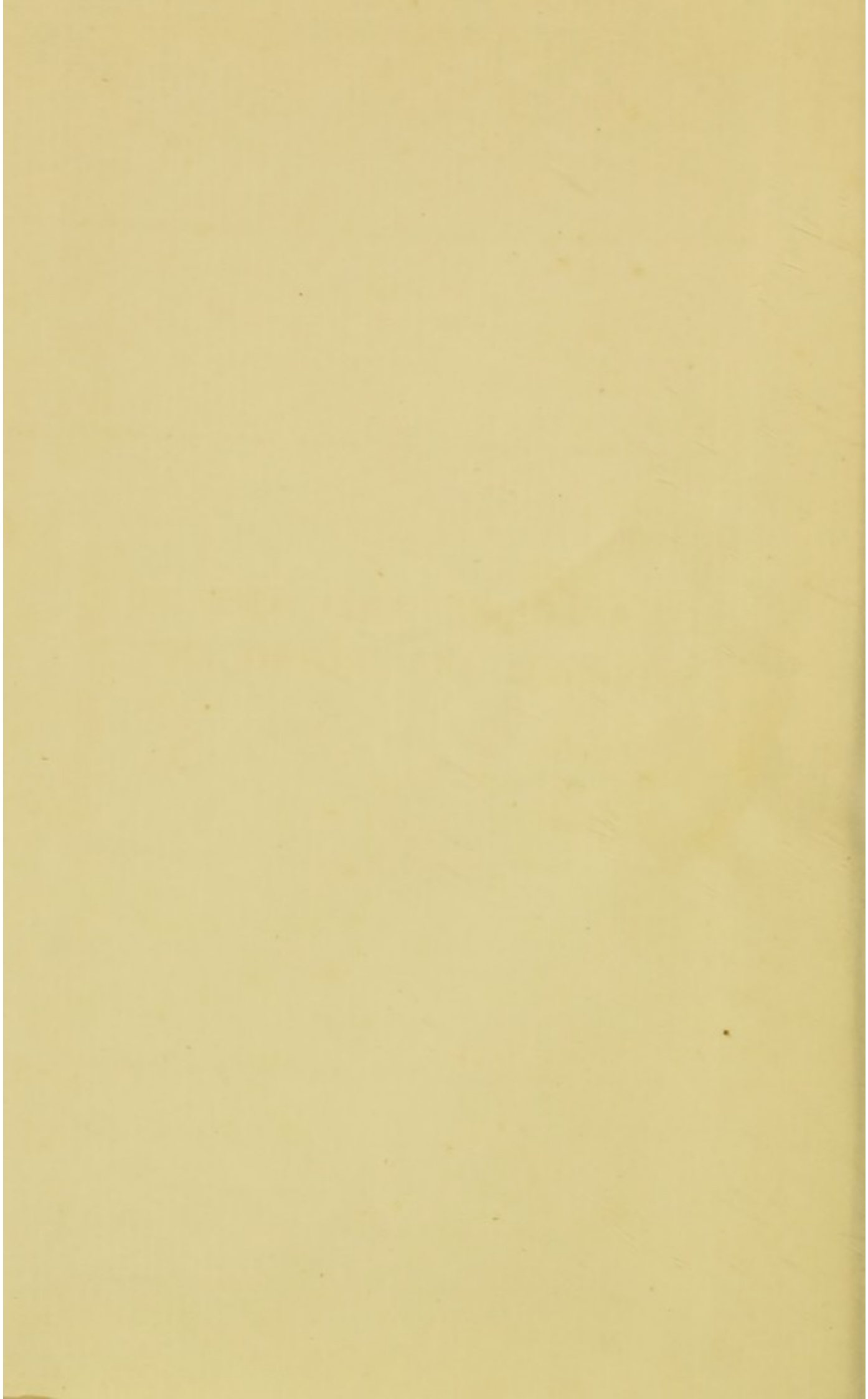


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THE AUTHOR.

The Science and Art of
Physical Development

HINTS ON THE SANDOW SYSTEM

BY
W. R. POPE

ILLUSTRATED

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1902

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PREFACE

ANY system of Physical Culture will prove of little benefit to the student, if, at the outset, he or she fails to understand the correct working of that System, and it is for the assistance of thousands of students of the Sandow System who are unable to obtain advice or instruction as to the correct way of performing the exercises that I produce this small book of hints. I have to thank Mr. M. C. P. Headeach of Manchester, an ardent and advanced follower of this system for his very valuable suggestions and for permission to produce his pictures in this book.

W. R. POPE.

Manchester, 1902.

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CHAPTER I

Why you Develop

PROBABLY the first question asked by those starting on a systematic course of exercise for developing and strengthening the entire muscular organism is, "Why do we develop?" A writer on the physiology of bodily exercise says, "Dumb bell exercises, in spite of the great quantity of work they need, have little influence on the brain. They affect the functions of nutrition much more than those of innervation. The energetic and sustained muscular contractions which they render necessary draw blood to the muscles in great quantity and keep it there a long time. The

Physical Development

muscular fibres benefit from this and increase in size. On the other hand, the blood is enriched with a great quantity of oxygen, for increased respiratory need is the first effect of great expenditure of muscular force. This need finds free and easy satisfaction in the period of repose which inevitably follows each exercise. Finally the intensity of the combustions due to a great quantity of work, promotes the using up and prompt disappearance of the reserve materials, and the need of quick repair: whence increased appetite.

“On the other hand the repeated contractions of the abdominal muscles in the frequently recurring efforts performs a sort of massage on the intestines, which favours the onward movement of the fœces and makes the bowels regular. Such exercises are

Why you Develop

then favourable to all the nutritive functions. They increase energetically, and even violently the working of all the organs of the body, while leaving in relative repose the nerve-centres and phychial faculties.

They tend to increase the weight of the subject. Observations of facts show that these exercises, when they are not beyond the strength of the subject, place him in the most favourable conditions of nutrition.

Exercise of this kind deserves the preference from the hygienic point of view, and it is in fact in the professions in which work is taken in large doses that we find the most vigorous persons.

Finally, it is necessary to avoid overwork, that the work should be gradually increased, and not done in the largest quantities till after complete training."

