

MUSCULARITY
and
MENTALITY
for
YOUTH
OR MAN

By **F. E. DORCHESTER**

THE SECRET OF
MUSCULAR AND MENTAL
DEVELOPMENT



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& MENTALITY
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YOUTH OR MAN

The Secret of Muscular
and Mental Development

FRANK E. DORCHESTER

Author of
"Mental-Physical Efficiency"

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Note.

THE Author, an officer who was attached to the Canadian Army Gymnastic Staff, gives herein a system which is the result of 20 years' study in physical training. He has been quoted as a world's leading authority, and we are able to say that some of the results which were brought before us are extraordinary, to say the least. The work is unusual, and the aspect taken, showing clearly not only the fact that great muscular development may be obtained, but that overworked brain workers have an almost certain cure for an overworked brain, is of immense value. Only a deep thinker could have written the book.

DEDICATION.

LIEUT.-COLONEL H. G. MAYES, M.B.E.,
Director, Canadian Army Gymnastic Staff.

MY DEAR COLONEL,—

This is not a military book, but in dedicating it to you I am actuated by motives created during a mutual acquaintance. The book is intended essentially for the individual as a private practical system, in seeking poise of brain and brawn, and the possibilities from following its instruction you are well able to judge.

I cannot refrain from saying here that, whilst of immense value to the individual, the underlying principles could also be adapted to the greater advantage of masses or classes, than present mass systems advocate.

Sincerely,

FRANK E. DORCHESTER.

VANCOUVER, B.C.

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Introduction.

IN writing this small book, I have endeavoured to keep strictly to essentials, and have avoided padding. Every word written should be read if you wish to get the facts.

In a former book, "Mental-Physical Efficiency," purely theoretical, I dealt with the mental-physical aspect of exercise and mechanical-therapeutics. Amongst the press criticisms one editor, I think it was of "Brain and Brawn," an American journal, stated that I had dealt with the hidden secret of the muscular and athletic prowess of the old Greeks. As I have not his criticism to hand I am not quoting his exact words, but the meaning was the same.

I am persuaded that he was right. If we are both mental or psychic, and physical, and realise how much one depends on the other, we can easily see that mentally controlled movement is the base of development.

FRANK E. DORCHESTER.

Youth and Physique Culture.

“**T**HE boy is father to the man.” How many of you boys have not heard that quotation? Here’s one of my own: “A nation’s greatest asset is her people, and the condition of that people.”

Some fellows like study, they forge ahead and positively seem to be as enthusiastic in gaining prizes and, of course, learning, as others glory in sports and athletics.

Now, strange to say, there is one thing in common to either, and necessary to both, if the full heights of their ambitions are to be realised. This is not simply physical fitness, but the maintenance of physical fitness, and the careful culture of the body as a foundation and support for either heavy brain work, or to reap the athletic reward—championship. The reason for this cannot be explained in a sentence, yet the fact remains that the brain is responsible for development of body—for a boy’s or man’s control of that body—as the body condition is responsible for the best work by the brain, whether in school work or statesmanship, or in school sports and world championships.

In other words, we are psychic-physical beings indissolubly woven for the purposes of this world; the one maintains the other in its fullest perfection. Perhaps a simile or two later will best show what I

actually mean. The Romans, as world rulers, knew the truth of the above ; their adage, " mens sana in corpore sano," tells us this. The Imperial Army Gymnastic Staff have this as their motto. It was said that Napoleon lost the battle of Waterloo through indigestion. Whether this is simply a fiction of a romancer or not is immaterial. It is a physiological fact that on good digestion depends the nutrients which build body and brain, or maintains them at a normal standard. Granted that many men of mighty intellect have been invalids, yet had they been blessed with better physical support would they have been less brilliant ? or would they have given more of the fruits of their genius to the world, think you ?

The boy is father to the man. On our boys rest immense responsibility, more especially due to the great war. It behoves our boys, even in their school days, to shoulder the responsibilities of the heroes who are gone and of whom our country and Empire have been depleted. This responsibility is to see that they shall be worthy successors, that they shall become fine men, well balanced physically and mentally so that they may the more assuredly carry on the work of Empire.

The boy, youth, or young man who makes a daily practice of 15 to 20 minutes of the right kind of nature-assisting exercise, will ensure to himself and to the community that his brain and body will grow into a greater and nobler perfection at maturity. Cleanness of mind is, of course, always an essential. Is there a reader who does not feel that, if the future holds out the slightest promise of his filling some post in the machinery of Empire, whether mercantile, mechanical, or in affairs of State, he must in duty to

the heroic defenders of the present make himself a fitting successor ?

Just how does exercise affect all this ? How does brain affect body, and body serve brain ? We will try and analyse.

You *think*, "I will play the piano." You then go to the instrument and play ; your hands and arms act on the behest of the brain. You are in a playing field, and you have the football. You *think*, "I will kick the ball to Jones after passing Smith." Your limbs act as your brain directs ; nimble legs dodge Smith, a swift kick sends the ball to Jones, and the whole matter has been an affair of brain control of nerve and muscle. The greater the control of brain over muscle the better the results—quick thought, immediate transposition of thought into action, and lightning-like results. Like a telephonic system, brain (central) has the number of the 'phone you will desire to communicate with ; the plug is pushed in, and the message carried in that degree of swiftness which depends so entirely on the quality and mechanism of the telephonic system. A slow operator at central, broken down or carelessly attended lines, will delay the message. It is necessary for the linesmen, operators, supervisors, and department managers to be constantly on their jobs to see that the switchboards, receivers, plugs, lines, and the system generally is kept always ready for every emergency. Your will and brain are in the position of general manager and central office of the system. There are sub-stations, *e.g.*, plexuses, &c., which parallel the sub-stations of the telephone system.

The culture of the body helps the brain in this manner. It is acknowledged that exercise

strengthens and develops the body. The brain, although the organ of the mind, is nevertheless a physical organ, subject to the governing conditions of the body for its own nutriment. Continual thinking or brain work often produces a sense of fag, inability to concentrate, yet after a period of blood circulating exercise, one returns to a more normal condition. Why? Because in activity of brain there is waste produced. This waste gradually clogs the brain cells, just as clinkers, ashes, or cinders clogging the bottom bars of a furnace dulls the fire, as draught cannot do its work. You have all seen that. You have seen a fire gradually going out despite added fuel, until you take a poker and remove the debris from the bottom. Once draught is established the fire blazes up.

Circulation of blood acts as the poker, and by removing the waste, through increased force of circulation due to exercise, allows the brain fire to burn clear again. Thus not only does the brain depend on the blood for its nutriment, but also for its scavenging. It's quite simple, therefore, to see why exercise helps the brain, as it helps the body.

A reader says, "You've not explained how exercise helps the body!"

Very well. During muscular activity a greater flow of blood and nervous energy is sent to every part of the body (trunk, limbs, head). This must be, as the blood vessels penetrate every part and the blood *must* flow; if anything, increases the rate at which the blood is pumped through the body, so the process of waste and renovation is increased, but with this added result. The renovation is in excess of the waste, and the waste is carried off from the body through various agencies—skin, lungs, kidneys,

&c.—with greater ease, owing to the stimulation of these organs through increased blood flow, and also from massage caused by movement. You will notice that in proving the effect on the body I again substantiate the beneficial effect on the brain, for the arteries and veins serve both.

Just notice this, as it shows what a partnership is maintained between head and body, say mind and body. The principal organ of the body, the heart, serves the brain in supplying it with blood. The organ of the mind, the brain, serves the heart in supplying it with energy. Stop the working of either brain or heart, and we exist no more on this earth. The one is essential to the other, and both to the whole man. We find the arteries and veins from the heart penetrating to all parts of body and head. We find the nerves from the brain penetrating the head and the body everywhere.

To all this, however, the body in general has to play its part. The stomach and intestines, in digestion; the skin, lungs, and other organs, in excretion. In short, we are a complete whole, and no part should be neglected in favour of any other. Cultivate the brain by all means, but to ensure the best results cultivate the body. This will require the use of brain and body.

My design in the foregoing, which I have mentioned in a former book, was simply to impress on the reader that at no time must it be forgotten how much the physical depends on the mental, and the mental on the physical. Your further attention might be drawn to the fact that in diseases we know of innumerable physical cures—by physical agencies—and again of many which are due entirely to

mental. At least this is the general opinion, but the exact percentage of the mental which contributed to the physical cures, and vice versa, we cannot say, but a personal opinion might be ventured that it was a certain proportionate combination which secured results. For instance, take the converted drunk. If he allowed himself to sit and brood and think he was cured of his craving, how long would the cure last? It may be guessed that he found the greatest support to his mental effort in adopting some expedient to help him conquer his craving—a hobby, or work, something which brought his physical organs into healthy play. Even when Christ said to the cripple, "Take up thy bed and walk," would the cure have been effected if the cripple had said to himself, "I know I'm cured, but I won't exert myself yet," instead, his faith caused his will to say, and his brain to transmit to nerves and limbs, "Move." He moved, physically. Strengthened by faith, he was enabled to send down such a power of energy from the brain that the muscles had to respond, under the action of his will.

So in getting results from exercise the reader must learn to use the brain. As you go through stereotyped movements, control the muscles which move the limbs, which are directly responsible for particular movements.

According to the amount of energy from the brain, embodied in this control, depends the size of results. The more you learn to control a muscle the more powerfully you are able to contract it, in time. Nothing is done "all at once."

Even pre-supposing you come of a naturally slight, slim-boned family, yet I can assure you that if you

go over your muscles *daily* with, say, 15 to 20 minutes' exercise, mentally controlled, you will find that by the time you get to manhood, and in proportion to the elder members of your family when at the same age, your physique and mental powers will be on a higher scale even if you retain the family characteristics of slimness or slenderness. The race-horse and the Clydesdale both have their place, but neither will gain prize or championship ribbon without careful attention to their training and health.

I have seen slender men strip to beautiful perfection embodying strength and speed.

In the same way the stoutly-built lad may build himself into a formidable man. The method of doing it may be shown, but—one may lead a horse to water yet cannot make him drink. It's entirely in the hands of you fellows as to whether you intend to ensure all the blessings of full and vigorous manhood.

REMEMBER. Aimless exercise, or merely moving arms or limbs about in given directions, in the belief that this is going to get results, is foolishness.

Common-sense must be your watchword. Take no notice of fads or cranks. Brushing a towel over yourself in given directions daily is not going to give *enormous* results. Neither will worrying over what kind of food you should eat.

Exercise.

Exercise is the panacea for the ills that man is heir to, not worrying over foods.

Confirmed dyspeptics (pre-war) are able to eat *anything* eatable since they were forced to rough it in

France or Flanders. A lesson may be learned from this. If they come back, and return to sedentary work with no exercise, they may regain their old complaints, unless they take up daily exercise, as is very advisable.

As to the time to exercise. Any time is a good time. Try, however, to allow at least one hour and a-half to elapse after a meal before doing the exercises I am giving you. If you do them before a meal you will be all right by the time you have rubbed down and dressed; if you eat then, just long enough to become normal in your breathing. The ideal time is about 11 or 12 o'clock in the morning, a few hours after breakfast.

Needless to say, you cannot do many exercises in 20 minutes, although a business man is helped by seven minutes' exercise. If you were able to devote an hour daily it would be that much the better. To manage them in 20 minutes you won't have time to stop for thought in between each exercise, but if you feel you must have a breather do so.

Don't forget, the muscles must be governed and fully contracted as you do each movement.

The *secret of exercise* is *full* contractions and *full* extensions, the muscles being made to contract hard by your control of them, the control being maintained *throughout* the movement.

You are so built that every muscle has an opposer like the two reins from the mouth of a horse; equal pressure on both reins keeps the horse straight on his course, and a little extra to one rein achieves other results as the driver requires.

By fully contracting a muscle (let us take the upper arm as an example) you fully extend its

opposer. For instance, if you fully contract the biceps, on the front of the upper arm, you not only pull or flex the forearm on it, but you also fully extend the triceps, on the back of the upper arm. In extension of the arm, by fully contracting the triceps, you fully extend the biceps. By making sure that you thus exercise both equally, not only in movement but in the amount of mental or nerve energy you send to them, you maintain a perfect balance on which depends agility, quickness, and sureness.

It would be well, when first going through your exercises, if you taught yourself to locate, mark the contraction, and control the muscles involved in the movements. Use a mirror and exercise, or learn the correct movements, nude to the waist, or entirely nude.

When exercising other parts than the arms you might lightly lay your fingers on a muscle, or group involved, and feel them contract in action. Then, still feeling them, try and obtain a better or harder contraction. For instance, to feel the thigh muscles, and learn to fully tense and contract them, bend the knees and assume the squat position (sitting on heels as it were), now rise to full height, tensing the muscles on the front of thigh until the legs are quite straight, feel the muscles with your fingers, and see how hard you can contract them.

Another instance, the abdominal muscles. Lie on the back and place your fingers lightly on the abdomen, fingers extended. Now try and sit up. You will feel the muscles harden under the fingers. This teaches you to locate and know the action of the muscles. This also teaches you to gain control of them so that you can gradually learn to mentally

contract the muscles, and finally to make the mental effort more fully dominate the physical action.

As you can send just as much energy to a part as you need—to lift a pen, or a 20-lb. weight, so you may make a series of movements as at a 20-lb. effort. Isn't it only natural that if you do 30 movements daily with a pen weight, or 30 movements at a 20-lb. weight, that the latter will produce greater muscle results in growth and development?

Hence the need of the mental in physical exercise. Here, too, lies the secret of quick results, and eliminates the waste of time lost by going through series of fanciful or aimless movements. Movements alone bring little or no results, it necessitates *movement plus energy*. You can be vigorous in action, or energetic, without getting the right results. If you control the right muscles, in physiological movement, you will get results.

The whole thing, despite the science of physiology and psychology which exercise should embrace, is very simple, as fortunately these sciences are not needed to be studied by you. All you are required is to follow the exercises, do them, and do them with control, the points to remember being :—

1. Control of muscle in movement.
2. Full movements.

This control must be localised on the working muscles. At first one is disposed to hold the breath and spread the effort all over the body, *i.e.*, putting a strain on the whole physique or large groups near the point of activity. Avoid this as you become more expert in **localising the control** and endeavour to breathe without restriction.

To Adults.

The adult reader should read the talk to youth. What is written there applies equally to you. How many of you, engaged in work which entails great brain effort, find the time come when your brain seems to refuse action. The following example might illustrate your case.

A patient once came to me, having been ordered to California by his medical adviser. I was in Vancouver at the time. This patient informed me that he was engaged in a financial business which necessitated his close attention. For some time past he had not been able to give more than an hour to business before he felt "all in." His brain refused to act, and he could not concentrate. His medical man diagnosed his case as nervous debility, and ordered him to California otherwise he would bring on a complete breakdown.

His position was terrible, for if he went to California his business would fail without his close attention. If he did not go both he and his business would fail.

I explained to him the cause of his trouble, as described previously in the "Talk to Youth."

He had been using his brain without giving it adequate support from his body. The clinkers of debris caused by heavy mental work had positively clogged the brain cells, and impaired nerve action. It was necessary to rake the clinkers from the brain through the influence of increased blood circulation.

