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BREATHING
FOR HEALTH · ATHLETICS AND · BRAIN WORK:

BY

Eustace Miles

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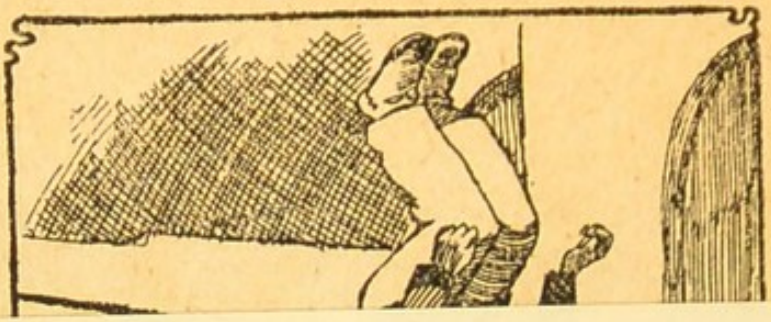

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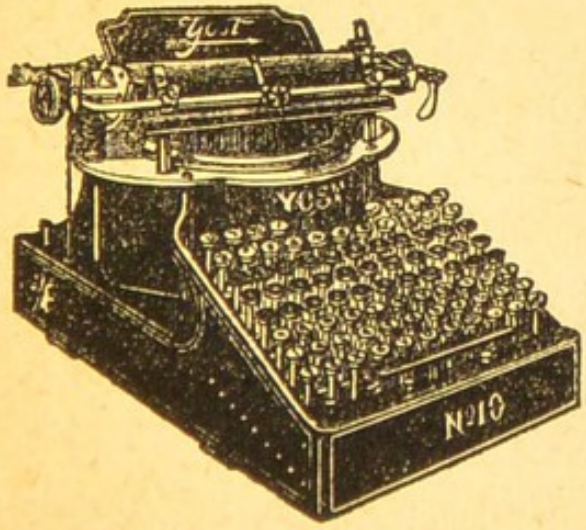

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(*Vide* letter 3rd September, 1904.)

BREATHING FOR HEALTH, ATHLETICS, AND BRAIN-WORK.

BY

EUSTACE MILES, M.A.,

Formerly Scholar of King's College, and Honours Coach at Cambridge University; Amateur Champion at Racquets, 1902, and at Tennis, 1899 to 1903; Editor of Cassell's "Physical Educator," etc.; Author of "Muscle, Brain, and Diet," "Quickness," etc.

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PREFACE.

We must all breathe, whether we are eating, drinking, working, or resting. Better breathing, as a general and a remedial exercise, is a practice of the greatest importance, since to-day we have little opportunity for other exercise, and we have abundant opportunity for mistakes in eating and working, and even in resting. So great is the strain of nervous competition, so hampering is custom, it behoves us to take all the more care of that part of our lives which we can certainly regulate.

Now about the importance of breathing and speaking for professional speakers there is no need to say much. Most barristers, business-managers, lecturers, preachers, and teachers obviously need to breathe better and to produce their voices better than they do, even if a few are by nature masters of the art. But for the ordinary person it is scarcely less important to breathe better and to speak better.

True, the genius-speaker speaks well, he knoweth not how; the genius-breather (and he does exist) breathes well, he knoweth not how; but I am not writing for genius-speakers and genius-breathers, nor, indeed, for any self-satisfied persons; I am only writing for speakers and others who wish for health, physical development, athletic success, intellectual success, enjoyment of life, and, last but not least, improved appearance and greater attractiveness.

And I write especially for those who do not care to devote several hours a day to practising.

Breathing is a form of exercise and training that is well adapted for many odd moments when other "Courses" and "Systems" may not be possible; for instance, you cannot practise a Sandow spring-grip dumb-bell course without conspicuousness as you go out of your front door to your morning's work. You can practise better breathing at this and a hundred other times during the day—say as you walk in the street or sit in the train or in the tram—provided that the places are well ventilated. Here you are not likely to go through a Swedish or any other system or to perform

movements with fixed apparatus ; but here you have fine opportunities for the practice of better breathing.