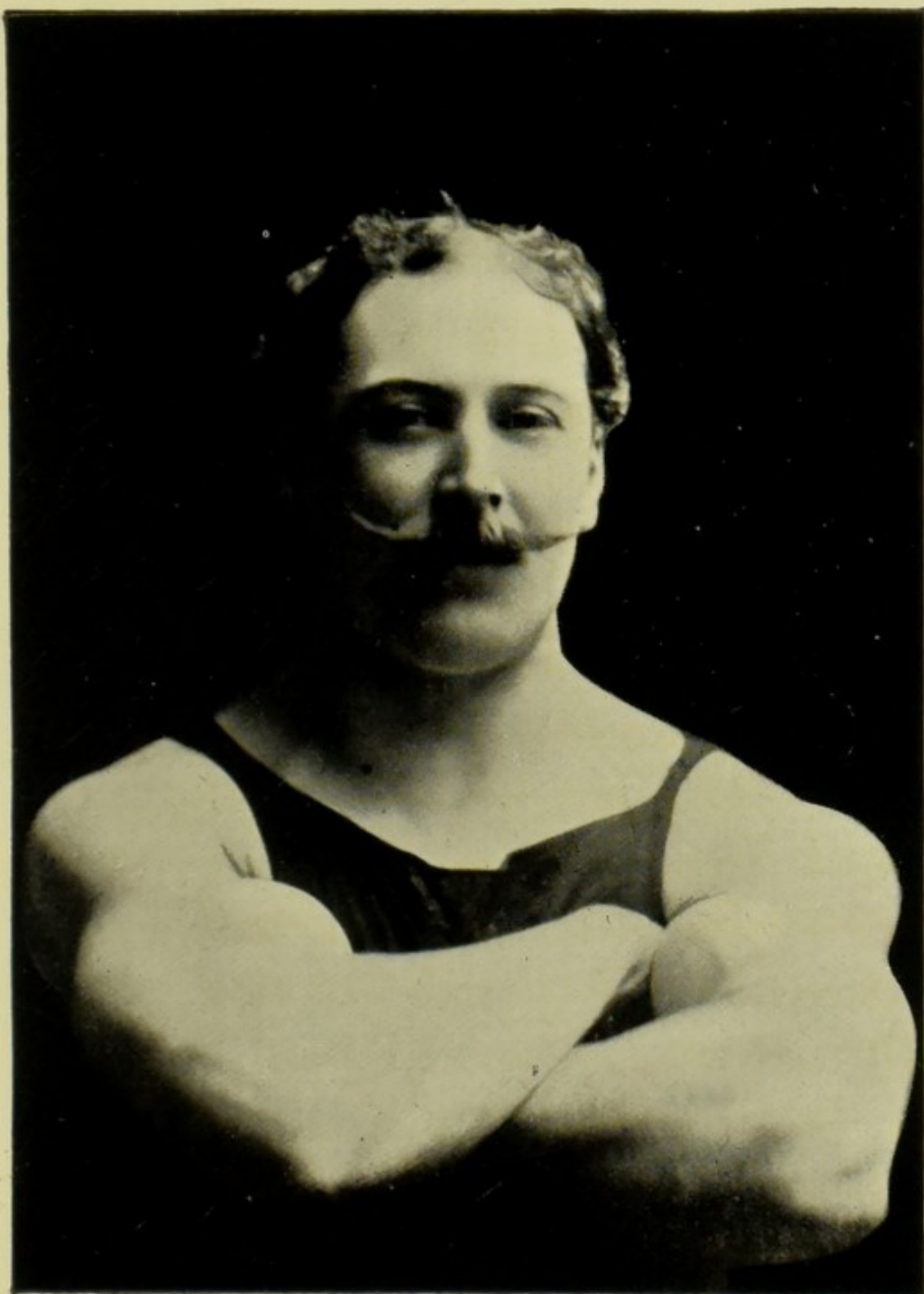
CHAPTER II

Systems

To become an athlete of the first rank, or indeed to obtain any lasting benefit from physical culture at all, it is essential that your course of exercise should be systematic.

By systematic, I mean exercise taken regularly, and in the form of some fixed series of movements, as opposed to exercise taken occasionally, and of no particular kind or variety of movements.

Trusting that the reader is convinced that systematic exercise alone can bring about the benefit he seeks, I shall discuss briefly a number of systems



THE AUTHOR.

Showing general development of arms.

Systems

of physical culture that can be followed, beginning with

THE SANDOW SYSTEM

It cannot be truthfully denied, even by those most prejudiced, but that the results shown by this system of exercise far exceed those arrived at by any other system, taking of course the results as a whole, and not individual cases. In my remarks I refer only to the original eighteen movement course as introduced by Sandow, and not the lengthy series of exercises which have been published latterly. These additional movements, I contend, are more likely to bring the system into disfavour than to improve it. The whole success of a system depends on its capabilities in the fewest number of movements. Any system containing one hundred or

Physical Development

more different exercises is practically useless to the physical culture student of to-day. What the pupil requires is a pocket edition of exercises, so to speak, that can easily be remembered and quickly performed, and yet with the very best results, instead of a volume of exercises, too numerous to remember, and occupying much time in their execution.

The Sandow System, even more so than others, has passed through the fire of criticism. It is argued by the opposition that, among other things, it tends to wreck the heart and sap the vitality of those who practise it. These remarks have been sufficiently dealt with by Sandow in the revised edition of his book, "Strength and How to Obtain it," to need any comment here. If there have been

Systems

cases of pupils injuring their hearts with these exercises, it has been through ignorance on the pupil's part in the performance of the movements, and not as a direct result of the exercises.

To pass on, we come to the system of physical culture by means of rubber exercisers and expanders. The Sandow Developer and the Whitely Exerciser are the best known appliances for this kind of work, while McFadden's well known exerciser obtains its resisting force by an arrangement of pulleys, and can be classed with this particular style of developer.

The short rubber strands used with two handles are the expanders, from which only a limited number of really good exercises can be obtained, but, used entirely as a chest expander, there is nothing yet invented to approach

Physical Development

them for developing the muscles of the chest and back. A good strong expander used in conjunction with the dumb-bell course, is, in my experience, the best developing combination used.

These rubber exercising machines are good as far as they go, but I have never met an athlete of the first class who has obtained his entire development by their use. They are not makers of "strong men," but as a gentle exerciser for the man of business, or for those who seek a light and pleasant form of exercise, and especially for ladies and children, these machines are excellent.

THE MOFADDEN SYSTEM

This system is a good one, and for those fond of the pulling-machine work, I commend them to read the inventor's book on "physical training."

Systems

THE APOLLO SYSTEM

The system introduced by Apollo (Mr. William Bankier) which, if not entirely original, is unique in its way. It is not a system of dumb-bell nor of exerciser movements, neither of which this athlete has belief in, but a mixture of dumb-bell, athletic, and simple gymnastic exercises. To develop your waist muscles, for instance, you must scull a boat while standing up; for leg development the exercise is "dipping," or walking upstairs with a small boy seated on your shoulders, while the best exercise of all, in this writer's opinion, is pulling a heavy hand-cart up a hill.

These performances cannot strictly be called a system of exercises. If, however, such is the case, I cannot see how Apollo, though himself a fine

Physical Development

athlete, can expect to have much of a following, when he prescribes such extraordinary exercises as these. Pulling hand-carts and carrying small boys is not a congenial occupation at the best of times, and far less as a means of obtaining muscular development.

THE GYMNASTIC SYSTEM

Gymnastics as a means of developing the muscles has its host of followers. Certainly the exercises are more interesting and of greater variety, but as a developing system alone, it is a far inferior method to the dumb-bell work. Athletes trained by gymnastic movements are seldom if ever symmetrically developed, the fault being that the exercises are principally movements affecting the arms and body, whereas the lower limbs receive

Systems

little if any benefit. As a means however of developing the arms and chest by gymnastic exercise, that performed on the Roman rings stands unrivalled.

WEIGHT LIFTING

Weight lifting, or exercises with heavy dumb-bells, is a system that many teachers will tell you is injurious to any except the already trained athlete.

This is misunderstanding the system entirely. The pupil who elects this mode of physical culture does not start his exercises with bells of great weight. He probably begins his course with bells of the weight of ten pounds each, performing a series of movements and gradually increasing the weight of the bells as strength and proficiency is gained. Most of the best developed athletes of to-day have acquired their superb physiques by

Physical Development

following this heavy weight system. It is however a dangerous method for those over enthusiastic or not physically sound, being a system of exercise that can soon overtax and injure, instead of improve the muscular organism, if carried to any unwise extent. The pupil should always work with a low estimate of his powers, until he feels absolutely no effort in the increased exertion.