Instead of going to California for rest he took up a prescribed series of exercises, physical movements fully controlled, which not only built up the physique, externally and internally, but by the action of increased circulation, respiration, and excretion, cleaned out the brain debris, and allowed free brain activity. Brain work alone will cause waste of brain tissue without the corresponding excretion of the same. Exercise stirs all the organs, skin, lungs, blood, to work and assist in carrying off this accumulation.

This man did not go to California, and what is worth particular notice, he gradually increased his stay at his office, until he put in a full day's work—within 10 days. Two years afterwards I met him and he had not left town for more than two days, and felt no sign of debility.

Does that illustrate the case to you brain workers ?

Statesmen by law should be compelled to take daily exercise, for an Empire may depend on their health and brain power. Take two statesmen on opposite sides of the House, Gladstone and Chamberlain. The former exercised regularly, and died aged between 80 and 90. Joseph Chamberlain, equally brilliant, never exercised, and was quoted as saying "I never walk where I can ride," was struck down with paralysis when his great genius was most wanted by Tariff Reformers.

The fact that there are exceptions to the rule is nothing. A further fact is that the weakly-bodied genius who lives to 30 years of age might have strengthened his body through judicious exercise, however mild. Increased longevity means the State and community gleans more advantages from his genius.

There are exceptions on the physical side. Men whom nature has endowed above others may say, "Oh! I'm strong enough." This doesn't alter the fact that special exercise can bring extraordinary results on such—the matter of not needing it cannot refute a physiological law, and at that the need may be arguable.

Now that which can serve the mental worker also serves the *manual worker*, for exercise, judicious exercise of course, acts as a balance not only between the mental and physical, but also between the physical and physical.

Overused muscles may be relieved of congestion, and those underused may be toned up, so that an accurate body balance is obtained, not only in muscular balance but in circulation, excretion, and so on. If any muscle or group of muscles have been held in a state of continued contraction by any form of labour, the only means of relieving them of the sense of binding is a series of full movements, employing the opposer groups or muscle with full mind effort, and the tired muscles with the minimum of effort. The proof of a pudding is in the eating, so try this if there is a "doubting Thomas."

In the same way if whole groups of the body muscles are always used in any labour to the neglect of others, not necessarily opposers to these, it is essential that the under-exercised muscles should be exercised somewhat to correct the over-circulation to any others.

Here it may be seen how exercise may be more effective than almost any other mechanical treatment to draw blood from inflamed parts—where necessary, by exercising other parts, for you can draw the blood in an increased stream to any one

part you wish to exercise, and the greater the mental effort the higher the result.

The foregoing is both logical and physiological.

Difference in Mental Exertion in Exercise and Field Athletics.

It will be noted that there is a distinct difference between the expenditure of energy in the few minutes given to the toning-up exercises done daily, and in the method of giving out energy in athletics.

In the former case one's endeavour is to thoroughly exercise the muscles in the shortest space of time. Hence we must concentrate the effort on the individual muscles or groups employed, with the intention of tiring them, until they ache slightly, as quickly as possible.

In sports, however, whether running or boxing, one's main endeavour is to husband energy until able to let it all out in a final burst, to win, if possible. Therefore one runs or uses the muscles with the lightest poundage of effort, never putting more into it than is absolutely essential. The two are opposite in intention, but by the sheer practice of muscle control in the former case one is enabled to control expenditure of effort when called upon to run or wrestle, with the added ability of being able to put more into the winning burst, or grip, or punch when one wishes to send down all the poundage of energy in a mighty effort.

When doing one's daily toning exercise it is necessary to learn how to localise the effort on par-

ticular muscles. The beginner will invariably try to make this effort by exerting over too many muscles at once, and often by holding the breath.

Endeavour to breathe regularly and easily, and practise concentrating the effort on the muscles which a required movement is calling into action.

Remember, it is not the movement which makes the muscle act, but the action of a muscle which causes a movement. You see, therefore, how much depends on controlling the muscle involved if you wish to get the most out of exercise. Don't get into the habit of thinking of a movement bringing a muscle into play, but rather think of the fact that a certain muscle or group by contraction causes a certain movement. Of course you have to think of the movement, and also ensure that it is a full movement, but my point is that, whilst doing the movement keep the mind control on the muscle, and send down the mental energy in a full stream, contracting the muscle thoroughly—then fully extend it by thoroughly contracting its opposer. The illustrations will show my full meaning. (*See Exercise 1.*)

Now the daily toning-up exercises will give health, resilience, and strength to the muscles and tissues, and if the mental energy is exerted will build splendid muscles.

It is always advisable, however, for anyone who intends to go in for any form of athletics to practise them, also special quickening exercises. These will be distinct from the building movements.

Building or toning exercises will keep old or young healthy, with a splendid muscular foundation on which may be built athletic reputation or ability, or they may be used solely for health and brain condition. They are more essential, however, than

any other training as they are the foundation or base of everything else.

The mental worker maintains his ability with this daily practice. On the other hand, the athlete who lays off from some specific sport when a season closes will find that if he does his daily toning exercise in the off season requires less conditioning than if he had not done it.

For building purposes one must commence at a moderate number of movements each period, and gradually add to the amount done. The youth who has the *time* and *ambition*, if he does twenty minutes daily at first, working up to perhaps an hour daily, will see the change in physique in the mirror, and on the tape if he troubles to take his measurements before starting, and at different periods afterwards.

As he progresses so he will learn to concentrate greater effort on the individual muscles involved, and thus may be able to lessen the number of times he will find it necessary to go through a movement before reaching the slight ache stage. The muscle so worked will be found to be distended with the increased blood flow, and glowing with heat.

A cold or cool slouch in water, followed by vigorous rough towelling, leaves a feeling of compensation for the work and time expended.

He must, however, carefully practise the **isolation or localization of effort**. This will come as he becomes more the master of his muscles. The adult, too, will find the same results; but where health and condition, and not considerable development, is required, it will need from fifteen to twenty minutes to go through movements employing the various body groups of muscles, and will give

greater returns, muscularly and mentally, than *any other* means of exercise.

Personally, I find I can maintain my muscular condition with ten minutes daily, but I concentrate the whole time and get the most out of the muscles in that time.

Needless to say this refers solely to tissue or muscle conditions and internal organs, but for stamina, endurance, or what is called in the vernacular "long windedness," it will be requisite to train by skipping, running, and any other form of athletics as may appeal. The toning or building exercises are solely for foundation production, on which bigger results are built, than without.

The simple truth of this reminds me of a letter of thanks from a schoolboy. He had some knowledge of wrestling, but not the foundation or muscle structure for any great effort, and as another school-fellow had guaranteed to throw him in twenty minutes, he wrote and asked me for some building exercises.

A while later he wrote me a letter of thanks, saying: "The fellow who was to throw me in twenty minutes was thrown by me in fifteen minutes, and whilst I am feeling rather proud of the performance, I could never have done it if I had not done the exercises for a few weeks."

The reason that the value of exercise is often undervalued is probably because persons have chosen the wrong kind for their cases, or else have wasted time on some of the tables of automatic movement which are sometimes published. Movement alone will not get results, otherwise the ordinary movements done during a day would suffice. Effort, mental control in a sufficient poundage to make the

nerves and muscles respond, must be utilized, to call up a free full blood circulation, and flood the body with the nutrients from the blood as well as with residual energy or power from brain and nerves, just as an electric system floods its lines with power to drive the car or light the globe farthest from the power-house.

Any degree of activity generates combustion and some increased blood flow—the more mental effort put forth the greater are these results. When exercising remember the psychological aspect of exercise is :—

- (1) The impulse directed *consciously* by the brain.
- (2) The degree of impulse.
- (3) Localization of effort on a specific muscle or part.

By these factors you can get light, medium, or strenuous exercise, and with no need for apparatus of any kind, except those provided by Nature.

I deal later with a short talk on muscular fatigue, and also training for wind.

What to Do.

If you are an adult and wish to exercise solely to keep brain or body in trim, simply go through the exercises given later, daily, following with cold or cool sponge down, and rough towelling to follow. If you cannot stand this the exercise alone is valuable, but do not go out into the air overheated.

If you can strip to the waist and exercise before a mirror you will help yourself in the matter of

concentration by watching the muscle action, where possible.

If you like to follow this with a short stroll, taking a few deep breaths occasionally through the nose, all the better. The main thing is—go through the exercises.

If you are anxious to get to championship condition—as for weights or wrestling—commence with a specified number of movements daily, gradually increasing same until occupying an hour or so daily.

At another time of the day practise at the specific sport you have set your heart on, except weight-lifting, when your maximum effort should not be beyond twice a week. I do not recommend weights to ordinary persons.

Add quickening exercises as may be necessary—skipping, shadow sparring, jumping, ball-punching, running, or anything which will quicken you for your particular form of athletics.

If a business man added shadow-sparring and skipping to his toning exercise, his wind as well as general condition would be perfect.

I am first giving a few exercises which all can do, and wonderful results may be obtained by doing them daily.

Those who desire to go in for special development with a view to athletic indulgence in the future, can add the later exercises.

When you start actual training for athletics, after having undergone a period of the full set of building exercises, you may drop the last exercises and use only the first set, as the other work entailed in training will give all the exercise you need, and the sole reason then of doing the first set will be to keep the muscle tone, as they act like a careful chauffeur who washes and cleans up his car after or before use.

The very busy man who must save time may, after he has thoroughly mastered the control of muscle well enough, combine exercises where practical. For instance, Exercise 1 may be combined with Exercise 2 or Exercise 3. Do the movement in Exercise 1, and whilst the arms are stretched horizontally, turn palms of hands down and perform Exercise 2. On the upward return of the arms, turn palms up and go through Exercise 1 again; repeat.

The same thing applies to Exercises 1 and 3, but in this case there is no need to turn the palms down, as the exercise requires the palm upwards.

The secret of results is in concentration of effort on the muscle or muscles involved in a particular movement. As you master the control you may quicken a movement, but do not try any combinations until you can exert the full control on a muscle locally.

From the start endeavour to breathe regularly (you may find yourself holding the breath), also try to localize the effort on the one muscle or part. This takes time usually.

Don't forget, a cool sponge down and rough towelling has great tonic effects.

To those Physically Handicapped.*

From my own experience, after accidents and during the convalescent period, it has been found

* The Author was associated with the first successful schools for remedial training for wounded and convalescents. He introduced physical training into two Special Hospitals as a necessary part of remedial curriculum. He wrote this book whilst himself convalescing from an injury to knee on active service.

that the difficulty of maintaining health and spirits, and the proper functioning of the internal organs, without tonics, aperients, or similar means, is sometimes difficult.

However, even a crippled person may maintain health by exercise. To go further, if kept in bed one may yet adopt movements, or forms of muscular exercise, calculated to keep those muscles or parts uninjured in good condition, and add not a little to the curing of the maimed part, by the stimulative effect of the exercise on the whole body.

With a knee dislocated it was possible to take arm and chest, also abdominal, exercise. So with injured limbs it is possible to exercise the other parts of the body, and one feels all the better for it. The fact that this prevents the degeneration of the uninjured members or muscles has a psychological tonic effect, and keeps the brain active and clear.

If, therefore, you happen to be one of the many who have lost a limb, or are suffering from an old wound, don't forego exercise entirely, but adopt any one or number of these exercises already given, and do them if able. If one arm is injured every other part can be exercised, and so on, and perhaps that arm can be partly exercised.

With a leg in splints I found an excellent way of keeping fit was to sit up as far as possible, putting mental effort on the abdominals, then returning to the supine position and relaxing them. Then by sitting up it was possible to do the chest expanding and arm exercises, also body or trunk twisting, and a consequent sense of exhilaration resulted.

Try the same idea.

Speed and Balance.

Have you ever gone into a Government Weights and Measure Office and had an opportunity of examining the larger testing scales? So beautifully balanced are they that, despite their size, the slightest weight on either plate causes the scale to sway or act.

Well, this is exactly how the properly balanced body should act, as the lightest thought weight, or mental weight of thought, is sent to a particular muscle. If, as it should be, the opposing muscle is in exact balance to the active muscle, the muscle should act like lightning if needed—dependent on the quickness of the dispatch from brain to muscle, and quality of thought and mechanism. Just as we place a weight on one side of a scale, and then another on the other side, which acts as a brake preventing the sudden descent of one side, so as a thought to act is sent to a muscle, another thought to brake, or slow the action, is imposed on the other side of the scale, if necessary.

Few people ever considered thought and mental force as weight, yet in effect it is. As an example let us take the biceps and triceps of the arm. The elbow is the fulcrum, the biceps pull against the opposing power of the triceps, and if they are balanced beautiful action is the result.

In flexing the arm, suppose you wish to lift 20 lbs. to your shoulder from the ground or from your side. The hand might be again considered as a scoop of a scale. You send down the equivalent of 20 lbs. in energy plus such extra as may be requisite to the

biceps, and this weighs down the bicep side or scoop, and brings up 20 lbs. weight. If anything causes or caused the triceps to oppose this action it would be checked. After reaching the shoulder suppose you wished to place the weight overhead—extending the arm—you would immediately transfer the thought weight to the triceps and the balance would go the other way.

Now quickness of action also depends on the perfection of balance. Another factor, of course, is the quality of the telephonic or, let me say, electric system, which transmits the thought into energy, and the energy into action.

Physically, by keeping the muscle perfectly balanced, you do all you can to ensure that the mechanism is perfect. Next, however, on the principle that only by frequent use can these works be kept bright and free from rust, you must practise the quick sending of messages and transmitting them into energy and action. This explains why, *first*, you must build a perfectly balanced body; *secondly*, you must ensure perfect brain action or balance with that body.

This can be accomplished. First, follow out body building exercise as already given. Secondly, practise any method of teaching quick thinking, which has to culminate into quick action, such as wrestling, boxing, football, certain forms of gymnastics, fencing—in other words, those forms of sport which may be called combatant, in which the brain and muscle of the man or boy opposes another.

Rowing, running and so on do not come under this heading, for whilst calling for speed or stamina, they do not bring you into countering a swiftly conceived and executed action by an opponent.

This does not mean that the latter need not be followed. Row by all means, run, skip, do anything which will give endurance, but learn to balance sports as to their true value, mentally and physically.

Bodily exercise might be classified :—

First : Body building (as per the exercises).

Second : Mental quickness training (as fencing, etc.).

Third : Stamina production (as in running).

Some of these sports combine both of the latter two, such as wrestling, which calls for strength, brain, and endurance.

In following any type of mind activity sports, such as fencing, remember that unless you are always getting fresh opponents you may get into a rut, therefore automatic, because you know the other fellow's movements from constantly working out with him. This defeats our idea of forcing you to think quickly at unexpected movements, to counter effectively. Boxing, wrestling, fencing or single sticks, tennis or squash racquets, are splendid to teach quick thinking and acting, as in bayonet fighting between two men in single combat.