The values of this easily cultivated art are among the highest in all physical education and life. They can be compared to those of better, that is to say more thorough and leisurely, eating ; but better breathing is a still more precious art in so far as breathing is a still commoner act of life than eating.

The many values and advantages of better breathing will be pointed out in this book. The work that is done by the lungs during the day is prodigious. We exercise them powerfully even when we sleep, sit, stand ; more powerfully when we walk and run ; and, even when we think in certain ways, we increase the number of breaths and their volume. Now to be able to add extra inches to your breathing-capacity, and so to take in more oxygen and vitality at each inward breath, and to get rid of more carbonic acid, more fatigue-stuff, at each outward breath, is a power which by itself claims very careful preparation. One can scarcely over-estimate the good effects of better breathing, since, let me repeat, the movement is regular and habitual : instead of being confined, like playing a game or swallowing a meal, to a few hours in the day, it goes on all through the twenty-four hours.

It is not merely a matter of oxygen and carbonic acid. The movements of full breathing will alternately free from pressure, and massage by pressure, the digestive organs below the lungs, and have a good effect on other organs as well, including the neighbour of the lungs, the heart. For that huge muscle, the diaphragm, serves as the floor of the heart and lungs and the ceiling of the stomach ; on the storey below are the stomach, liver, and spleen ; below them are the intestines and sexual organs ; and behind are the kidneys.

Better breathing tends to greater energy and enjoyment, and undoubtedly also to the increase of the general attractiveness, to an extent that scarcely any of us yet realise. Think for a moment of the power of the voice, of the well-produced voice, think of its influence in speaking and singing ; then think how much of its power must depend on the way or ways of breathing.

I wish to appeal to all incentives of action. Stop for a moment and realise your ambitions. What are they? Recall as many of them as you like—some in the immediate present, some in the distant future. Remind yourself of these from time to time. See how better breathing will help you to realise them. See how a sensible practice at odd times will help you to realise them. Then map out your odd times and remind yourself once again how the simple exercises will help your ambitions. Do not practise simply as a dull duty; practise because the practice will help to give you what in the whole world you most desire. Practise also with the certainty that you will be able to find out for yourself by your personal experience far more than I, a mere beginner, can tell you.

I am not writing as an expert, I am writing as myself a practiser and a learner; perhaps as a learner who is only at the first stages of his learning. But at least I have been helped by what I have learnt and carried out hitherto; it is greatly owing to the practice of fuller and then relaxed breathing that I have gone far to overcome the nervousness and worry which are, beyond doubt, so fatal to health, to athletic success, to correct development, to brain-work, to the *joie de vivre*.

When I first began to study the art or arts of breathing, I had not a clear picture of the processes. The description of the organs may, similarly, leave little or no impression on the reader. In this book I wish to teach to a great extent by comparisons. I devote a whole chapter to them. I compare the breathing-box, in which the lungs are, to a room with elastic floor, walls, and ceiling. I compare the lungs to a sponge or an india-rubber bladder. Such comparisons are not new, but without them it is hard to "sense" the complicated machinery that is within our bodies.

I have not fallen into the very common error of saying that it is a simple mechanism and that there is only one kind of breathing; there are many kinds, somewhat as there are many kinds of memory. Each kind has its own particular function, being appropriate for its own particular position of the body and occupation and

so forth. You tend to breathe in one way when you lie down, in another way when you bowl at cricket; each way has its own merits, each is worth training for, if you have not that particular way already. There are some who despise the lowest way of breathing; they say "Never send down your diaphragm, never send down your floor, as it were, to press in on the lower storey, the stomach and liver." But by sending it down you may massage those organs and help them to do their work. On the other hand it is equally important to practise that form of middle breathing in which this huge diaphragm is held up, while the ribs are sent outwards to the front, the sides, and behind; for you will thus relieve and free your lower organs and not squeeze them continually. You must practise the sort of breathing which you most require.