ATHLETICS

Finally, I will mention Athletics and the playing of games as a means of obtaining development. That athletes in the true sense can be moulded from outdoor games is absurd. How often this word "athlete" is wrongly applied! The thin-armed bow-backed but abnormal-legged cyclist, that can be seen at any cycle-race meeting, and the lean

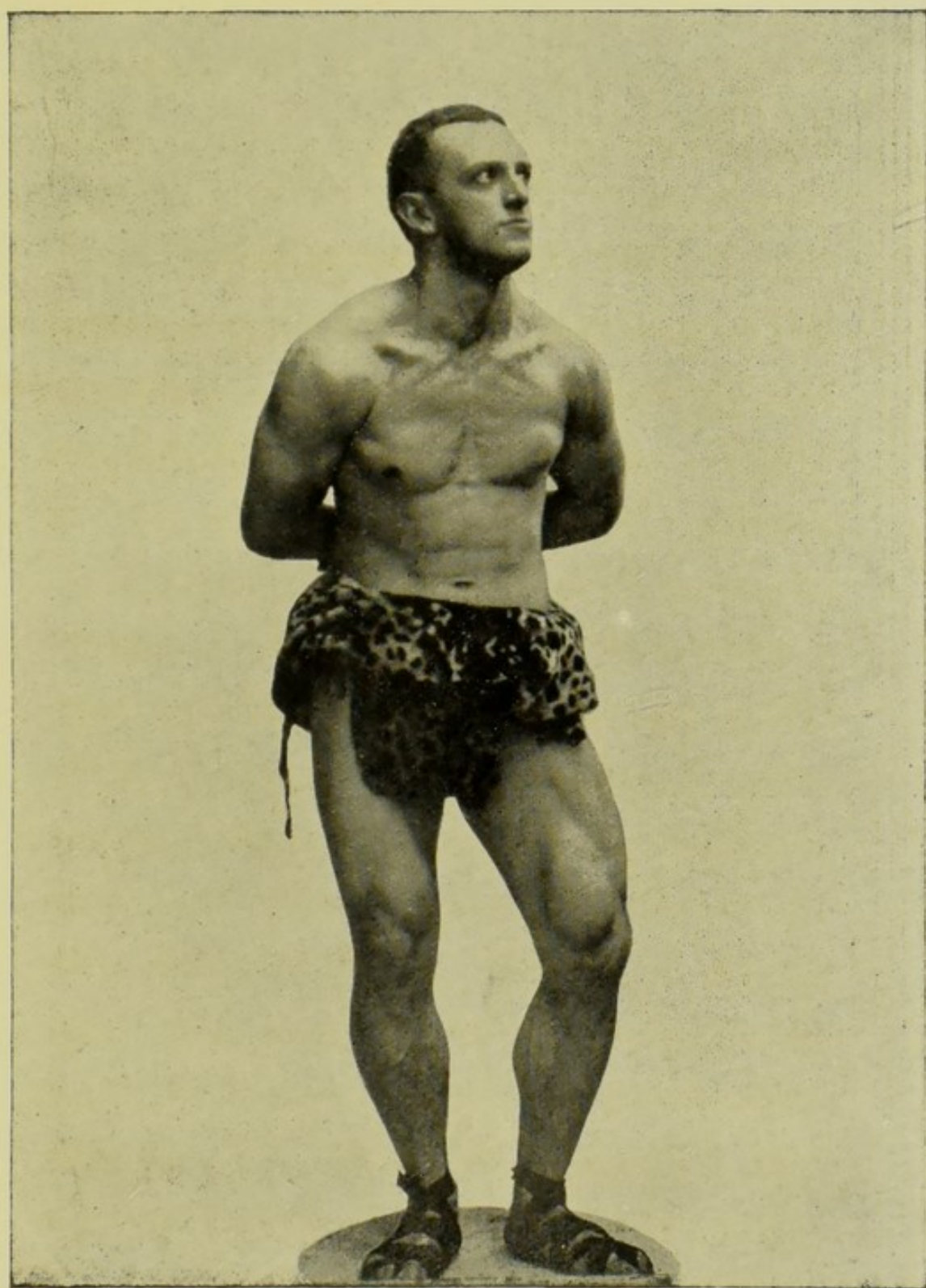
Systems

consumptive looking runner, call themselves athletes while, at the same time, the term is applicable to such a magnificent example as Sandow. The natural answer comes from my athletic friends of the wheel and corks, "just so, but at our particular branch of sport we can do a better performance than the strong man can show with all his development." This is, of course, what I am driving at. The cyclist and runner can excel in his own line without any exceptional strength or development, nor does he derive any all round benefit to his entire system from his exercise. His development is incomplete. He is a cyclist or a runner, but an athlete in the true meaning of the word he is not.

CHAPTER III

The Art of Exercising

It is perfectly clear to every student of physical culture that in order to obtain anything like satisfactory results from the exercises it is absolutely essential to acquire a correct and thorough style of working. There are great numbers of students, who, having worked diligently for a month or two, find such little increase or benefit from the system that they throw the thing up in despair, the common fault being that they have not mastered the art of performing the exercises correctly. I strongly advise all such to seek assistance and tuition from a competent instructor.



MR M. C. P. HEADEACH.

Art of Exercising

WEIGHT OF DUMB-BELLS

This is a point upon which many different opinions are held; one authority declaring that bells of graduated weight should be used, beginning at five pounds and finishing the course with twenty pounds; others say that all that is possible in physical culture can be acquired by the use of bells not exceeding five pounds in weight, and still some affirm that the best weights to practice with are two pound bells or even a set of running-corks.

I have thoroughly tested all these methods, and am of the opinion that the best weights for all round use, are three to five pound dumb-bells. It cannot be denied that some men can obtain complete and beneficial exercise with a pair of bells a few ounces in weight or

Physical Development

with a set of running-corks, but these are men possessed of exceptional will-power and determination. For the ordinary student, the weights I have mentioned are I think best fitted for the work. A set of five pound dumb-bells with wide grips, a set of two pound bells for the wrist exercises, and a four-strand chest expander is a set of apparatus with which the highest results in physical culture can be obtained.

We might mention here the latest invention in physical culture appliances, "The Grip Dumb-bell." This bell is designed for the purpose of overcoming the want of will power or continued effort which it is essential the pupil should apply during the exercises.

The bell with its little spiral springs

Art of Exercising

is now well known, having been on the market for some little time. It is a really fine appliance for any pupil who cannot exert this will force, or concentrate his mind on the work, and as a fore-arm and wrist strengthener it is splendid.

DRESS

This is a very inexpensive item in physical culture. In the privacy of your own room or gymnasium it is best to exercise completely stripped, with the exception of socks and shoes. At any rate it is advisable to be stripped to the waist at least, in order to give each muscle the greatest possible freedom.

As you will perspire profusely, it is not such an unpleasant sensation as when wearing a complete set of under-

Physical Development

clothing, or even a light under-vest. These garments gradually become soaked with perspiration and stick cold and clammy to the skin after exercise unless at once removed.

Being on the subject of perspiration we might mention a remark about this that appears in Sandow's book on "Strength and How to Obtain it." In answer to the question constantly asked by pupils, whether it is right to perspire after the exercises, he says, "If you perspire it does you good; if you do not it shows that your condition is sound already." I must say that this is misleading, as I have never yet met an athlete who could perform this system of exercises thoroughly and not perspire even profusely. How very few of us can ever boast of a sound condition.

Art of Exercising

WHEN TO EXERCISE

Ask a man who is not a follower of a systematic course of physical culture why he does not exercise, and his answer will most probably be, "I haven't time." Such a statement as this is about as absurd as a man saying "I haven't time to wash." The real student, however, if he is a busy man, will not be able to pick and choose his time as he would like. He will be able to find a few minutes each morning, and generally as much time in the evening as he is disposed to give. Personally I find a good time to exercise is just before retiring to bed. It is especially beneficial to spend ten minutes or more over a few exercises in the morning before the cold tub. This removes all feeling of drowsiness and sets you going for the

Physical Development

day, besides being a rare tonic for the entire system. Needless to say, you must perform the exercises daily. This at any rate for a time. After you become fairly advanced in your development you can drop a day or two now and then often with advantage.

WHERE TO EXERCISE

Avoid if possible exercising in a small, badly ventilated room. The fresher the air you breathe the greater the benefit derived from the work. Do not exercise in your bedroom in the morning if you can perform the movements in the bathroom, or some room of purer atmosphere instead. When possible, it is advisable to have a room set apart for exercise, where your appliances can be kept, and which can be always supplied with



How to fix up a corner of a room as a Gymnasium when floor space is limited

Art of Exercising

pure air by leaving the window continually open. If this cannot be managed the exercises can be performed in the bedroom with open windows.