The splendid muscular development grown through scientific body building exercise, acted upon by the active brain, created by such sports as those in the preceding paragraphs, produce an ideally balanced man, and this ability to think and act quickly (a factor of immense advantage in after life, or if you are adults, now, in the strenuous competition of business), backed up by the fully developed muscle, means the maximum of results. Skill without full strength, or strength without the active thinking

apparatus, are each like a man wearing armour in front but none behind.

Wrestling and boxing also call for muscular development, especially the former. Sheer strength often beats skill, and *vice versa*, therefore the man with both is doubly armed.

The method of body building as shown in the exercises given previously not only develops, but teaches the first principle of the muscle control; the increase of this control into lightning quickness is noticed as you practise sports which teach and require it.

To the man or boy with natural ability in some lines of sport, I advise, get the foundations secure. One may build an engine for speed, but of poor material, which, whilst capable of speed, may be shaken to pieces by the work or speed it is called upon to produce. Why not build an identical engine with material and of such structure that it not only stands the strain, but which, in consequence of additional strength, will give more speed and greater endurance, together with a longer life? Much cheaper and more satisfactory to all.

Do you know that it is the weakness of structure, or neglect of building the necessary foundations and the strain on some young and promising athletes, which breaks them? I knew a national champion who won in almost every kind of sport; it was natural ability, but he died in a tubercular sanatorium. Why? Because, despite ability, he lacked the foundation or physique for the strain, and, neglecting to reinforce them, he paid the penalty. Had he built his foundation he would easily have been world champion.

Build yourself. It is worth while, and only a short period daily does it.

The youth in studies, or the man in business, will find that the few minutes devoted to exercise, solely for the purposes of offsetting the drain of mental effort, the most valuable minutes of the day.

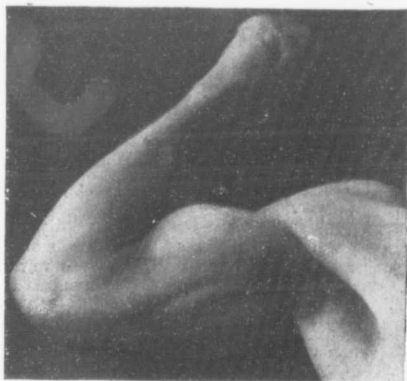
I remember a lad of nineteen—he looked sixteen—who was expecting to undergo some musical examinations. Nervous breakdown was already feared, even before the examination. A prescription of daily exercises, to which he was unaccustomed, not only strengthened him, but, as he afterwards told me, they undoubtedly helped him to pass with honours. This is a fact and not a parable.

Moderation in all things is always needful. I am not suggesting that your exercise should become a fad. Utilize any other good thing for a distinct purpose, or rather for two purposes—general health and strength—and success in your particular vocation. So certain am I of the possibilities of regular exercise, as given in the earlier pages, that the very fullest possible development may be acquired from these tables. In fact, mentally controlled exercise is the real secret of results in exercise, as achieved by the world's strongest men, but these men devote plenty of time daily to doing such exercise. You need it for health, twenty minutes daily is invaluable, and the future will prove my words.

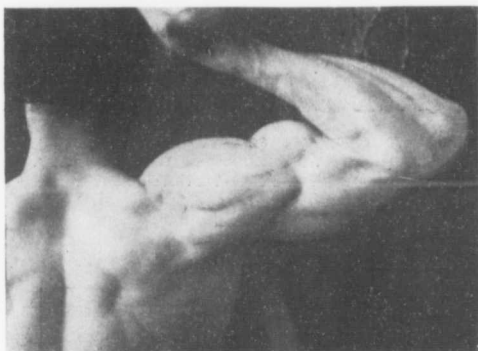
Never forget you are both psychic and physical, both mind and muscle, and ensure that both get proper attention.

The First Series of Exercises.

Each Exercise closely described and photographically depicted, and giving the number of times the movements should be performed.



The arm of a Director of a Military Department, who thinks that exercise is the only means of countering the effects of long hours of mental work. He states emphatically that he could not carry on but for his periodical work out.

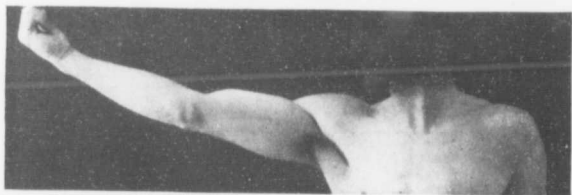


Nothing exaggerated or abnormal in this arm and shoulder, yet it shows unusual symmetry and strength. This man is quite satisfied with his development, and is able to maintain it, and health, with about ten minutes only daily exercise, as given in this book. He combines exercises where possible, concentrating fully however.

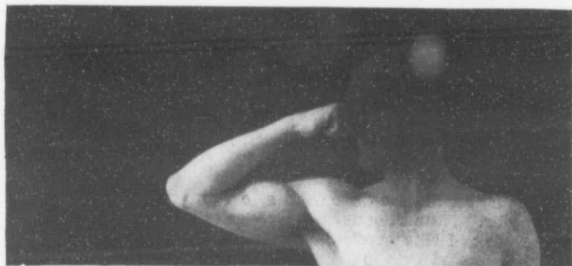
Of course it took more than ten minutes daily to obtain it, but once obtained he keeps it as stated. The business man or statesman cannot realise the value of the few minutes' daily controlled exercise for health and mental fitness.



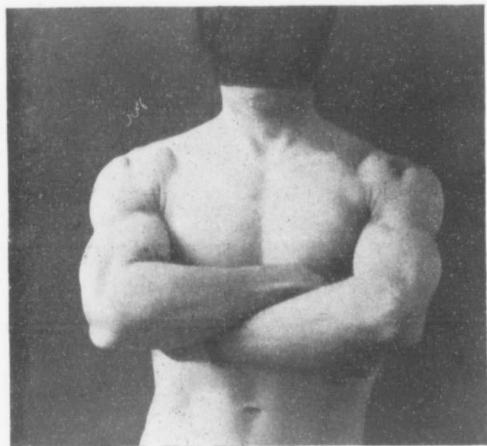
In this photo, you see there is too much badly-directed effort; instead of being only in the arms, it has extended to chest and neck muscles, even to the face. Every beginner will tend to do this, and mustn't be discouraged. Practice will gradually teach you to *localise* the effort. Compare this with Exercise 1, Fig. 2. Note the unnecessary strain and shake in trying to keep control.



Instead of commencing to flex arm from this position to that in next figure, with slack bicep, take control of bicep from commencement, *i.e.*, tense it.



Wrong way to flex arm in exercising. Note how slack the bicep is. It should be contracted *hard* as in Exercise 1.



Torso of an athlete developed solely on principles quoted by the author. Note the unstrained muscles in this pose.

The work of this person has been *mental* for many years, and he has depended on his daily few minutes' exercise to maintain general health. His idea is moderation, generally, but he is a heavy smoker.

Exercise 1.

(To be done from ten to twenty times or more according to amount of energy put into the movements.)



FIG. 1.

Arms are extended in line with shoulder. *Now*, take control of biceps, then exerting this control (nerve force) on them, as in Fig. 2, which shows that, as the arms bend, the muscle is contracting hard, until—

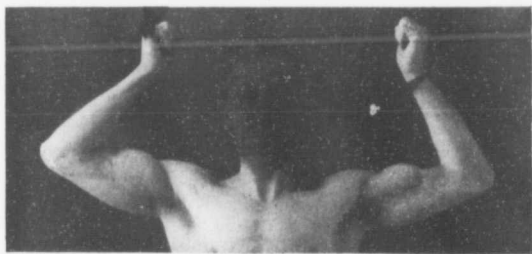
Exercise 1—continued.

FIG. 2.

the arms are fully bent, as in—



FIG. 3.

this figure. You will note that the bicep is contracted hard. (In order to demonstrate that grip of hands should not interfere with the control of biceps, the poseur has his hands open in some of these figures, and in some his hands are closed.)

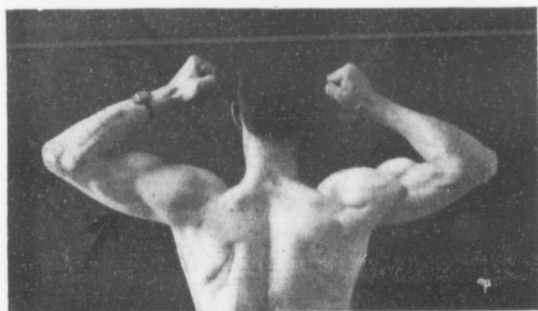
Exercise 1—continued.

FIG. 4

We take the back view now, to show the tricep action better, from Fig. 3. You commence to open arms with effort on triceps (indicated) until—

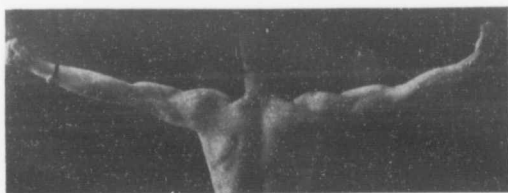


FIG. 5.

your arms are straight and triceps contracted hard, as in this figure. Repeat the whole movement, controlling bicep in flexion and tricep in extension.

Exercise 2.

(From six to ten times.)



FIG. 1.

From this position, palms of hands down, taking control of pectoral (chest muscles), bring arms straight down to position shown in next figure.

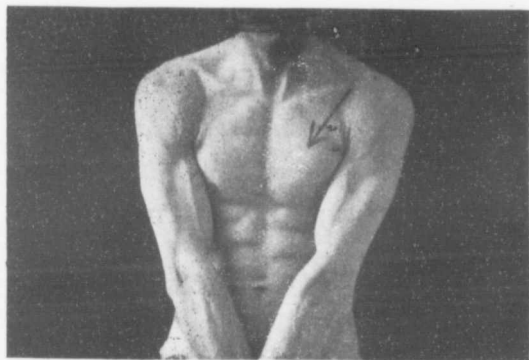


FIG. 2.

Pushing arms well against the chest muscles, as though trying to push them into a heap on the chest. Repeat (as arms extend, the deltoid muscles of shoulder should be controlled, not necessarily heavily).

Exercise 3.

(From six to ten times.)

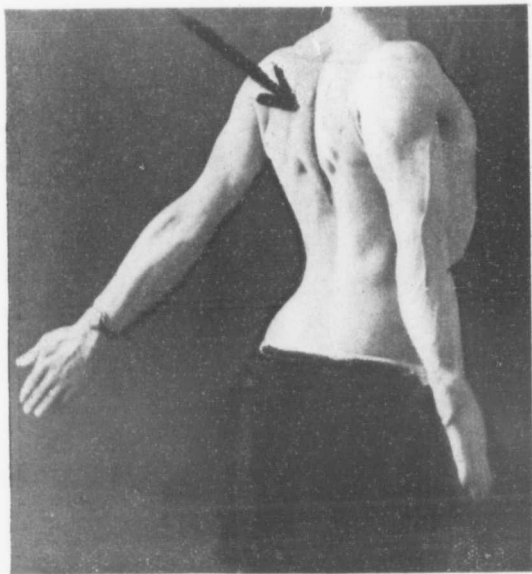


FIG. 1.

From a similar position to that shown in Fig. 5, Exercise 1, bring arms well down and back, controlling the dorsal or back muscles (this is directly opposite in effect to the preceding Exercise 2, thus maintaining the general idea of affecting opposing groups). Do not turn palms in or to front, but keep palms out, thumbs to rear. The next figure shows—

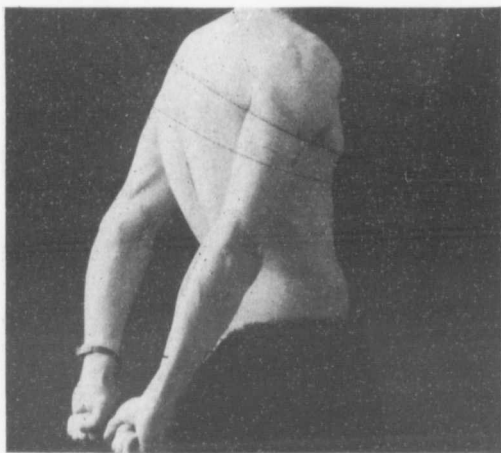
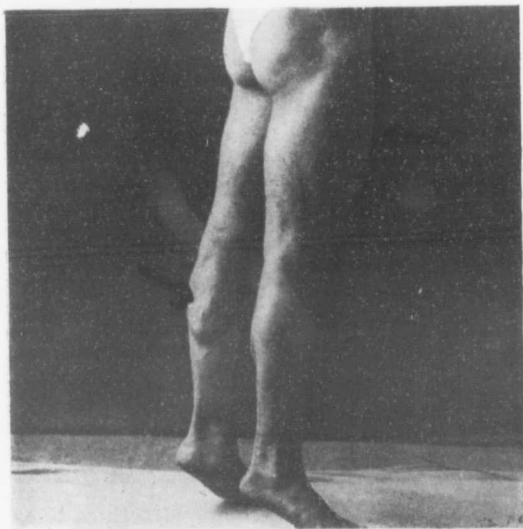
Exercise 3—*continued.*

FIG. 2.

wrong method of bringing arms behind. You will note this flattened chest and round back, thus being useless.

Exercise 4.

(From six to ten times.)



First rise to toes, getting a full contraction in the calf muscles, then sink down to a knees' bend, or squat on the haunches. From this position rise to the position in the picture, but also concentrate on the muscles on the front of the thighs. You will find it help, to get this sense of contraction, if you feel the thigh muscles with your fingers.

Exercise 5.

(From six to ten times.)

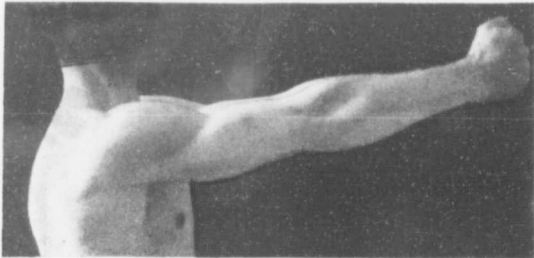


FIG. 1.

From this position, with hands out in front of mouth, arms straight,



FIG. 2.

Pull the arms back, exercising the control of the dorsal muscle of back, especially the trapezius, which is situated at base of neck. The momentary pause should secure this contraction. Do not *swing* the arms back, but imagine you are opening or stretching a rubber cord. Breathe quietly in as you open arms, expel air as you close them again. Don't hurry too much.

Exercise 6.

(Four to six times.)

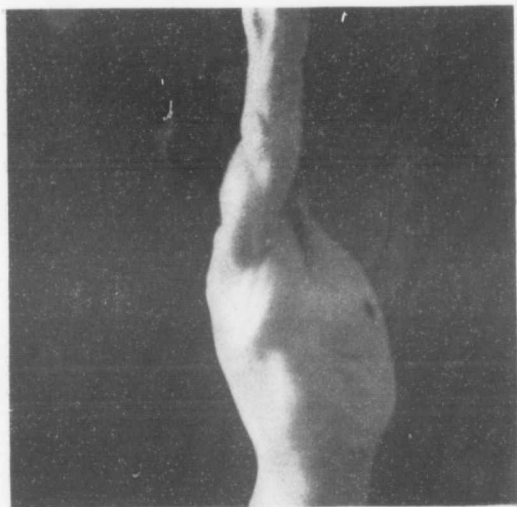


FIG. 1.

Assume this position, arms at full stretch, then, bending from *hip*, not waist, as in—

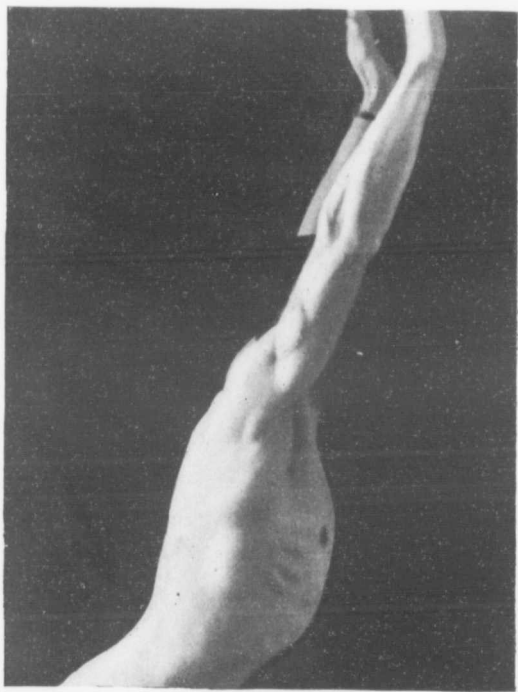
Exercise 6—*continued.*

FIG. 2.

this figure. You note waist is not bent forward, but the torso is still in same position as at attention—the move coming from hip joint. This enforces the control on the erector spinae and other lumbar muscles. Continue to bend until—

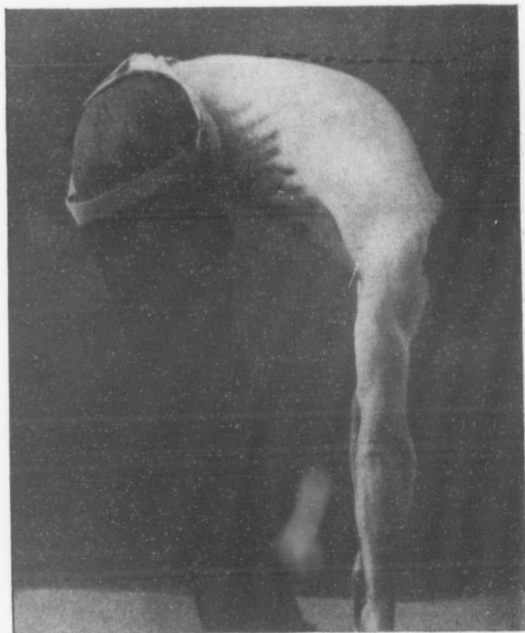
Exercise 6—*continued.*

FIG. 3.

you can go no further without bending at waist. Then bend at waist. To return: Move from *waist* until your torso has assumed the original position you had *before bending* waist (at dotted line), reach well out with hands, and return to upright position.

Exercise 7.

(Four to six times.)

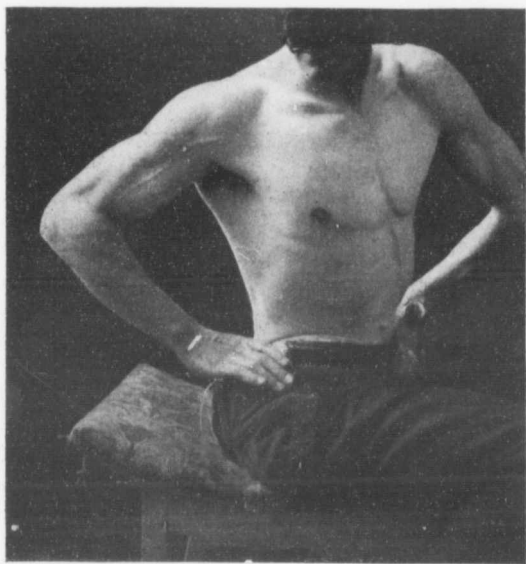


FIG. 1.

Instead of standing position, I am showing this exercise sitting on ground, as the novice will find he or she can keep the hips immovable, thus. Sitting facing feet, upright, now turn round to right as Fig. 1, carrying one elbow and shoulder well back and bring the other well forward, then repeat to left side, as Fig. 2.

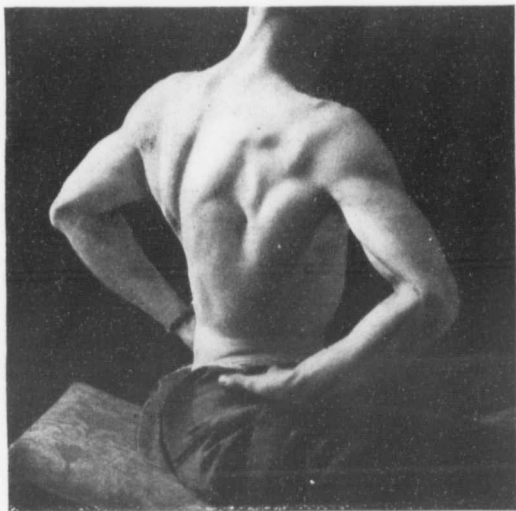
Exercise 7—continued.

FIG. 2.

Muscles employed are intercostals, oblique and rectus abdominals, erector spinae, latissimus dorsi rhomboidous. Owing to the diverse groups, you should keep your mind on the massage effect on the stomach when turning left, and liver when turning right. This movement gets all the viscera.

Exercise 8.

(From two to six times.)

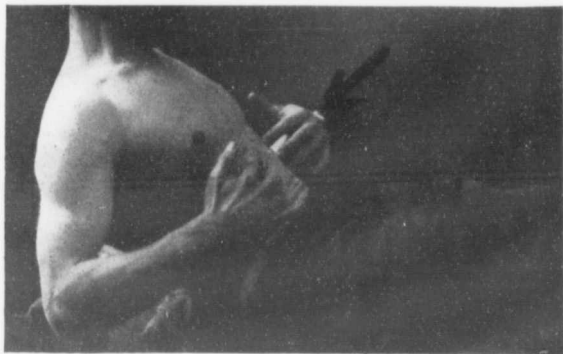


FIG. 1.

PART I.—Lie on floor with at first something heavy on feet, or feet under a bureau. Now, without jerk or swing, but by a muscular effort of the abdominals (indicated by hands), sit up quietly as figure. It will assist you to concentrate if you feel your abdominals with your fingers as you rise and lower (the farther back the head the harder the exercise). Come well forward each time.

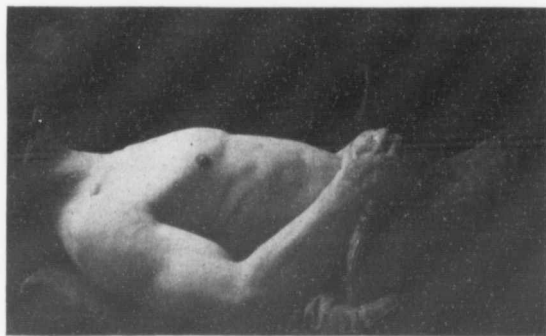
Exercise 8—*continued.*

FIG. 2.

PART 2.—On back. Now bring feet up, knees straight (or if not so strong have knees bent) until feet are over face. Do not swing or jerk, but do this with calm effort of the pelvic abdominals (indicated by hands and arrow). If you place your hands over the bare pelvis, between hips, you will learn where to concentrate. Also affects front of thigh.

Second Series of Exercises.

If you wish to go all out and give plenty of time daily, determined to get a very strong, muscular body, you may add any or all of these exercises, as they cover every muscle group, together with the first set.

The busy man will find the first set fulfil his wants. The youthful or adult aspirant for *muscle* with a big "M," will do well to take a look at the graduation chart, by means of which you can gradually add to the day's work, or every other day as you may wish ; but if other athletic work is undergone during the day, the first set is ample. Exercises 9, 10, 13, might be added.

If you intend to emulate "Milo" of mythology you can exercise with dumb-bells, gradually increasing, month by month, from a 2 or 3-lb. bell, adding 1 lb. a month if under 17 years, or 2 lbs. if over, until you are using a pair of very heavy bells, but personally I fail to see the need of all this, as a superb physique for most purposes can be built by the exercises given, mentally controlled, and avoids strain. In any case, you must learn to control muscle to get real results.

Exercise 9.

(From two to five times.)



FIG. 1.

Assume this position. Now, concentrating on *triceps* at back of upper arm, sink body by bending the elbows until chest touches floor. Return as though a weight was on shoulders; hands should be immediately beneath shoulders, fingers to front, remainder of body as at attention.

Exercise 10.

(Three each, commence with two only.)



FIG. 1.

PART 1.—Lie face downwards; now raise head and shoulders, with the mind on the erector spinae, Fig. 1 (indicated by hand at small of back); do not jerk.

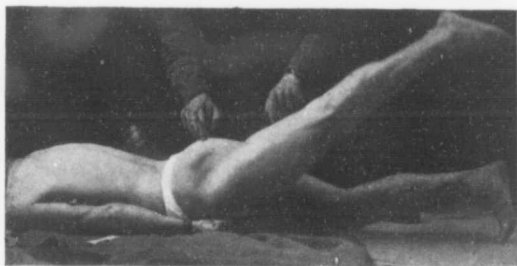


FIG. 2.

PART 2.—Alternately bring each leg up as Fig. 2, knee straight. If the hand is placed on the bicep (back of leg), as shown in Fig. 2, you will feel effect and learn where to concentrate, also place hand on gluteus maximus (buttock or seat) to feel effect there.

Exercise 11.

(Till forearm aches. Note the two figures give one complete move.)

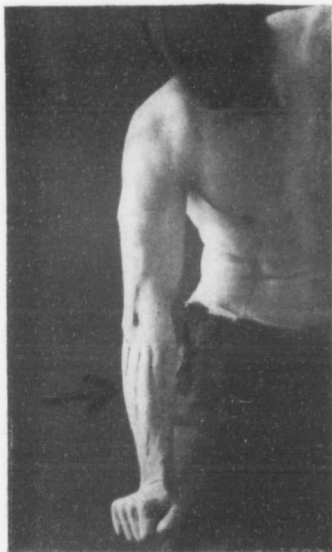


FIG. 1.

In this figure the fist is clenched tight and hand then turned back until forearm muscles at the back are contracted hard, then—

Exercise 11—*continued.*

FIG. 2.

the hand is reversed until flexor muscles of forearm are as fully contracted as possible.

Exercise 12.

(From six to eight times.)

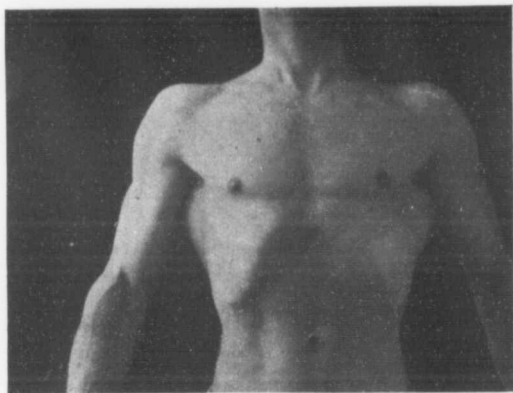


FIG. 1.

Calmly and quietly taking a long, deep breath through the nose until chest is full of air, as Fig. 1 (keeping shoulders down, not back or to front, but quietly pushed down straight). - Now expel air through mouth until—

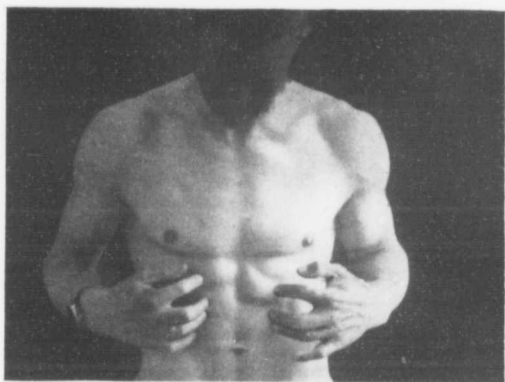
Exercise 12—*continued.*

FIG. 2.

the abdominal muscles harden under the effort (they are breathing muscles). To get full effect on abdomen, depress chest on to abdominal region as you fully expel. Do not retract the hips or draw abdomen in. Then commence to breathe *in* again. Do not snatch air through nose, or raise the shoulders, as in—

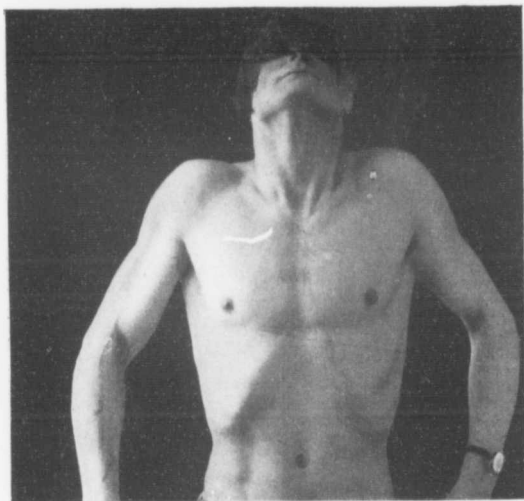
Exercise 12—*continued.*

FIG. 3.

this figure, for the nose will only close if you try to snatch the air through; breathe quietly but fully.

The latissimus dorsi muscles, beneath armpits, on back, are the muscles which keep the shoulders down, also the pectorals. Indeed, at times this may be tried as an exercise, trying to push shoulders *straight* down and to gradually learn to control the latissimus dorsi.

Exercise 13.

(From four to eight times.)

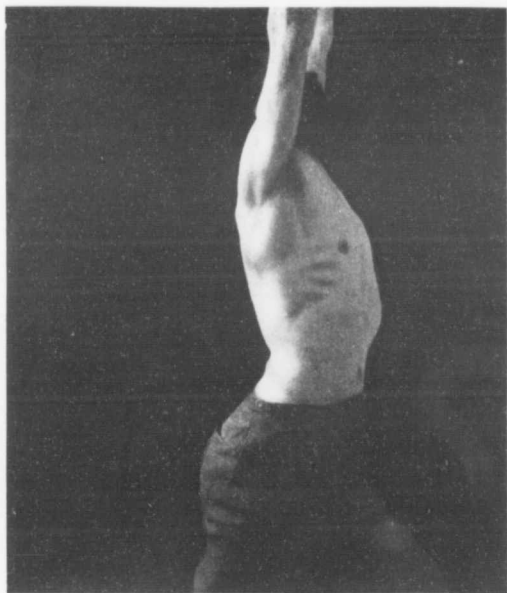


FIG. 1.