AMOUNT OF EXERCISE

“Perform each movement till your muscles ache,” says Sandow, and at the same time he supplies a chart, stating the number of movements that each exercise should be performed. This, of course, is a mere guide, for what would tire one man, another would be merely warming to his work. Also, if you put your full energy into any one exercise your muscles will probably ache before you have completed half the number of movements indicated, and even without the expenditure of this energy your muscles will ache finally provided you keep

Physical Development

the particular movement up long enough. Be sure and recognise the difference between a genuine ache and a mere tired feeling. A great many pupils give up too quickly, which is a bad fault. When you begin to perspire it is a sure sign that you are working thoroughly, and once in this heated condition your muscles will very soon ache, and you will have had enough of that particular exercise for the time being.

MEASUREMENTS

It not only creates enthusiasm and application, but at the same time it is always interesting to record your own development and improvement by keeping a complete set of your own measurements from the beginning, taken for instance, every three months.

Art of Exercising

Muscles, like faces, differ in each individual. No two athletes are exactly alike. The thin athlete should not despair because his development is small in comparison with those of heavier build, because he cannot show a mammoth calf or great arm. Too large a calf indeed is decidedly an ugly possession, especially when accompanying an under-developed body, and also remember that size of muscle is no criterion of great strength.

On the subject of measurements there is always a great outcry from students of physical culture, because of the enormous gulf that exists between their own and the measurements of professional strong men. This is very natural, but at the same time, they forget that these men depend upon their proficiency in physical

Physical Development

culture for a living. Their whole time is given up to the practice of the art. Little wonder then that these men acquire enormous development. In cases where the amateur can give the time to his preparation and practice, many of them can show a far finer development than most of the professional strong men. Hardly any professional or amateur however has yet, in my opinion, equalled the physical beauty of Sandow. There is a beauty of outline and symmetry about this peerless athlete that seems unapproachable, though there is scarcely a budding Hercules who does not consider his own physical beauty equally as good if not better. My advice to any such is, face the camera and compare your pictures.

Art of Exercising

HOW TO EXERCISE

I will assume that you are following the course set out in the chart of exercises contained in Sandow's book. At first sight the whole eighteen exercises appear ridiculously easy, but to perform each one correctly and in such a way as to obtain the maximum benefit from the movement is indeed very difficult at first. This fact is demonstrated by looking down the lines of a class of beginners, and you will see that not twenty-five per cent. of the members are even shaping correctly at the first exercise. The commonest faults are swinging or jerking the movements, performing with flexed wrists, breathing wrongly, and not pushing the extended arms down sufficiently to act upon the muscles. There is also a muscular awkward-

Physical Development

ness displayed by some, but this fault usually disappears with practice. There is always a great tendency to hold the breath for some moments during the exercises, and you are specially warned against this habit.

Time is a very important factor in the performing of the exercises, not too slow nor too fast, but a moderate speed of about one movement per second is correct time. After each of the first four or five exercises I have found it beneficial to discard the bells and to perform a few muscular poses before continuing with the next movement, and at the same time giving the particular muscles used a thorough rub down with a coarse towel.

Don't rush on with the next exercise until you have thoroughly recovered breath from the last one. There is no

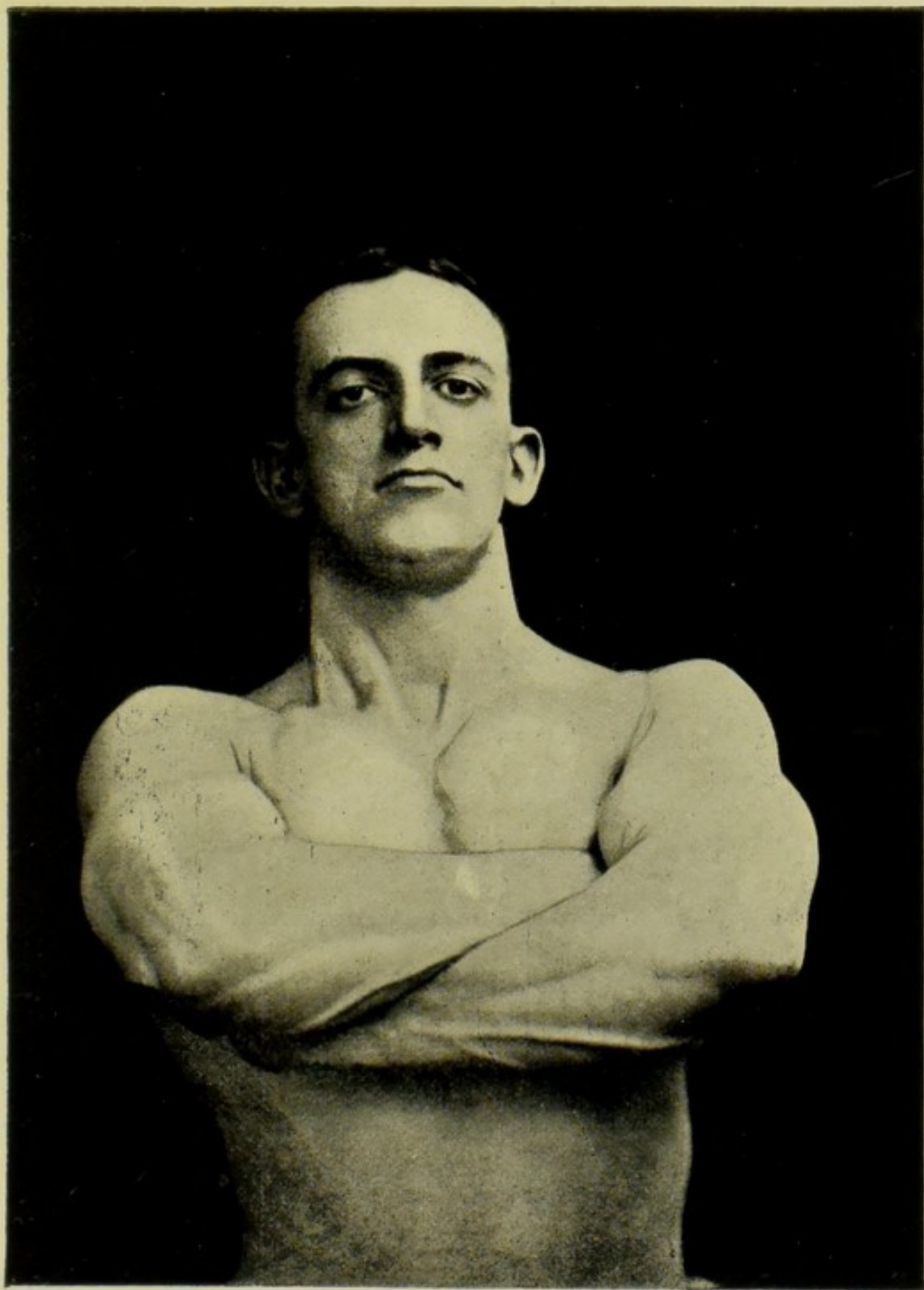
Art of Exercising

fear of cooling off if you practice a few poses, which also will allow you an interval to recover breath. At the same time you are acquiring grace and skill in the art of posing. How very few men can pose in a muscular attitude with anything like grace! As an example in this particular line, the student can have no better exponent than Sandow. The great athlete has brought this to a fine art, at which he has no superior. I also find many students, who cannot, in spite of continual work, obtain an even or all round development; sometimes the fore-arm is at fault or the calf shows no improvement. In many cases these defects arise from hereditary tendencies, and again it must be remembered that all of us are not endowed with the physical qualifica-

Physical Development

tions for obtaining a large development. Every man has his limit, some more than others. The over enthusiastic often rush ahead and reach this limit in a comparatively short space of time. This is a grave error which every student should avoid, as the athletic career of such an ardent worker is brief and touching.