From position, arms over head, *facing front, keeping right foot immovable*, turn rest of body to left, and lunge out with left foot, then—

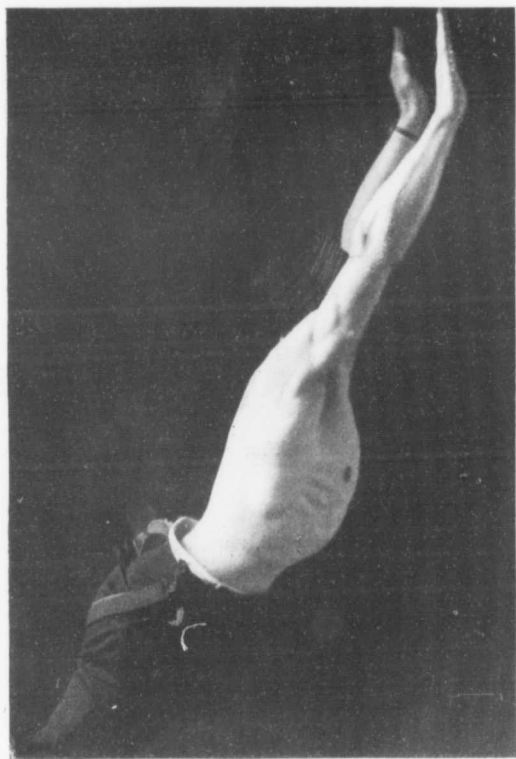
Exercise 13—*continued.*

FIG. 2.

bending from hips, *not waist*, maintaining *the stretch*, continue downward until body and arms are almost in straight line parallel to floor, then—

Exercise 13—*continued.*

FIG. 3.

bend the upper part of back, touching floor with hands (arms fully stretched).

To return, commence by elevating arms with a straightening of the *dorsal* or upper part of back, maintain this position, as you return to upright, by a hip action.

Exercise 14.

(From ten to twenty times or more—see ref. Ex. 1.)

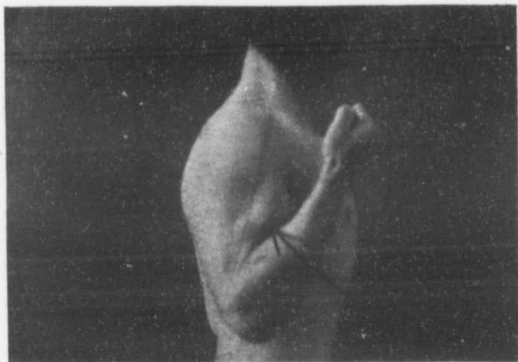


FIG. 1.

On the same principle as before (as Exercise 1, for instance), with arms at *sides*, palms to front, take control of biceps, bending arms until biceps are fully contracted, then, controlling the triceps, straighten arms until—

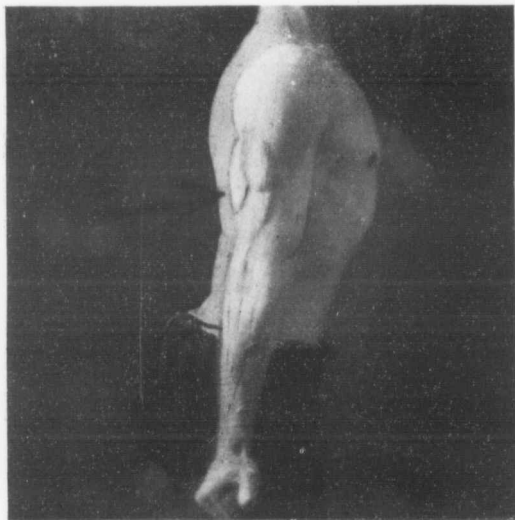
Exercise 14—*continued.*

FIG. 2.

The arms are quite straight, and you can sense the full contraction of triceps.

EXAMPLE OF GRADUATION CHARTS.

IF EVERY DAY. .

IF EVERY 2 DAYS.

29811

| | | 1st day. | 2nd day. | 3rd day. | 4th day. | 5th day. | 6th day. | 7th day. | And so on. | | | 1st day. | 2nd day. | 3rd day. | 4th day. | 5th day. | 6th day. | And so on. | | | | | | | | | | | | | | |
|-----|----|----------|----------|----------|----------|----------|----------|----------|----------------|---------------------|----|----------|----------|----------|----------|----------|----------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|---|------------|------------|------------|------------|
| Ex. | 1 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | Up to 30 days. | Ex. | 1 | 10 | / | 11 | / | 12 | / | And so on. | | | | | | | | | | | | | | |
| " | 2 | 6 | 6 | 7 | 7 | 8 | 8 | 9 | | " | 2 | 6 | / | 6 | / | 6 | / | | And so on. | | | | | | | | | | | | | |
| " | 3 | 6 | 6 | 7 | 7 | 8 | 8 | 9 | | " | 3 | 6 | / | 6 | / | 6 | / | | | And so on. | | | | | | | | | | | | |
| " | 4 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | | " | 4 | 6 | / | 6 | / | 7 | / | | | | And so on. | | | | | | | | | | | |
| " | 5 | 6 | 6 | 7 | 7 | 8 | 8 | 9 | | " | 5 | 6 | / | 6 | / | 6 | / | | | | | And so on. | | | | | | | | | | |
| " | 6 | 4 | 4 | 5 | 5 | 6 | 6 | 7 | | " | 6 | 4 | / | 4 | / | 4 | / | | | | | | And so on. | | | | | | | | | |
| " | 7 | 4 | 4 | 5 | 5 | 6 | 6 | 7 | | " | 7 | 4 | / | 4 | / | 4 | / | | | | | | | And so on. | | | | | | | | |
| " | 8 | 2 | 2 | 2 | 3 | 3 | 3 | 4 | | " | 8 | 4 | / | 2 | / | 2 | / | | | | | | | | And so on. | | | | | | | |
| " | 9 | 2 | 2 | 2 | 3 | 3 | 3 | 4 | | " | 9 | 2 | / | 2 | / | 2 | / | | | | | | | | | And so on. | | | | | | |
| " | 10 | 2 | 2 | 2 | 3 | 3 | 3 | 3 | | " | 10 | 2 | / | 2 | / | 2 | / | | | | | | | | | | And so on. | | | | | |
| " | 11 | .. | .. | .. | .. | .. | .. | .. | | Till forearm aches. | " | 11 | .. | / | .. | / | .. | | | | | | | | | | | / | And so on. | | | |
| " | 12 | 6 | 6 | 6 | 6 | 7 | 7 | 7 | | | " | 12 | 6 | / | 6 | / | 6 | | | | | | | | | | | / | | And so on. | | |
| " | 13 | 4 | 4 | 5 | 5 | 6 | 6 | 7 | | | " | 13 | 4 | / | 4 | / | 4 | | | | | | | | | | | / | | | And so on. | |
| " | 14 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | | | " | 14 | 10 | / | 11 | / | 11 | | | | | | | | | | | / | | | | And so on. |
| " | 15 | 6 | 6 | 6 | 6 | 7 | 7 | 7 | | | " | 15 | 6 | / | 6 | / | 6 | | | | | | | | | | | / | | | | |

An average of 20 times for arms and about 10 for trunk moves will keep in trim a fully developed man or athletic youth, (if done properly). For big muscle you may increase till arm moves are 60 times, then drop back to 20 with heavier bells—if you wish.

The sole reason for filling the blanks in every day keeps you to the mark and from mistaking or dropping a date.

Dieting.

It was not my intention to devote a chapter on diet. However, instead of giving a diet table, I propose a short talk on the common sense of eating. We eat to live and do not live to eat. If you wish to enjoy and make a pleasure of a meal, do so by all means. After all healthy appetite and food which is tasty contributes to the pleasure of living.

Bear in mind that moderation in everything is the golden rule. If you cannot govern craving for too much of a good thing let it alone entirely.

Don't become faddy. More dietetic ailments are due to the psychological than perhaps other cause. The strongest contributor is undoubtedly lack of exercise. True, we find sometimes that men who work hard at manual labour complain of indigestion. This, however, is due to conditions of labour, and often overdoing things in eating or working. Certain forms of labour which bring groups of muscles into action to the utter exclusion of other groups, unbalance the system and cause all kinds of trouble.

Nevertheless, the man who eats moderately of anything good, but exercises daily, has no need to study a diet sheet. In fact, the more he leaves the question of diet alone the better. Many a man has created indigestion through auto-suggestion, just as an hypochondriac, after reading of symptoms of some disease, discovers he, too, has the disease—in his mind.

If you like meat eat it ; if you do not care for meat leave it alone, but for goodness sake do not insist that the other fellow will be better off without

it. He is healthier for not having his mind bombarded with suggestions that this is good or bad for him, if he is healthy.

If you have already achieved the delight of the diet crank—*i.e.*, a disordered or weak stomach or digestive apparatus—it is very possible that, could you be made to undertake plenty of real muscular exercise—not walking, but a type of exercise which employs all your muscles, massages your organs, and, perhaps, takes you into the open a few hours a day—your digestion would right itself, especially if you do not allow a growth of appetite to overdoing the eating. Moderate meals and exercise.

An exclusive diet is not the best way to health but the reverse. The best way is to forget the calories per pound, and so on, and to eat happily. If you are normal and exercise judiciously all is well. Never discuss diet. If you have had a lazy spell and heavy feeding has put poor old tummy out of order, take a mild pill or two, then after the effect is over become regular in exercise again.

I was once asked, "A man starts to exercise, and he has to continue?" Well, we can't expect a month's exercise to allow us to slack up and sit around for the next eleven months. In any event, the fellow who doesn't exercise is sorry anyway. We have muscles to use, and neglect of their use in exercise or healthy labour brings trouble.

Some people seem to have a grievance that exercise should be necessary. Others get a disproportionate viewpoint of what it is expected to do.

I remember a patient with an ulcerated stomach who underwent a course of work under my direction. After a fluctuating six weeks he admitted that all pain had gone and he could eat things which pre-

viously made him suffer. I saw him a year later, still well. I saw him two and a-half years later and asked, "Ever have any more pain?"

"Well, yes," he said, "I felt a slight pain in the stomach a couple of months ago, but I started your exercise again and am fine now."

I asked him, "When did you stop doing the exercises then?"

He replied, "Oh! a week or two after I finished with you."

My reply was to the point, "You deserved to get that complaint back."

Think of that, less than two months of judicious exercise to cure an old complaint which other members of his family also had a tendency to, and then stopped exercise.

Has any man a right to think that a month now and again ought to keep him fit? Even a sound man will become ill with insufficient muscular effort.

This case was a good sample, too, of whom a diet crank would have been delighted; but without dieting, but scientifically exercising, he was cured and eats moderately of everything. **DON'T THINK TOO MUCH OF YOUR STOMACH TROUBLES. BE MODERATE, EXERCISE AND INDULGE IN SOME GOOD OLD-FASHIONED SENSE.** This statement reminds me of another case—neurasthenia.

After attending at my office for a few weeks a neurasthenic patient laughed out loud. I inquired of the joke. His reply, in effect, was this:—

After travelling thousands of miles, paying thousands of dollars in all kinds of treatment, he had found that 50 dollars (or £10) had done more for him than anything else. Ten pounds' worth of

common sense, that was all. Curious, isn't it? The age has become blinded with too much wisdom and science, and often finds it hard to get into a commonsense road.

If you know certain foods mean later suffering don't eat them. Or, again, if you have found any form of dieting a relief, stick to it, but try exercise.

Motto :

Moderation in Everything.

Think this out. Analyze it from every angle, whether eating, drinking, pleasure, pain, darkness, light, anything ; and too much or too little spoils anything. Moderation means enjoyment.

How to Use a Towel.

We often find fads in the use of a towel. Towel exercise, method of rubbing the body in exercise. For goodness sake why will the public pay good money for anything which has a touch of fad or craziness about it.

Of course you can exercise with a towel. Of course you can exercise with rubbing. Rubbing is good, but why not do your own exercise, then your sponge down, then your towelling, in a good old-fashioned commonsense way.

If you cannot manage a sponge down, say, because you take your exercise at a convenient time in the

office and can only manage a dry rub down, here is the simplest and most beneficial way :—

Rub the chest hard from one side to the other. Rub the abdomen in a circle, starting at the right groin, then up, then across to the left over the navel, then down left side, and continue the circles thus until flesh is red. For the back, pull the towel crossways, hard, from loin to shoulder, one end in each hand ; then reverse over the other shoulder, getting the full effect of the towel and of your pull ; then over the buttocks. For the limbs, rub upwards towards the heart until the skin reddens slightly. That's all.

Relative Value of Field Sports, Athletics and Indoor Sports.

Headmasters, in choosing phases of sport as likely to be most useful in the physical or mental development of different pupils ; principals of training or remedial establishments, or doctors in knowing what best to prescribe for patients who require specific exercise in or outdoors—should know how to analyze the relative factors required in various kinds of sport.

It may be taken for granted that body building exercises as given previously are above all, and stand in a class by themselves ; but boys at school may be required to have their interest diverted in certain types of athletics for their own good. For instance, a boy whose brain is not active enough, but who is rugged in build, would probably be

helped vastly if he was interested enough to be induced to take up tennis, squash racquets, fencing, against different boys which called into action his quick thinking together with his muscles; football and cricket will give his rugged muscles play. I do not say he would be a success at the sport. Bear in mind I am only suggesting the utility of the sport to the boy, and not the future of the boy at the sport. Naturally, to become a fine tennis or squash racquet player, or fencer, the boy would probably be a quick thinker, with unusual agility and strength of wrist. No! Try to get my object in analyzing these relative values. Utilize them for the good of the person. It is the way, or for the reason, they are used. There are different viewpoints on all subjects.

Simply because John James has the makings of a champion tennis player or, say, boxer, has nothing to do with the remedial value or balancing up effect on a duller or less active boy. I am dealing solely with getting balance.

You, Mr. Headmaster, have one boy as above given—slow thinking, but rugged—and the type of sport quoted will help him to balance.

You have another whose brain is quick enough, but who sits around too much. Healthy, yes; but too much of a student. Get him out to the football and cricket field, and more especially into the gymnasium.

Where distinct physical weakness exists the body building exercise must be the earliest stage, with light forms of sport, until the foundations are stronger. Then on to the playing fields.

I am appending a table giving the approximate percentage of value of different sports in brai

activity, physique and stamina, ALWAYS REMEMBERING THAT, as you want to use them for their balance effect and not for championship, never allow overdoing. They are to be used solely for exercise and not for a contestant point of view; the latter way can come later when quite fit.

| | 100 per cent. Approximate | | |
|--|---------------------------|--------------------|---------------------|
| | Mental Agility. | Endurance Stamina. | Strength of Muscle. |
| | per cent. | per cent. | per cent. |
| Wrestling (catch-as-catch can). | 33·1/3 | 33·1/3 | 33·1/3 |
| Wrestling (Greco-Roman) .. | 30 | 35 | 35 |
| *Wrestling (Cumberland and Westmorland) .. | 33·1/3 | 30 | 37 |
| Boxing | 33·2/3 | 33·1/3 | 33 |
| †Gymnastics | 33·1/3 | 33·1/3 | 33·1 3 |
| Fencing (foils and single sticks) | 40 | 35 | 25 |
| Bayonet fighting (two men contest) | 37½ | 31½ | 31½ |
| Football | 30 | 37 | 33 |
| Basketball | 33 | 47 | 20 |
| Cricket | 36 | 39 | 27 |
| Lacrosse | 32 | 38 | 30 |
| Hockey (field) | 33 | 35 | 32 |
| Hockey (ice) | 34 | 34 | 32 |
| Running, hurdling, cycling, &c. | 15 | 50 | 35 |
| Polo | 34 | 38 | 28 |
| Tennis, squash racquet, &c. | 36 | 34 | 30 |
| Weight lifting | 10 | 30 | 60 |

* But this latter is seldom continuous enough to give a great deal of exercise. The first is the best form of wrestling for all-round effect or for endurance or strength.