In the cases I have mentioned, where the development of certain muscles is backward, I would advise special exercise to be given to the particular muscle or group of muscles affected. The most common defect is the unequal development of the arms, To overcome this, the student should make a practice of using a bell one pound heavier in weight with the arm that is under-developed.



MR. M. C. P. HEADEACH.
Showing development of arms and muscles of the neck.

Art of Exercising

HINTS ON THE EXERCISES

EXERCISE 1. Stand at attention with the knees slightly bent and with the muscles of the thighs contracted. Grip the bells as tight as you are able. Keep this hard grip up throughout the exercise. Avoid a jerking or a swinging movement. Don't hump the shoulders up, press them down during the exercise. Keep the upper-arms close to the body. Press the arms well back at the end of the movement, in order that the triceps muscle at the back of the arm may benefit from the exercise. On bringing the bells up to the shoulder, don't bend or flex your wrist, keep it perfectly straight. Don't hold your breath. Breathe

Physical Development

naturally through the nose. If you have a tendency to hold your breath count the movements aloud which will counteract this fault. Keep your whole mind on the performance of the exercise until finished.

EXERCISE 2. The above remarks apply to this exercise. On bringing the arm up to the flexed position at the shoulder, endeavour to keep your hand square to the front. Press the extended arm well down as in No. 1.

EXERCISE 3. Keep up the strong grip. Don't let the extended arms drop from the horizontal position. As each arm is flexed give the contracted muscles a firm squeeze. Don't flex or bend the wrists. Keep time with the movements;

Art of Exercising

when one arm is flexed the other should be fully extended.

EXERCISE 4. The same remarks apply to this exercise. You will be more inclined to hold your breath during this movement. Avoid this.

EXERCISE 5. Keep the extended arms in a line with the mouth. In bringing the arms back keep them up in as near a line with the shoulders as possible. Don't forget to breathe deeply through the nose as the arms are sent back, and exhale through the mouth on the return movement.

EXERCISE 6. Strike above the head as hard as possible. Look upwards during the exercise. Don't sway the body from side to side but keep the legs rigid. Bring

Physical Development

the arms well down on the chest, and avoid holding the breath.

EXERCISE 7. Keep time in this exercise. As one arm is lifted the other is dropped. The uplifted arm should not be raised higher than the mouth, and when lowered should touch the thigh lightly.

EXERCISE 8. The pupil will find no difficulty with this exercise.

EXERCISES 9 and 10. These exercises for the wrists and fore-arms are somewhat difficult to learn. In No. 9, as the bell is dipped and curled to the front describing the semi-circle, press the wrists well down so as to contract the flexor muscles of the forearm.

In No. 10. which is the reverse movement for the extensor

Art of Exercising

muscles dip the bells well down over the forearm at the beginning of the movement. Keep the arms horizontal with the body.

EXERCISES 11 and 12. Many students find great difficulty in performing these exercises correctly. As the lunge is made with the leg the arm is simultaneously shot out from the shoulder. The arm and leg should work together in strict time. Strike out vigorously with the arm and do not let the striking arm be raised higher than the mouth. Put plenty of action into these exercises. Don't lunge too far forward as this renders recovery difficult. The distance of the lunge should be about two feet.

Physical Development

During the lunge the back foot must be kept flat upon the floor.

EXERCISE 13. Keep the body perfectly straight and rigid in this exercise. Hold the head well up. Don't place the hands too far apart, and the fingers should point towards the front. The correct distance to place the hands is the width of the shoulders. The elbows must be kept close to the body.

EXERCISE 14. This exercise is performed with the legs straight. Bend well over until the dipping arm is level with the knee. The other arm is drawn up with flexed wrist until the bell rests as high as the arm-pit, directly over the serratus magnus muscle.

EXERCISE 15. In order to derive the fullest benefit from this exercise

Art of Exercising

have the feet strapped to the floor or held down by some other means, and work with the dumb-bells. The arms and body should be raised at the same time, thus putting the abdominal muscles to the strain. It is a common error to raise the arms before the body. Before rising from the prone position inhale deeply through the nose, and exhale through the mouth as the extended arms are thrown forward towards the feet.

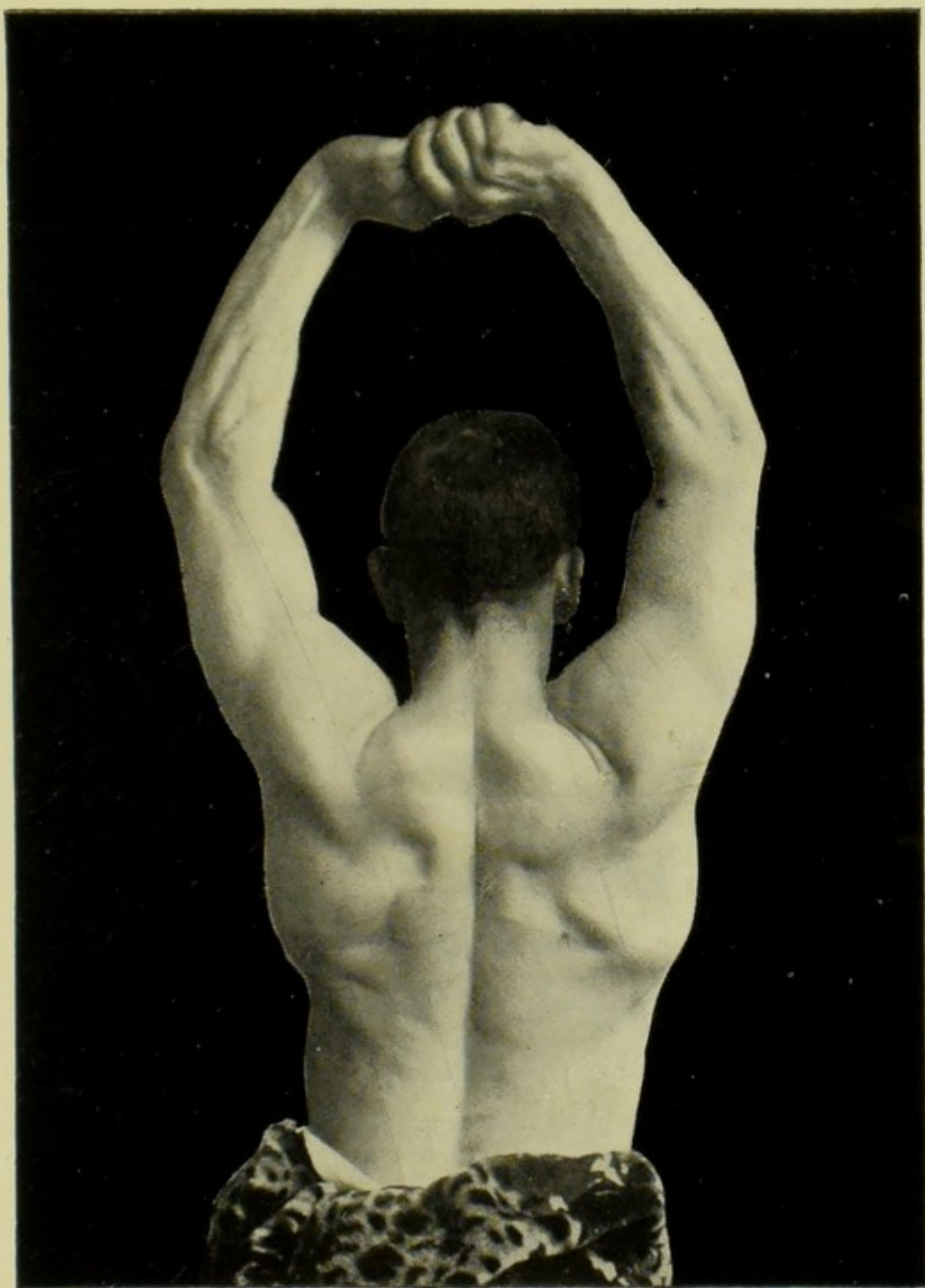
EXERCISE 16. A very severe exercise for the lower portion of the abdominal muscles. Keep the feet together with the toes pointed, and raise both legs in a line with the waist. Clasp the hands behind the head. Do not let the heels touch the ground during the performance

Physical Development

of the exercise. Keep the legs perfectly straight. At the end of the exercise raise the body five times, as in Exercise 15, in order to relax the abdominal muscles. This movement will immediately expel the cramped feeling that is produced by this exercise.