† Depends on the fact that all-round work is done.

The above is not a comparison between wrestling and football, but only gives the percentage of mind, muscle and stamina used in the individual sports. Naturally, if a comparison of different sports is sought, it must be remembered that some are far more strenuous than others. For instance, although football looks to require more muscle and stamina, there is little doubt that one is more used up after one hour wrestling than one hour football.

For instance, some sports will fag, without giving much muscular or mental effort, yet they have a percentage of mind, muscle and other effort. Standing will tire, but you cannot call it an exercise. From the percentage figures given you may make the mistake of saying cricket shows more mental effort than wrestling. You would be wrong. I've made no such comparison, but have simply split individual sports into individual components of mind effort and agility (or quick mind), strength, stamina, as these components show in percentage in a sport. So in looking for a sport for a specific purpose, it will depend on a pupil or a patient. A strong chap with slow brain will get balance from wrestling or boxing, but he may not be the type, or he may not be strong, or weak, but slow in brain, and in this case handball, basket-ball and cricket might be a good combination for him. The choice must depend on the wise instructor or master.

The foregoing table will be better understood, in relation to benefit value, if we abstract the approximate percentage of waste of time, loss of energy without adequate return, such as in waiting or standing around in football, cricket, or baseball, etc., when not actually moving. I will term this "non-returnable" :—

| | Percentage of Value. | Non- Returnable | Total Value. |
|-----------------------------|-------------------------|--------------------|-----------------|
| | Per cent. | Per cent. | Per cent. |
| Wrestling | 100 | .. | 100 |
| Boxing | 100 | .. | 100 |
| Gymnastics | 100 | .. | 100 |
| Fencing | 100 | 1 | 99 |
| Bayonet fighting | 100 | 1 | 99 |
| Football | 100 | 25 | 75 |
| Basketball | 100 | 25 | 75 |
| Cricket or baseball | 100 | 50 | 50 |
| Lacrosse | 100 | 25 | 75 |
| Hockey (field) | 100 | 26 | 74 |
| Hockey (ice) | 100 | 24 | 76 |
| Running | 100 | .. | 100 |
| Polo | 100 | 28 | 72 |
| Tennis | 100 | 15 | 85 |
| *Weight lifting | 100 | .. | 100 |

* Hardly to be considered for general purposes.

In short, I wish to impress on you, Analyze the relative results from specific sports or athletics. To get at the brain and quicken its action use sports requiring or inducing quick thought with action; if too much thinking is the trouble, use some sport which brings the muscle into play strongly. Judge the difference between long spells of standing still in cricket and the constant action in fencing between the constant *qui vive* of bayonet fighting or boxing, and the occasional flashes in football or hockey.

Here is my opinion of the relative value of sports if everything is taken into consideration :—

*1. Wrestling (quick thought, muscle, alertness, physical endurance).

*2. Boxing (quick thought, muscle, alertness, physical endurance).

- *3. Gymnastics (general development).
- *4. Fencing (if both hands used—quick thinking, endurance, some strength).
- *5. Tennis, squash, handball, etc. (quick thinking, physical activity, stamina).
- *6. Bayonet fighting (quick thinking, quick action, muscle, physical activity).
- 7. Lacrosse and ice hockey (alertness and endurance).
- 8. Football (alertness and endurance).
- 9. Field hockey (alertness and endurance).
- 10. Cricket (alertness, some endurance).
- 11. Basketball (alertness, some endurance).
- 12. Polo (alertness, some endurance).
- 13. Running (endurance).
- 14. Weight lifting, throwing the weight (strength, and in throwing-length is an advantage).

Those marked * are higher in value than the others, because where one person opposes the quick action of another it requires brain activity, added to muscle activity. Where the muscles have to *exert* also, the highest type of sport is the result.

Secret of the Art of Instruction.

Perfect knowledge of any given subject is not the secret of instruction of that subject. Neither is the gift of language. Both are, however, contributory. More important in the art of imparting knowledge is the power of description; this might be done either by easily understood simile, or directly by clear illustration.

To none of the above do I refer, however, as the actual secret of instruction. The secret of instruction is purely psychological. It is, in effect, the power of gripping a pupil's interest, by convincing that pupil first of your own knowledge. Secondly, by your ability to explain and illustrate what you wish to impart. Therefore the first paragraph is contained in this second. Add to these the fact that you are a full believer in your own teaching, or rather the subject you teach, which, whilst not so exuberant as to stamp you a crank, but a very perceptible type of belief, which enables you to speak quietly but authoritatively. Convince the pupil that you not only know your subject, but also convince him that if any man can make him understand you can.

If it is a remedial subject, your power to create faith within the pupil or patient is three parts out of four of your battle. Good instruction is the fourth. The former often depends on the latter, however.

You may have studied a subject until you know it perfectly, and can explain it well, but if your method of imparting it is poor or your personality flat you will not be as successful as another man with less knowledge, but whose method of describing or imparting a subject is sufficient to interest and hold a pupil's attention.

Therefore, in instructing, never soar into beauties of speech to the exclusion of simplicity. Cultivate the habit of so teaching that even the dullest can follow your discourse; use the art of simile often. Choose easily understood terms of expression. It all helps to establish the psychological relationship between yourself and class or pupil. A good in-

structor may be a scientist, but it does not follow that the scientist is a good teacher or instructor. It is so easy to talk over a person's head when enthused with a subject; you forget that many terms and idioms which may be fully understood by an advanced student may be as Chinese to those who are not yet very conversant.

Cultivate the :—

Power of illustration.

Art of simile.

Simplicity of explanation or terminology.

Personal ability to create belief.

The latter depends so largely on the first three.

That Straight Back.

It is entirely a question of how round or straight your back is.

The stiff, straight back, of which novelists delight to write, is not desirable. Neither is a round back. There is a natural dorsal curve which is a normal structure, and by making it too straight does not add to the strength of the back. The Creator of man understood the architecture of man better than many of our fanciful physical trainers seem to. If we remember that the whole weight of the torso is in front, suspended, as it were, on the spine or vertebral column, which is in turn supported by the pelvic bones, we easily see why the vertebral column is in a series of curves.

As usual there is a tendency to overdo a good thing. The Swedes have of late specialized in the

reduction of the dorsal curve, and in a man with over-round back this is an admirable thing.

With all due respect for the good intentions of some people who may have had their backs straightened and feel that what was good for them must be good for others. Those who are in authority and have the power to insist on certain scheduled exercises will do well to look into the aspect of these back-straightening exercises, weighing up carefully their actual value and to whom they are applicable. To make them general for everyone is unnecessary. A straighter dorsal vertebral column than they now possess may be undesirable to many.

The value of exercises to reduce the dorsal curve (that part of the spine from neck to lower angle of the scapula) is solely for those men or women whose dorsal curve is too pronounced. A certain curve is normal for structural strength.

There is nothing new in the idea or the exercises which the Swedes have incorporated into their methods. A few pleased students can make anything assume high value, and it is well it is so; but everything has its place. No one will gainsay the value of remedying round shoulders, but it does not follow that everyone must specially try to decrease their dorsal curve if they have a normal back.

Does any reader remember a world's champion in any line of sport who had an unusually straight, rigid back? Personally I cannot call any to mind. However, if you are too round-backed, straighten up by all means and improve your figure; more especially if you are round-shouldered, which is probably due to over-development of the pectorals (chest muscles), and of the abdominal and frontal intercostals. If the trouble lies here, devote atten-

tion to strengthening the muscles of the lumbar and dorsal regions.

If the trouble is a too pronounced dorsal curve, perform the following movements occasionally. The movements must come from the base of the scapula. Endeavour to prevent the movement extending to the lumbar regions.

Neck, Dorsal, Lumbar.—Exercise 1. Position of "Attention." Carry head backward, chin in. Try to force the upper part of trunk back also, but do not let the movement extend below the lower angle of the scapulæ (shoulder blades). This necessitates holding the lower part of spine rigid.

Exercise 2. Assume the position as at finish of Exercise 1. Now maintaining that position, bend body forward from the hips (not waist) as far as it will go without altering the position of spine (have the hands on the hips, fingers to front, thumb to rear, but do not carry elbows to rear).

The above movements will act as a base of numerous others, for instance, in Exercise 2, all kinds of movements might be made with the arms whilst retaining the correct spinal position, or a *waist* bend might be made and then return to the correct position as so to exercise the particular muscles involved in holding or reducing the dorsal vertebral curve.

The reason it is necessary to emphasize the fact, that the actual fulcrum point is not to go below the lower part of the scapula, is to avoid that dread of the modern instructor "the hollow back" which is a too pronounced inward curve of the lumbar vertebræ—a part which nature invariably curves more as a man increases in avoirdupois, as a means of

balance in carrying a pronounced corporation in front. Obviously the best guarantee to avoiding the increase of this curve is avoidance of which humorous persons designate as a "porch," due to good living and lack of exercise.

Where I refer, in my exercise, to the hollow back, I mean to imply, that you must not round the back, but assume as straight a spine as possible, in which case the chest will be brought to the front, and the back must assume what may be termed "hollow," but not the hollow which throws the lumbar vertebræ too far forward.

Training for Stamina.

The average trainer plumps for skipping as about the most effective and simplest form of work to gain what is commonly known as wind. The most common method followed is to start by skipping about a minute, perhaps two, and to increase this gradually until able to skip perhaps ten or fifteen minutes without stopping

Here I must strongly advise any young fellow to, first of all, get in the ground work by getting the muscles into good condition, as per the earlier part of this book.

The skipping may be done, first three to five minutes, then a minute's rest, then skip again.

Endurance or stamina takes a different form with many athletes. For instance, a runner may be able to go ten miles, and yet be unable to go ten rounds without distress in a boxing ring. A boxer may be able to do ten rounds fairly easily, but be

all in, with half an hour catch-as-catch-can wrestling. The wrestler who can go for an hour may find it very difficult to last six rounds of boxing, or to do a couple of miles running. This, of course, is not always the case, but it is not an uncommon fact. The truth, no doubt, being, in his own sphere he knows exactly how to nurse his energy, but when working out at another sport utilizes too much, from inexperience. Another cause is structural build.

Shadow sparring will give stamina or wind, legs and arms working in all directions, call on one's reserve to a great extent.

In either of the foregoing change direction, and vary the moves frequently.

In training for running it is always necessary to train by running a greater distance than that to be run in competition.

A couple of miles daily, a few hundred yards running, a few more at a sharp walk, then another sprint, and so on will maintain one's wind in good shape.

If training for wrestling or boxing it is always advisable to drop extraneous work and confine yourself to the actual sport, a few days before the contest. The day prior might be a day of rest and general recuperation of one's energies.

Always bear in mind, that for general fitness, not for a contest, that you should never overdo things. The happy mean is everything. It is so easy to overdo, because one's mind is on the object in view, to win, and the strain on the body and organs are forgotten. BUILD the foundations.

After any strenuous work out, it is always advisable to take a bath or shower, warm followed

by cold, the latter to close the pores, or cold alone if you can stand it, and the breathing has become normal. Follow with a rough towelling.

Muscular Fatigue.

There is a difference between wind and muscular endurance. Actual stamina depends on the combination of both, and each depends on the other very largely, also on the skin.

The lungs under excessive exercise become charged with the carbonic gas created by increased metabolism of the tissues, and upon their ability to get rid of this depends the holding out quality of the muscles. In this duty the pores of the skin cooperate.

The muscles, in the combustion of tissue during hard exercise, become charged with the consequent poisons. It is the presence of this poison which causes the muscle to weary or fatigue. In fact, fatigue is a poison. It implies an excess of carbonic gas in the tissues, and the veins have to carry this off to the heart, thence to the lungs to be evacuated.

As training progresses these organs increase their ability to cope with the situation, thus gradually you gain in endurance, all the organs becoming keyed up to par. Furthermore, the rest period following finds Nature working better at restoring the tissues to order. It can be readily seen how it is that athletics, where your mind is on an object outside of the body, is a strain. In the effort to win you allow the fact that the toxic poisons accumulated in the system are embarrassing you, to recede

into the background. More effort is put out until movement becomes automatic.

On the other hand, when exercising purposely to develop specific muscles, your mind is on the muscles involved. As soon as they ache and swell under increased blood pressure, you stop. This explains the building and curative factor of ordinary physical exercise, as compared with athletics. In exercise for development the principle is to attain the ache stage quickly, and then exercise another muscle. In sports or athletics the idea is to stall off the *ache* stage as long as possible. The *mind* is kept off the muscles, and as little effort is centred on them as possible compatible with requirements; but when the ache stage has arrived, nevertheless, the needs of the sport insist on continued movement, and even, at the last, in an all-out effort.

You can therefore easily understand the necessity of building and reinforcing muscles and internal organs by some regularity in physical exercises, both in increase of size and maintenance of condition: ready for the call.

Therefore it is also seen that as the mind is on another object, and off the muscles as much as possible in, say, running or wrestling, the mind must be fully controlling the muscles in physical exercising. Increase the poundage of effort for building. Use as little poundage as possible to keep going in a sport—until the last great effort which may win the event.

If people more fully understood the difference between building work and sport or expending work, they would not ask, "Isn't physical exercise a strain?" Anything overdone may be a strain for that matter. Common sense is the big factor.

Simply because I have explained the difference, do not run away with the impression that I am against sports. Nothing is farther from my mind. I simply wish to point out the difference in *principles* dominating sport and ordinary exercise for development or remedial purposes. Nevertheless, my explanation should point a moral : Those with weakly structures should build themselves and then they may derive the full advantages of their favourite sport and lessen any possible danger. If any form of athletics is indulged in purely for pleasure and health, and not for the purpose of going *all out* to win a championship, local or national, it again has a slightly different complexion, as the required end will dominate the effects. A certain amount of anything is good. Too much is not so good, but depends on the person's natural physique and organic strength.

Here I will again point out that, in my exercises, the more the effort is localised on the employed muscles the less effort is placed on the lungs and heart. When, as in athletics, the tremendous excess of waste created from all over, and the great work entailed in the lungs and heart are considered, and then this is compared with the localised effort, mentally directed on a specific portion of the anatomy, as in the exercises in this book, whilst the breathing is maintained regular and rhythmical, the lack of heart strain is evident. Of course, everyone who is only just beginning invariably distributes the effort too widely, and very often when trying to contract, say the bicep of an arm, seem to tense the whole body in doing so, but practice will gradually teach a better control, and greater localisation on the desired point. You are sure to hold your breath

as a beginner, but do better every day and benefit will follow, anyway. In time you will be able to thoroughly tire each muscle group, and at the end your breathing will not be so frightfully above normal, a little quickened and deeper, maybe, but not in painful spasms, as results from a hard sprint or athletic effort. Do the movements with rhythmic regularity, breathing fairly easily where able. In some it is impossible to avoid a certain amount of holding the breath, and the worse your condition the more likely to hold the breath; also, of course, the greater the effort. The amount of poundage, in energy, which you send to the muscles depends on you, but it is really useless unless some real effort is made, and the movements must be as full as possible for any purposes I deal with herein.