EXERCISE 17. Keep the body as erect as possible. Hold the head up. A good way to preserve a balance, which is the most difficult feature of this exercise, is to fix the eyes upon some near object on the floor in front, and keep them there until the exercise is finished. Don't let the heels touch the floor.

EXERCISE 18. A simple exercise which requires no comment.



MR. M. C. P. HEADEACH.
Showing Latissimus Dorsi and Trapezius Muscles.

CHAPTER IV

How to Live

"Each man has his own fortune in his hands, as the artist has a piece of rude matter which he is to fashion to a certain shape. But the art of living rightly is like all arts; the capacity alone is born with us; it must be learned and practised with incessant care."

Goethe.

"MODERATION in all things" is presumably the physical culture motto of to-day. The strict living by hard and fast rule of the earlier athletic days seems to be gradually losing ground, and greater freedom is now given to the athlete in training.

To some extent, however, this athletic maxim is bad. The real meaning of the word "moderation" is lost to a man who lacks the

Physical Development

important faculty of self-control, and in the making of this law of living it must not be assumed that every man is such a complete master of himself that he can at any moment draw rein upon the brink without over-running the boundary-line into excess.

There are also, I contend, many habits and indulgences which even moderation in their gratification is harmful to the ideal athlete. It is indeed a dangerous road to any but the strong-willed to travel. As a path for all men, it can show many bones by the way.

I know many and great athletes who have trained on this principle, and for men of this exceptional type I admit its power, but as a universal maxim I have little faith in it.

How to Live

What we want is not a principle suitable to individuals only, but to the whole universe.

FOOD

Strict dieting forms no part of an athlete's training under this system of physical culture. All that is required of you is to eat sparingly at all meals, and let these be served punctually and at regular hours. Eat slowly and masticate your food well, and whenever possible rest for a short interval after eating. Never exercise immediately following a meal; let an hour or two elapse before undertaking any severe physical work. "Very old news, indeed," the reader will say, and so it is, but in spite of this, how little the advice is heeded.

A few words on the care of the teeth will not be out of place here.

Physical Development

A perfect man should have perfect teeth. True physical culture demands as much care in this respect as it does of the muscular organs. Never neglect to cleanse the teeth thoroughly at least once a day if not more frequently. If your mouth is unclean how can you expect your stomach to be healthy. On the first signs, of decay do not delay your visit to the dentist.

Regarding what is the best food for athletes, I refrain from any special recommendation, save, what is ordinarily served at any plain table. Be sure, however, and eat little of such food as merely pleases the palate, but internally gives rise to biliousness and liverish complaints.

DRINK

Dr. Pope, in his popular talks on

How to Live

health, says: "We may start fearlessly with the following assertion:—Wine, beer, and spirits are not food, in the ordinary acceptation of the term; that is to say, they never can form part of the body—they cannot be converted into bone, blood, nerve, or muscle. Alcohol can never form tissue. It has not a particle of nitrogen—life food—in its composition; and, by experiment, it is found to stop, and not promote growth. What folly to talk then of the 'strengthening' and 'supporting' qualities of intoxicating drinks!"

"The inner wall of the stomach is lined with a delicate membrane containing glands, whose functions are carried on by the aid of delicate cells. There is no more certain fact than that alcohol inflicts serious and

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dangerous injury upon this mucous membrane.

Some years ago an opportunity was offered for visibly noting the effect of various substances on the lining coat of the stomach. It was in the case of Alexis St. Martin, a young Canadian, who was wounded in the stomach, and whose wound did not heal, although he recovered from the injury. Dr. Beaumont under whose observation he remained for years, states, amongst other facts, that directly Alexis took brandy, the beautiful pink appearance of the lining membrane of his stomach changed into a brilliant red, the gastric juice dried up, and any meat undergoing digestion became hard, as if boiled in water.

So we find indigestion so frequently

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associated with the use of intoxicating liquors, and any excess in alcohol lessening the appetite, and that most injuriously. Alcohol destroys in a very remarkable way continual muscular power. Although a drunken man may be capable of a sudden effort, he can never show any persistent force.

That alcohol causes disease is no longer a matter of doubt. The deaths in Great Britain from its influence may be set down as something like the tenth of the whole death-rate of the country, and Dr. Andrew Clark once stated that he had gone through the wards of his hospital, and had come, after careful thought, to the conclusion that seven out of ten owed their ill-health to alcohol.

He further said that these were

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not cases of excessive drinkers or confirmed drunkards, but the moderate drinker who steadily undermines his constitution, and prepares himself for premature decay and death. More than three-fourths of the disorders of fashionable life arise from this drug.

I say that the moderation principle for the athlete is here at fault. Total abstinence alone is the athlete's safeguard. Pure water is after all the finest and safest drink for the athlete whatever authorities on physical culture may say to the contrary.

TOBACCO

Smoking is such a universal and deep-rooted habit with numbers of athletes that warning against it is futile. Very moderate smoking of the mildest tobacco may not

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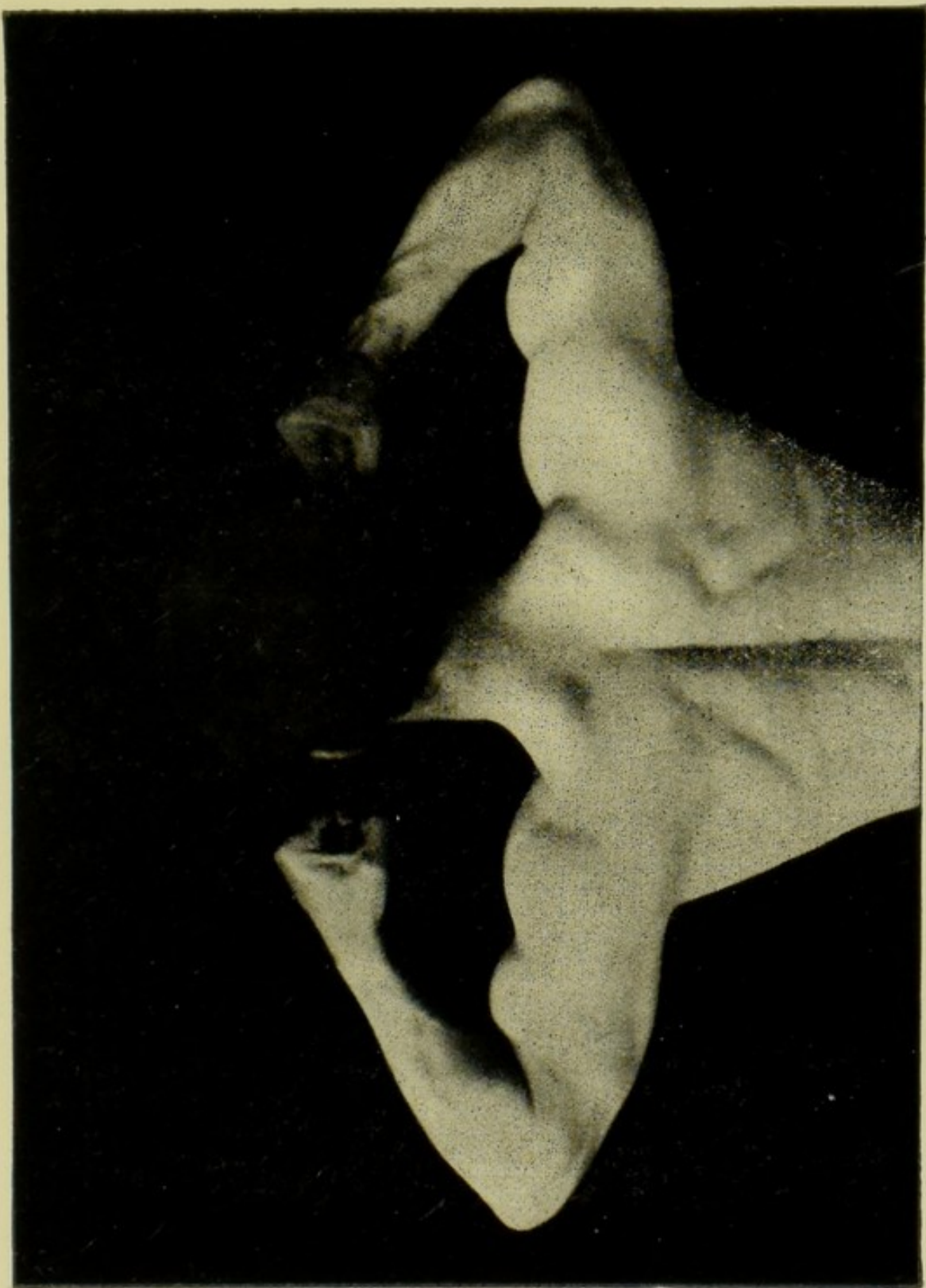
apparently affect the athlete in his training. It does so nevertheless. It is an impossibility for him to keep his entire system absolutely up to its best form and vigor under such conditions. It is for this reason that the University athletes, who may be taken as the best athletic representatives of this country, eschew tobacco in any form for a considerable period before their contests. Experience has shown that it affects their staying power.

Somebody will say, "Why! Such and such a well-known 'strong man' is a great smoker. Why isn't his strength affected thereby?" So it is to some degree, but the "strong man," is not called upon to exert his respiratory powers like a man in a racing eight or on the cinder-path.

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The "strong man" has merely to put forth his strength in a few great efforts of not many moments duration. His lung power plays but a small part in the movements. In the race the "strong man" would be hopelessly beaten before half the journey had been covered. His muscles would be fit enough, but his "wind" would fail him. Consequently, the smoking habit does not necessarily impede the performer of feats of strength, but it invariably proves fatal to the long distance athlete.

Another evil effect of tobacco is the habit of inhaling cigarettes acquired by such numbers of young men—many mere boys. If these young fellows had any idea of the physical wrecks that this habit made them they would be appalled.



A fine back, showing natural form of waist.

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“Nothing,” says a well-known lecturer on health, “can be more pernicious for boys and growing youths than the use of tobacco in any of its forms. There can be no hesitation about this matter; it points directly to physical degeneration, and is probably the greatest source of physical evil that the next generation will have to lament.”

“Boys! it is indeed a deadly poison to you! it stunts your growth, it destroys your stomach, which should be organising your food into flesh and blood, it blunts your brains, which should be brilliant and active, and it threatens your very manhood.”

Again I press total abstinence as opposed to moderation upon any student who aspires to an ideal physical state.

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FRESH AIR

You cannot have too much fresh air. The purity and quality of your blood depends upon the air you breathe. A capital method for strengthening the chest and lungs, is the practice, when in the open country or at the seaside, of drawing long deep breaths, throwing the chest out, and holding the air in your lungs for some moments, and then exhaling through the mouth. This is a fine lung tonic.

Avoid mingling for any considerable time in great crowds.

Sleep with your windows open. You won't catch cold if you avoid draughts. Fresh air is never a cold giver. In the morning open your bathroom window and take a few long deep breaths before you exer-

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cise. You will seldom feel jaded, heavy-headed, or drowsy on waking if you see that your sleeping room is abundantly supplied with fresh air.

BATHING

Every athlete considers it a part of his duty to take a cold bath after exercise. So it is to some extent, but like every rule this has its exceptions. It has been my experience that a perfectly cold bath taken after exercise at night has a tendency to produce sleeplessness. I therefore find it beneficial to break the chill of the water of the evening plunge and not to take a really cold bath at this time. The morning bath, of course, is a cold one, and if exercise is taken at any time during the day the bath that follows should be cold also.

There has been a deal of con-

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troversy of late concerning the drying process after the bath. Sandow advises the student to enter his clothes with the body still wet, but other authorities pronounce this method to be positively dangerous, and suggest that the body should be rubbed down vigorously with a rough towel. If a man is obliged to resort to the latter method in order to restore circulation and produce the warm glow that covers the skin after a cold plunge, he does not strike me as being a fit subject for cold baths. The trained and healthy man should step out of his bath feeling as warm as when he entered, and should require no artificial aid to obtain this warmth. He will find that he requires very little drying, and that merely for comfort's sake. There certainly is just

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at first a somewhat unpleasant feeling when getting into your clothes with the body in a wet state, but it is only momentary. The most delightful sensation of warmth and comfort comes over you immediately after that well repays the few seconds of discomfort.

I advocate however a slight rub down before dressing, but I have never yet found it needful to scrub the skin with coarse towels or friction brushes. Occasionally the athlete should take a warm soap bath as a means of thoroughly cleansing the pores of the skin, which the cold plunges fail to do sufficiently. Some authorities recommend Turkish baths, but followers of this system of physical culture will soon see their uselessness.

CHAPTER V

Physical Culture for Women

It seems at last that the women and girls of this country are awaking to the fact that they require exercise as much, if not more so than men. Consequently there has been a rush to physical culture classes, gymnasiums, cycling, rowing, and even football. The advertising professor has merely to announce that his method of physical culture will produce grace and beauty, and his classes for ladies are filled to overflowing in an incredibly short time. I fear that many pass through the course without attaining either one or the other. Actual physical beauty

Physical Culture for Women

cannot be obtained by the aid of physical culture without a long and trying apprenticeship.

I have no faith in a dumb-bell course for ladies. The finest apparatus for use by women as a means of physical culture, is the rubber developer. This invention is far better suited to their requirements than dumb-bells or indeed any other form of gymnastic apparatus.