As none of my readers will be able to put forth a greater nerve energy than the structure of his muscles and nerves allow to be carried, each will find that he cannot overdo things very well. I have purposely avoided weights in this book, as by making your own mind responsible for the weight of energy in the muscles you cannot very well strain.

If you should find yourself holding the breath in certain, or all movements, do not worry over that. If you keep at it, and try to maintain regular breathing, control of muscle and breathing will come in due course. The mere exercise of the effort alone will benefit those unaccustomed to exercise; so keep it up.

The great point in the building exercise is that you finish at that point when the highest results may eventuate, and do not pass the high-water mark and overdo it. A few minutes afterwards you feel

ready for anything. This is not usually the case after going all out in a contest. You can regulate exercise.

Constipation, Biliousness.

This book is not intended as a guide to self-treatment in remedial work. So far as physical disabilities, as from wounds, are concerned, I have prepared a small book which may be published shortly, but this will only be suitable in general for use of actual instructors.

As, however, I have written it for the mental worker largely, as well as for those seeking development, and as the greatest worry of the sedentary worker is liver or constipation, I am adding a few words on this subject.

It is impossible to put in any book, at any price, any method of teaching the ordinary person how to diagnose his own limitations and prescribe his own remedial work. This refers more especially to physical disabilities and organic disease. These cases must have expert supervision. No one but a charlatan will claim anything more for any book.

The Canadian Army Gymnastic Staff have a small remedial text-book practically completed, but this is solely for use of their own instructors and deals with disabilities rather than this type of trouble.

Nevertheless, in some matters much can be done by any person to remedy *functional* disorganisation such as constipation, liver trouble (biliousness, &c.), and, as before stated, brain fag, nervous debility due to excessive brain work, and kindred troubles.

The system of exercises arranged in the earlier pages will have great effect so far as brain and nervous trouble is concerned, and in many cases of indigestion.

Naturally, in all ailments, some persons always require specially arranged individual courses, and should communicate with a specialist in physical training if their cases are non-surgical or medical. Make strict enquiries, however, before consulting the physical man, as it is not every self-advertising specialist who really knows the subject. Many men who make a good living off the public as physical culture specialists, offering to cure all and sundry, gained their original reputation in the realm of athletics or sport—which is absolutely no criterion. Many of them have but a moderate education, and little, if any, physiological knowledge. True, we sometimes see advertised that one of them has written a book, but—if it is like the usual book written by many champions, written for them, and a royalty or sum of money paid for their name—they cannot act as a proof of remedial knowledge. I mention this because there are types of trainers, types of instructors, and personal athletic prowess should not be confused with the knowledge of the scientific student of physical education. The actual scientific physical specialist should have a knowledge of advanced anatomy and physiology almost of that of a medical man, but with this only difference, he has studied exercise and movements for cure or building, instead of the *materia medica* and surgery.

It was quite common, not very long ago, for someone to take a weight-lifting or wrestling championship, open up a school and system of training, and the next step would be an advertisement stating

that he would give an "instructor's course," and after a while a beautifully embellished certificate would be forwarded—by mail, usually. Do you really think that this qualified a man? It was pitiful sometimes to meet one of these qualified and certificated instructors, especially if a few physiological references were made, sometimes even of the most elementary character.

The people in general seldom think over every phase of a matter before embarking on it. If such certificates were confined solely to "training" in a particular sport, no particular harm would be done, but when they were certified as "curative" or "remedial" instructors, often after a few months under this man who was himself unqualified, to be handed a certificate granted by an *individual*, is positively discrediting to any legitimate practitioner in remedial gymnastics. Physical culture in ignorant hands may well be harmful to men with certain organic troubles, and functional troubles require experienced treatment, to say the least.

To put this matter shortly. Because someone has an 18-in. bicep, has put overhead 250 lbs., does that indicate his brain capacity? Does it show a knowledge of the intricacies of the human body? If so, go to the strongest blacksmith you can find, and be treated by him. (He may be a weight-lifting champion in embryo.) On the other hand the work is altogether different to the medical man's training either psychologically, physiologically or remedially, the study being from a different aspect.

To return to the subject of constipation. If at all chronic the only forms of exercise which reach the trouble are those combining movement with massage effect, such as those shown, lying on back

and raising body or legs. Many additional moves may be made, such as going through cycling movements with the legs, whilst on back, bringing thighs well into the abdomen, turning the trunk on the hips, whilst sitting, bending sideways, and also stretching the trunk fully. Add deep breathing.

It is frequently found that walking does not help the bowels much, this, no doubt, because the blood is drawn from the intestines. Skipping or other movements which shake the abdominal organs produce results. So does horseback riding, trotting when bumping the saddle.

Kneading the stomach, as stated elsewhere, I think, helps; also vibratory and shaking movements with the hands, working from right groin, up to ribs, across the umbilicus (navel), down to left groin, thence to right. Repeat.

The above will also put the liver right generally, especially if a towel is twisted and pressed up under the right ribs as the circular move is made. The stomach on the left side may be treated similarly.

If a rare pill is taken you benefit, but do not get the habit. If this habit threatens, go without the pill for several days, trying plenty of exercise instead.

Psychological Effect of Sport.

There is no doubt but that a nation which excels in any type of what may be termed international sport has a confidence and assurance which goes far in maintaining the position of that nation in the world.

Much has been written on the international friendship which may be maintained through the medium of international games.

More might be written on the psychological effect on the nation which excels in these games. A reflex result appears, tending to give such nation a sense of confidence, of supremacy in matters entirely outside the realm of sport.

In years past the British supremacy in the ring had such a mental stimulus on the race that, even those who never had a boxing glove on were imbued with the firmly rooted belief that the average Britisher was equal, at least, to two aliens. This effect is not confined to the British. The later supremacy of the United States created just that belief in the ordinary American citizen. In a sense this belief is a valuable factor in the make-up of a nation. Even a coward will fight where his self-pride is concerned, and in the same way a nation's tenacity is increased by a belief that as a race they are a superior type to others. It adds to the morale of a nation. The sense of hurt pride, which would result from a defeat, is accentuated in any man (or nation) who was previously under the impression that he was a better man than his opponent, and thus, in a difficult situation, this sense stimulates to further endeavour.

So long as actual supremacy individually and nationally, in games, is maintained, all is well, but there is always the tendency, in the passage of years, for men and nations, to rest too much on the laurels of the past, until confidence is based purely on an empty shell. Thus disaster is invited.

If we delve into the past and ascertain the underlying factors which made Empires, which elevated

certain States over others, or rendered them more or less immune to enemy attack, we find the factor which forces itself most to our notice is the spirit of the people.

The youngest reader knows the history of Greece and Rome, how they in turn dominated the rest of the world, and in turn lost that dominion. It is interesting to note that, in the height of their power, their patricians, also the poorest citizen, not only patronized the sports, but, and this is of far more importance nationally and individually, took part in them. As soon as they dropped away from actual participation in the contests of strength, skill, and stamina, and were content to look on whilst alien mercenaries, or even slaves took their place in the arena, so too do we find these States decline. The reproduction of *Ægis* gives a good example of the fact that the highest born cultivated the body.

At this point it may be urged that our statesmen, business men or artificers cannot copy the Greeks, or go in for sport, lacking the time. No man can plead inability to do a quarter of an hour's daily exercise for his health's sake, and for the stimulating effect on his brain when throughout the ensuing day he senses a greater ability to conduct his affairs in consequence.

Further, few men do not have some spare hours throughout a week in which to indulge in personal effort in some sport to which he has the most attraction. The psychological effect is too well proven to be neglected.

In mediæval ages, when warriors were common, knights and men-at-arms spent much of their time in practising the use of their arms. They did not confine themselves to practice or parades only but

practised in friendly bouts arranged in the court-yards or on the greensward. The weak went to the wall, and it behoved every man to become a master of one weapon or another.

To-day the parallel should be adopted, and some game or sport followed, simply to give the muscles necessary work, the system a rest (for a change from manual or mental work to some sport is a rest to the system). The infrequency of participation in games forces on us the need of the daily muscular exercises, to be taken in the privacy of our own homes.

After all, the man who is mentally-physically balanced is always dependable. No matter how clever a man, if his brain power, as an asset to a nation, or to his family, is dependent on a weak, ailing or doubtful body, there is a modicum of chance which might so easily be obliterated.

Exercise of to-day is no longer in the ignorant stage. Thirty years, or less, ago you would be advised "Take exercise" by your physician. To your query, "What exercise?" the physician, in his dilemma, would reply, "Oh! h'm! well, try horseback riding." If you weren't used to riding, and bumped the saddle at the trot, you had your liver and abdominal organs shaken up anyway, but that wasn't real exercise. The same trouble affected walking, at least it had its limitations; it drew the blood from the abdomen. I have repeated myself elsewhere in the above, I notice. True exercise should not only be a muscular effort, but should bring into play the active principles of massage; hence the beauty of full contractions and full extensions under mental control.

In the necessity of re-creating the old offensive spirit, active brains and physique caused by the Great War, a check was placed upon our tendency to decline.

No war could be won without those essentials, and the need of a special organisation to maintain these has always been apparent.

Having been connected with the Canadian Army Gymnastic Staff I could not but see that the principle underlying everything undertaken is the "psychological." It is not within the sphere of this book to draw a comparison between methods, but simply to say that the main driving force and the ultimate result is the psychological almost more than the physical. The physical is so obvious, the physical follows if the right steps are taken to maintain the correct psychological factors. Whether the correct psychological factors are maintained depends on the method adopted.

Whilst the physical is an absolute essential to the victorious issue of any war, nevertheless, the psychological is a greater factor. Napoleon stated that the moral is as three to one to the physical, but this must be taken with some reservation, of course. The perfect blending of the two is the actual essential, with a slight percentage in favour of the moral. Too much either way affects balance. The man who is all courage and weakly body is surely thrashed by the powerful man with slight courage but who easily sees his physical advantage.

We have wandered slightly. To return to my own point. We must give physical training its due position. *We must no longer think of scientific physical culture specialists as those types of bygone years, "a*

pair of boxing gloves on one side and a mug of beer on the other." This type may still exist, or even the weight-lifting type pure and simple, but the public and the Government must learn to differentiate. Further, we must give physical education the honourable place which is its due, as the equal of mental culture, and the physical specialist who has proved himself should have the same opportunities and status as those who are entitled to the letters LL.D., Ph.D., M.D. *ad infinitum*. Unless the work of these genuinely scientific men is recognised we shall sink back again into the unbalanced condition of the Greeks who, losing their physical side, and devoting themselves to the arts, became so deficient physically that they were conquered by the Romans. It may be stated that physical education is recognised. Yes, but seldom in the status it ought to occupy. Many a medical man would barely repress a shrug of superiority, a professor of mathematics might not do so, because it in no way touches his work, but on the other hand he might. It is this *belittlement* of a splendid profession which must be obliterated if the race is to maintain its mental-physical poise. But for the work of the gymnastic staffs of the nations involved, the war might well have been lost, but from a national point of view the whole edifice of our future status and power as a race will depend on giving scientific body-building its proper place.

British Army Commanders have stated that the offensive spirit of the troops was largely due to the work of the gymnastic staffs. Such is the effect of their physical training. Confidence in a weapon, confidence in their muscles, all beget confidence in an ultimate issue.

The man in health, with a reinforced physique, does not have visions of nervous debility interrupting his mental work at business. He has no cause. The mental worker who lacks exercise seems to have these visions at some time or another, and often finds these visions develop into fact. The moral is obvious.

If you have had much to do with a man who has not been in the habit of exercising, or indulging in sport, who happens to take up with some particular outdoor sport, have you noticed any difference in him of late ?

If he is keen enough to follow it up with any regularity, notice the effect week by week. At first a self-effacement of the novice, then a gradual growth of a certain self-assertion. Perhaps he equals, or beats some mutual acquaintance ; note the tone of voice as he informs you, it may be modestly quiet, or rather triumphant, quietly pleased, or loud, but beneath it will be found a growth of confidence. This extends beyond the sphere of sport. Such is the psychological effect and beauty of sport.

Whilst watching a game may beget enthusiasm, or, as I have seen in watching a boxing contest, a growth of fighting spirit, an itch to be in the ring, yet only by active participation can one get the real results. Whilst the relaxation of watching a baseball, football, or cricket match rests one's nerves, it cannot be compared to the effect on those participating, whose muscles and mind have been involved, whose nerve and blood circulation have been accelerated thereby.

If your muscles are in good condition, and you have felt depressed from mental work, 15 minutes work out on the wrestling mat, followed by a cool sponge

down and rough towelling, will send you back to your mental labours with a sense of stimulation only equalled by a woman who indulges in a refreshing cup of tea after a day's shopping. It has been stated that some races confine their principal sport to that which tends to bring out the callous and brutal, and to stultify the humanitarian feelings. It is said the Huns slashed the faces of all male children that they might early be introduced to pain.

We hear of bearing pain like a Spartan. Many ancient races followed cruel customs with this view, having some rude idea of the psychological effects, but it does not always follow that results come as they expected. Even to-day the Zambesi tribes, or some of them, knock out the two front teeth; but this can only be from a perverted idea of beauty, for they are not noted for courage.

The German of later days depended largely on the German form of duel, and proud was the student who possessed a cut cheek or a missing portion of ear.

The best results have ever been found, in finding the energy outlet and the physical returns, also the moral result from body-building exercises and healthy games, especially those forms of sport which harden and build naturally.

To give them their due, there were a larger number of the heavily-muscled type of athletics who hailed from Teutonic races than elsewhere. This probably because of natural structure, and because of following out the weight-lifting and Græco-Roman form of wrestling, but whilst these were numerous as compared with other nations, for some strange reason they did not take up those forms of sport which tended to the receipt of harder blows and

knocks, such as boxing and catch-as-catch-can wrestling. These two latter call into play a higher order of the psychological, for added to the exhilaration of personal contest and test of skill, there is the certain eventuality of bruises which are unnoticed by those trained to look on them as mere details. Anyone who has indulged in either of them to any extent, even in an amateur manner, emerges in time with a wonderful sense of *self-confidence*, and a contempt to ordinary falls or accidental blows.

The greatest psychological result of the sport of the British, whether boxing, polo, cricket, or other games, is the sporting spirit, the ability to win or lose as a gentleman. It is to be hoped that this spirit will never die out, whether winning or losing, a never to be lost sight of fact. to act as a gentleman. That the business spirit has threatened to kill this is true, therefore all that is possible should be done to maintain amateur sport, for rarely can money enter into sport, and the contestants retain their sporting and gentlemanly characteristics. The spirit of barter, or of self-profit, cannot mix with *clean* sport. Oil will not mix with water. To win for the honour of winning, or for a club or country, is a vastly different ideal to winning a purse.