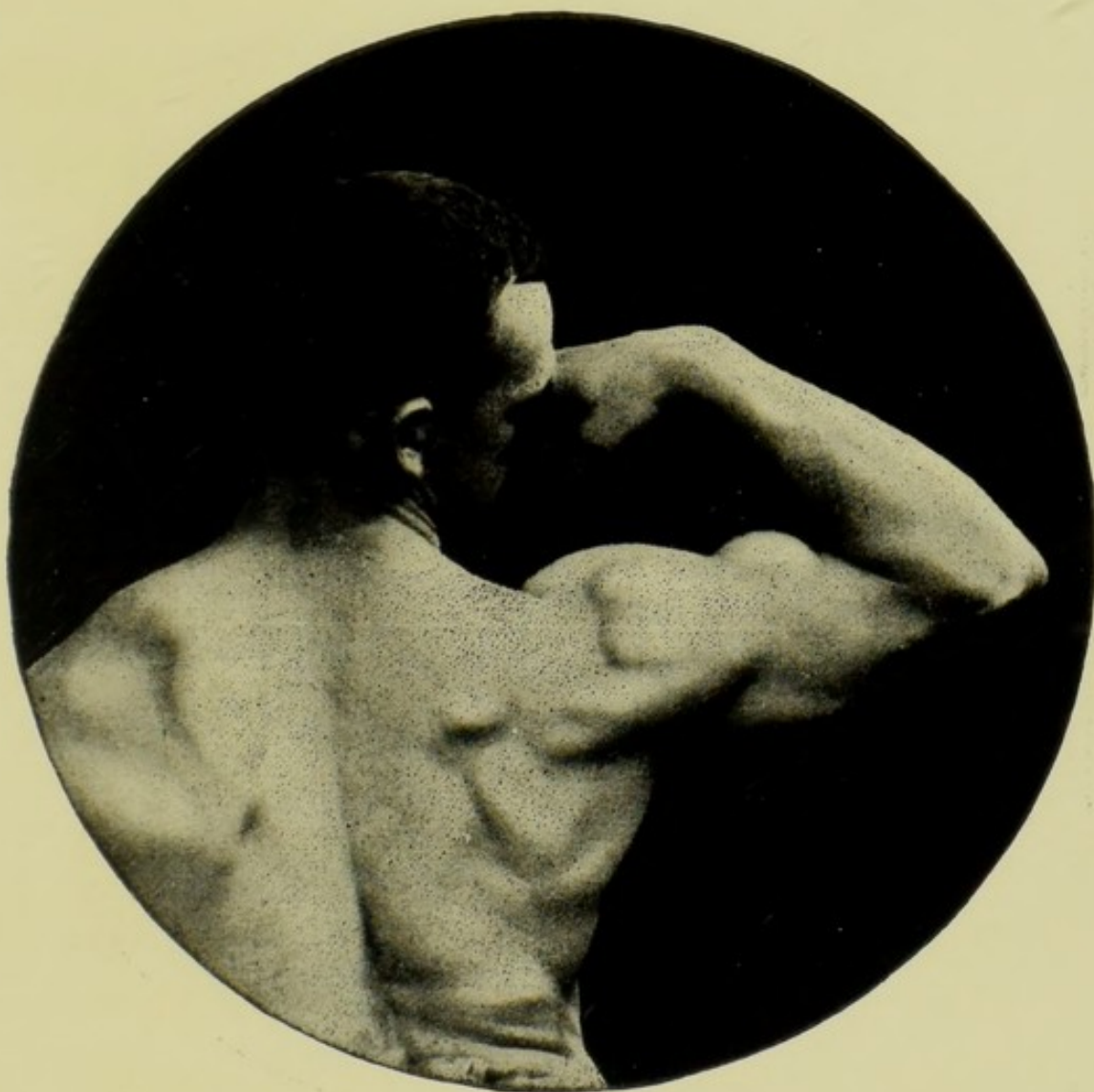
By the proper and systematic use of one of these appliances any woman should attain to the very best results of feminine physical perfection.

Of outdoor sports for women, I repeat what I have already said about them in connection with men. You will obtain exercise no doubt, and plenty, but it is not the exercise that will develop and mould a sym-

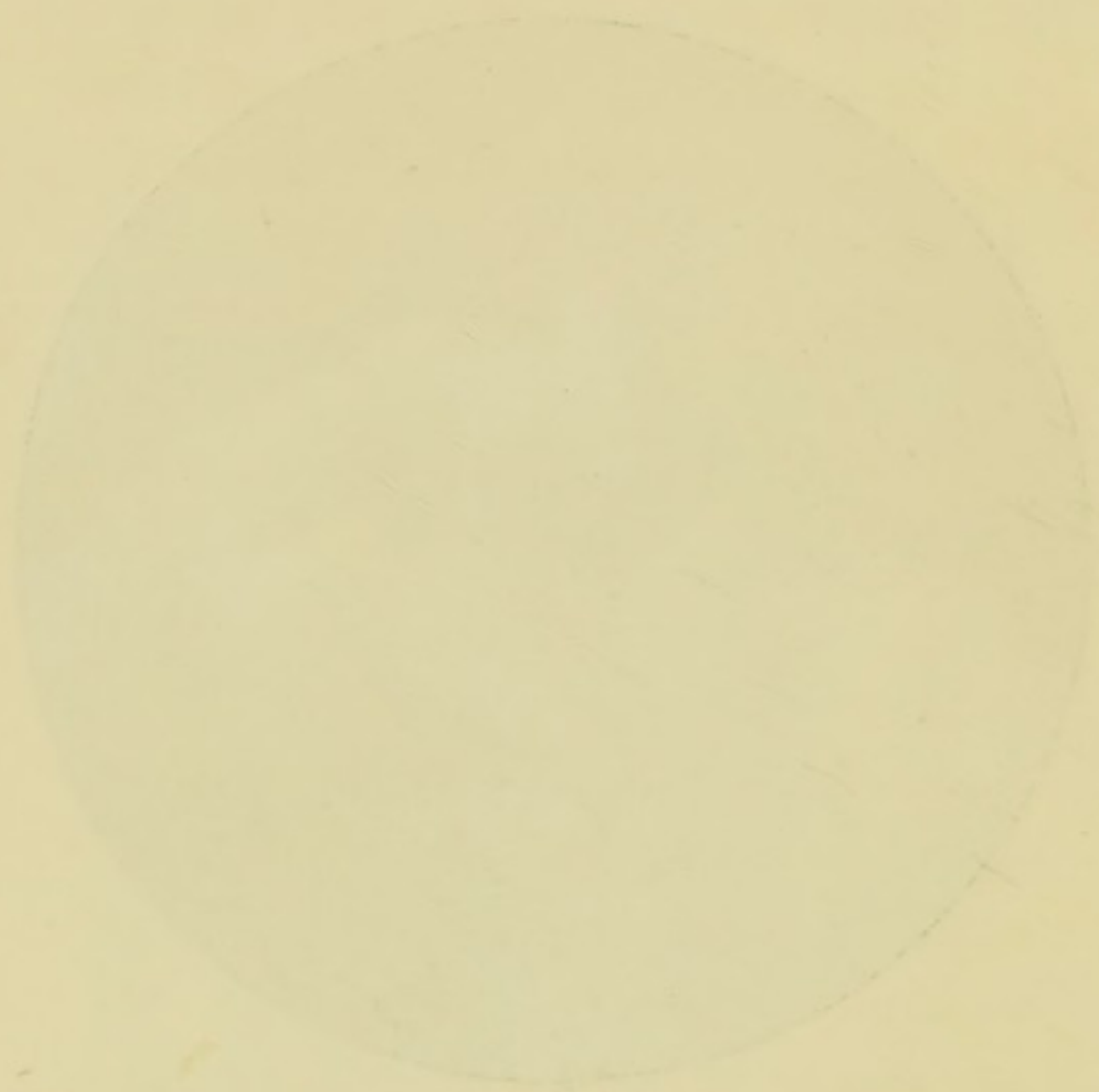
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metrical figure, of all things the most beautiful in women. Artificial means of obtaining such beauty is poor consolation. Of all outdoor games the most suitable perhaps is lawn tennis. Such sports and pastimes as golf, hockey, cricket, football and rowing tend to coarsen rather than produce grace in the female form, and this because none of these at the best can be called graceful accomplishments.

Let the lady student of physical culture use her developer intelligently and systematically; take her cycling or tennis as an outdoor pastime and follow pretty much the same course that is laid down for men, substituting the tepid or warm bath for the cold, with also a care as to diet, and fresh air in the bedroom,



MR. M. C. P. HEADEACH.
Showing biceps and deltoid muscles.



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Physical Culture for Women

and she will very quickly outshine her less well-advised sisters in the greatest and superbest of woman's heritage—health, grace, and physical beauty.

For those students who are interested in the actual measurements of the body obtained through years of systematic physical culture the author furnishes his own and those of Mr. Headeach.

THE AUTHOR'S MEASUREMENTS.

Neck, - - 16 inches.

Chest, - - 43 „

Waist, - - $30\frac{3}{4}$ „

Upper-arm, - 16 „

Fore-arm, - $13\frac{3}{4}$ „

Height 5 ft. $9\frac{1}{2}$ ins. Weight 12 stone.

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MR. M. C. P. HEADEACH'S MEASUREMENTS.

Neck,	-	-	17	inches.
Chest,	-	-	44 $\frac{1}{2}$	„
Waist,	-	-	32 $\frac{1}{2}$	„
Upper-arm,	-	-	17	„
Fore-arm,	-	-	15	„
Thigh,	-	-	24	„
Calf, -	-	-	16 $\frac{3}{4}$	„
Weight,	-	-	13	stone.

FINIS.