Further, professional sport gradually pushes out amateur sport, and in consequence only the very physically fit get the benefit of what they do not require (exercise) so much as do their less well-endowed brothers. In making these observations the writer recognises the fact that many professional boxers or wrestlers are clean and square, but this does not lessen the danger referred to.

Let us therefore encourage all, weak or strong, to take up sport, and not simply the mercenary and

physically well-endowed few. Through games may be born that submerging of individuality for the good of a common community. Take up any encyclopædia and get an insight as to the philosophy of the Stoics. Note the good footballer. Note the man who is a brilliant forward, but whose sense of individuality so blinds him to the needs of the game, as compared with his own desire to exploit himself, that he risks losing the ball to the opposing side, hoping to make a brilliant, and consequently much applauded run through, instead of taking the more successful method of passing it to another of his own side who happens to have a clear field before him.

I do not wish to eradicate individuality, for the man of strong individuality is a demi-god among men. On the other hand, the man who can be relied on for his personal strength of individuality will readily sink himself temporarily to a common success. In this lies his actual strength. The ability to judge, when and how, to either sink or exert individuality might be called the true balance of appreciation of what we call sportsmanship. May the Anglo-Saxon race never allow this glorious and much-appreciated characteristic to disappear.

How much we admire the loser in any form of sport who, having played a fair and honourable game, or contested squarely, turns to his conqueror and says, "Old man, you played a splendid game, and I thoroughly enjoyed it."

Such is the sporting spirit—the real gentleman.

How differently we think of the man who immediately commences to make excuses for his lack of success.

Need of a National System.

“A nation’s greatest asset is her people and the condition of that people,” is indisputable. Without the people a nation is non-existent. Upon the vigour of her people is based her power and wealth. Money, shipping, manufacturies, commerce depend on the people. The strength of these factors depends on the virility of the people, and mind, energy, health, business acumen all depend on man’s physical efficiency.

The following is an old article written by me years ago.

In referring to articles of the past, I was also reminded of the stonewall of red tape, which to the unbacked citizen is impenetrable. One’s own failure to make an effect together with the slantwise glance of other citizens who sentence one to outer darkness and the cry of “Butt-er in !” or “Who on earth is this fellow who arrogates to himself the province of adviser ?” tends to make each man a good imitation of an oyster. He will bite on his opinions. As a result, much is lost in our advancement, for out of the community of intelligences merges a dominating factor, just as the combining of the forces which cause atoms to adhere or cohesse into particles creates a governing force dominating the whole. So the suggestions of the everyday citizen may add their quota to public welfare if spoken, but is impossible if unheard. The cry of “Egotist,” however, is warranted to prevent many from voicing valuable suggestions. Silence is golden, sometimes.

Nation Depends on Individuals.

The indisputable theory that the power of a nation depends on the condition and energy of her people behoves us to face facts practically. Among a race of pigmies the master is he who has the most inherent strength. The leadership, however, awaits him who makes himself stronger than the pigmy. Leadership awaits that nation which goes to the foundation and builds it. A healthy strong people as the foundation means a nation strong in finance, commerce, war if necessary.

We take more pains over the condition of coat or physique of a race horse than we do in fitting out citizens for the battle of life. In fact the cultivation of a national or individual physique is left to private enterprise.

Yet in such an important matter, the best brains and educated intellects of the country should be employed. The more strenuous the battle of life, the more rigorous rivalry in international commerce will require a proportionately increased national efficiency. The root principle of the whole necessarily must be physical training on which national energy and effect primarily depend.

Elderly men of conservative tendencies do not, or cannot, appreciate the immense strides in physical culture as a science. The physical specialist (not the ordinary instructor or trainer) requires an absolute knowledge along physiological lines, substituting for the *materia medica* a study of scientific mechanical therapeutics. Necessarily there are

those whose researches discover further improvements—this is a law of life—every generation a further advance, scientifically. Yet, a quarter of a century ago, physical education was very crude after the period of absence since the Greek era as a systematic factor of education.

Chairs of Physical Education.

Physical education should not be merely a part of school curriculum. It should be established as a distinct and important factor in preparing the young for the future citizenship. Every school should have its teacher qualified in physical education, as are the teachers in French, trigonometry, history.

Our universities should have their chairs for physical education, the importance of which should be recognised in the status of the professor. These chairs should be occupied by the highest experts in their work, men trained not only through practical experience, but in theory. The main principle of their teachings should be the underlying factors, not superficialities so common in ordinary institutes. Fit the pupil as master of himself, dependent on no one for physical perfection, save his own energy and effort. If, with the knowledge of "how" he fails to maintain its uses he alone is guilty, not the community.

There should be degrees of physical education, as there are degrees of medicine. The one heals, the former builds, makes strong and keeps strong, and such is the future value of each individual's energy

and physical abilities to the community, that it must be a national matter of first importance.

It is perhaps needless to point out that, just as medical science, art, or military factors are improving, so too is the science of body building. Merely because an instructor knows a thousand exercises, or because he has an enormous muscular physique, is absolutely no criterion that he can produce results quickly and permanently on those he teaches.

The whole secret of an instructor's ability is whether he can so teach as to make the pupil understand something more than the rhythm of a movement, that something more is the control of the particular muscle involved in producing the movement.

No New Movements.

It is impossible to get new movements, or exercises, for the body has probably consciously or unconsciously made every move found in every system on earth at some time. Since the time when Greeks paid more attention to physical education than mental education, we have found no new movements. Movements are therefore a negligible quantity unless governed by a factor which only the scientific student of physical education fully appreciates and fully understands, and few of these may be able to teach the factor so as to be immediately illuminating to the pupil. An important point is this. *Spectacular exercises, or appealing to the gallery, will not benefit the national physique.* If the

nation does intend to formulate a national system I hope and pray that the mental factor will not be shelved because it cannot fit in with spectacular work. The mental effort is not to be so involved in the intricacy or direction of a series of evolutions as to be unable to concentrate on the muscles involved. By all means have spectacular evolutions, and movements of arms and legs, but do not let them take the place of real physique-building exercise.

Flexions and Extensions.

It is astonishing the number of mistakes made as to which are extensions or which flexions of a joint. This occurs owing to the fact that certain muscles are generally referred to as flexors, others as extensors.

It is frequently forgotten, apparently, that some muscles which flex a joint may also be accessory extensors of another joint. It is proposed, therefore, to give the movements of flexions and extensions of each joint, unnecessary though it may seem to many.

In giving details, say for military drill, it is usual to start from the feet up. It is not proposed to give the muscles in detail, but simply the principal muscles for the purpose of explanation.

A mistake made by a medical man, as well as a remedial gymnastic instructor, was the interpretation of the flexion of the ankle joint. When this joint is flexed by the action of the tibialis anticus (anterior part of the leg, at side of shin bone) by

this action the os calcis, or heel, is extended, and this is probably what causes some people to refer to this action as extension, hence the flexor tibialis is an extensor of the heel when flexing the ankle. In thinking of flexions or extensions one should think of the joint concerned, not the limb. Then a little thought will establish whether a muscle is acting in its principal capacity, or if as an accessory, so to speak. To extend the ankle, the foot is carried downwards, *i.e.*, the toes farthest from the shin, by the action (contraction) of the gastrocnemius and soleus muscles.

The toes are flexed by curling them under the foot, by the flexor communis digitorum ; they are extended by the extensor communis digitorum, and hallucis muscles.

The knee is flexed by the contraction of the hamstring (semi-tendinosis, biceps, semi-membraneosis), back of thigh. It is extended by the action of the quadriceps (front of thigh).

The hip joint is flexed by bringing the thigh towards the abdomen, by the action of the iliacus, psoas, sartorius, &c., and the abdominals. It will be found that the quadriceps (extensor) are also brought into play as accessory.

So with extension of the joint, the glutei (buttock) muscles carry the thigh back, but if you stand on one leg and carry the lower limb straight backwards, then feel the biceps of the thigh, you will feel it strongly tensed. Here a flexor is acting as an extensor. This will be felt more if you lie on a table face down then carry the lower limb upwards, the bicep and glutei become tense. The

backward move of the thigh has been referred to as flexion, the speaker having in mind the flexor muscle, the biceps probably. Then the hamstrings are true flexors of the knee joint, and accessory extensors of the hip. The glutei are the true extensors of the hip. If lying on the back and you desire to bend the waist to rise to a sitting position, or if you rise with a straight back, you will feel the contraction of the recti abdominals under your fingers by placing the hand lightly on these muscles. To flex the thighs on the abdomen (hip flexion, which extends to a waist flexion, that is "bent spine") the recti and the extensors on the front of the thigh are felt to tense.

Finger flexions, or flexions of the phalangeal and metacarpal joints, is known to everyone without explanation. It may be pointed out that we sometimes hear of dorsum flexions, the extreme *extension of the wrist*, which brings the back of the hand in closest proximity to the forearm. The flexion of the wrist brings the finger tips and palm of hand towards the forearm by contraction of the flexors of the forearm.

The elbow joint is flexed by the biceps, brachialis anticus, principally, extended by the triceps. It is not intended to deal with the muscles employed except for the purpose of pointing out which is flexion of the joint or extension.

The shoulder joint is different to the others and offers some difficulty to the beginner to determine which is flexion and extension. In ordinary conversation, if you ask a man to extend his arm he carries it straight outward, probably towards you.

The actual extension of the shoulder, according to some anatomy text-books, is to carry it straight back by the action of the posterior deltoid, *teres major*, *infra spinatus*, *latissimus dorsi*, *triceps*.

Flexions of this joint, on the other hand, is to carry the arm (humerus) forward and inward by the action of the pectorals, anterior deltoid, *biceps*, *subscapularis*.

Abduction carries the arm away from the body, laterally. Adduction, of course, brings it back to the side of the body. Needless to say, if giving a command, in which you wish a patient to carry his arm straight up sideways, or forward, he will fully understand what you require if you do say, "Extend the arm sideways, forwards, or upwards," or "Stretch (or raise) the arm out straight in line with shoulder to front or side," and so on. To him there is no need of going into the phraseology. To instructors, however, who have to study the physiology of movements, these few explanations of flexions and extensions, as they concern him, may be useful.

As both shoulder and hip joints have circumduction and rotation (also abductions and adductions, as explained with the shoulder), and they are probably understood, it is only necessary to say that rotation is simply the rotation of the head of the humerus within the socket, and circumduction is the circular move made, for instance, if one stood on the left foot, then with the other leg straight, made a large circle on the ground with the right foot. The terms elevation or depression are too universally understood to need explanation.

Privilege.

If one asks oneself "By what right do you put your ideas on paper for public perusal?" one treads on delicate ground.

If there is one thing which spoils the usual book on any phase of physical training it is the autobiography which seems to be the invariable follow on, in American parlance—the advertising stunt. I suppose, in the ordinary business brochures, issued free, a certain amount of horn-blowing is pardonable, in view of the fact that one is left at a disadvantage, if we refrain, whilst others push their own wares. Such is the susceptibility of the average public that they give the most kudos to him who blows the loudest horn. Unfortunately the charlatan is a pretty useful person on the horn, and it is not so easy therefore to differentiate twixt knowledge and pretence. If the enemy use asphyxiating gas, we are forced to do so to be on equal terms.

I do not think I should have ventured to write this book unless I had experienced something of each subject. To hurry over a tender point I hardly know, now, why I have indulged in gymnastics, weight-lifting, wrestling, or other forms of athletics in the past except as a hobby or sport, not, I think, with any idea of championship laurels or vaudeville purposes. When, years ago, I passed a well-known examining body as a diplomaed gymnastic instructor, it was hardly with the idea of following it professionally, perhaps, for I have never adopted the ordinary gymnasium instructor's vocation professionally. The same may be said, I think, of

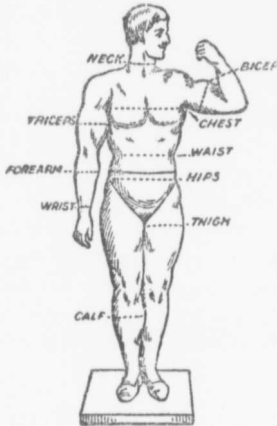
undergoing a course in mechanotherapy ; it was done more in a sense of "research," if I may use that word, with the idea of omitting nothing which might be useful. I did many things as an amateur. I might have had ideas of following medicine, but as a matter of fact circumstances caused me to take up the work of a physical specialist for muscular and remedial purposes. In other words, as a consultant physical culture man. In this capacity I have studied facts, more for their possible utility, in the benefit of other people, than with a personal idea of blossoming as an athlete of repute on or off the stage. The whole thing may be due to curiosity (that woman's ailment), a desire to get to the bottom of things.

However, in view of the fact that you, my reader, would not be helped if I told you I had a bigger chest or arm than you, nor by giving a glowing account of athletic or muscular successes, such a proceeding is needless. Any good you may get from me will come from my head and not my muscles. None the less, as no man has a right to speak or write authoritatively on this subject, unless he possesses in his knowledge, and in his muscular development, sufficient proof of having practised what he preaches, I will say that the reader may be quite satisfied that I have not written on any matter of which I have not had a pretty good theoretical and practical experience.

The exercises and principles given in the earlier part of this book are protected, as an actual part of my own copyrighted system, since 1912, but believing that thousands who need just that knowledge cannot afford a large price for some elaborate system, which will not give as good results, I gladly put them before you in the hope that my

fellow-citizens will have the commonsense to get the habit of their daily use. *Pro bono publico*. You will get as good results, and probably better, from them, as by foolishly paying several pounds for what you can easily acquire with will power and stick-to-it-iveness. This, of course, refers to any ordinary person. In any chronic trouble, a letter or a visit to a competent man does no harm, anyway. Personal advice is always an advantage; it seems to supply faith, if you haven't enough will power. If I could be sure that some few, or many of our prominent men, on whom so much depends in so far as the future of this, our Empire, is concerned, had taken up daily exercise, as a result of what I have written, I should be well repaid. We all have our part to play, and this is my only apology for writing.

Measurement Form.



At Commencement.

Neck
 Biceps
 Forearm
 Wrist
 Chest
 Waist
 Hips
 Thigh
 Calf
 Weight
 Height
 Age

Second month.

Neck
 Biceps
 Forearm
 Wrist
 Chest
 Waist
 Hips
 Thigh
 Calf
 Weight
 Height
 Age

Third month.

Neck
 Biceps (upper arm)
 Forearm
 Wrist
 Chest
 Waist
 Hips
 Thigh
 Calf
 Weight
 Height
 Age

III

I have purposely left out any form of "anthropometrical" measurements; in the past I have had men "worry" over their lack of weight in proportion to height, age, &c. More often than not there was absolutely no need for this foolish worry—there are greyhound types and bull-dog types, but neither are standard, and we may have men, almost *match-like*, as we often hear expressed, whose health is perfect because they are quite normal to their peculiar type. "Worry" is a beastly thing, and there are too many real troubles to worry over. Get the habit of happiness and philosophy.

NOTE.—So far as the author's development is concerned we can say that at 140 lbs. nude he has wrestled heavyweights and never been put on his shoulders, has run around a room with a 6 foot man overhead, and has an exceptional muscular development.