If any kind of breathing of yours is atrophied or weak, it may not be so much the lower or middle or upper breathing; it may be rather the breathing with one side of the lungs or with one nostril, probably the left; in that case do not always exercise with the two sides together, standing straight or lying straight as the authorities advise you, but practise the weaker side and bring it up to the level of the stronger. In this book I have suggested a number of one-sided exercises. If you think for a moment you must agree that this branch of physical education has been sadly neglected—this art of using one side while the other rests relaxed.

Suppose you are writing. Now, unless you sit perfectly square and practise upright writing, you will find that you are cramping one side, and breathing with one side rather than the other. You ought to try to avoid this while you write, and to remedy it between whiles. You ought to keep your left hand as relaxed and easy as possible while you move your right correctly. You ought to learn to relax your left hand. A special kind of breathing will aid you to relax it.

It may surprise you to hear that those who are intent simply on gaining muscle may be helped by such a kind of breathing. We are so apt to regard breathing as nothing more than the art of taking or inhaling more

oxygen, and to forget that it has many other functions.

The full art is not merely a matter of inhaling oxygen; it is a matter also of inhaling light through as much of the skin as you can, and a matter of inhaling water through as much of the skin as you can, and perhaps especially through the nostrils, which are likely to become clogged by our city-life.

Another error I certainly have avoided. There is before me a book on breathing, in which the author tells what better breathing has done for his all-round health. Every other means to health he utterly disapproves and pooh-poohs. "Correct breathing," he says, "is sufficient for all persons; never let them bother about anything else." Now I do not regard better breathing as the sole avenue to health. I regard it as one avenue to health, and only one. The others will be or have been described elsewhere. Here breathing is thought worthy of a book to itself, not because it is a self-complete and self-sufficient avenue to health, but because it is one of the most important physical avenues, if not the most important. It is the commonest act of life; it is the easiest to practise at odd moments; it is the least depressing (leisurely eating may be rather a depressing act); it is the worst done by most people; it may be most all-round in its effects.

We all aim at more satisfaction. The best kind of satisfaction is that which comes through pursuits that harm no one and may help many; such a pursuit is the study and the practice of better breathing.

Its effects on the mind have been underestimated not only by the public at large, but also by those who have been fanatics about some special way of breathing, perhaps the lowest only, perhaps the middle only, perhaps the upper only. One of the effects upon the mind is an effect which breathing shares with nearly every other form of expression—for instance, with the attitude and facial appearance, which are also forms of expression. Take the attitude and the facial expression of calmness, holding them for a minute or two, smiling perhaps, but anyhow not "gripping," and let yourself go to this expression so that it may work its sweet will

upon you, and you will almost certainly find that there follows a feeling of calmness. Secure the physical expression, says Professor James, of Harvard University, and keep to it, and, we would add, submit to its influence, and you will get the corresponding mental emotion.

Least known of all the kinds of breathing is the one which is the expression of repose—the relaxed kind. Ordinarily you are told to inhale in this way, or in that way, or indeed in all ways, with some effort, and to exhale, perhaps with some effort also. The Delsartean kind is the full or nearly full inhaling followed by an exhaling quite without effort—very slow, very leisurely—during which you relax your hands and arms and face and head and spinal column more and more and more. You become limp and passive. This kind of breathing may have the profoundest effects upon the whole of life. Needless to say, by removing over-tension, it economises physical energy, and soothes you and frees you from embarrassing external conditions. It must be used cautiously, however. It has been compared to the surrender of a person to his highest self; but we have known cases where people have used it and then have surrendered themselves to a lower self. You must have the mind and spirit pure and right before you can use this breathing with complete safety and advantage. Even then you must judge it by its full results, and continue it or abandon it according to its full results. Give it a fair trial.

The full and all-round results are suggested in this book as tests of this and every kind of breathing and physical practice. Among these results should be more comfortable feelings, including greater energy, which surely is the most comfortable of all feelings. Of course there are other tests as well, but several of them are quite fallacious. The test of size is of little value by itself. You might almost as well tell people to write a large book as to develop a large chest, if the book contains little useful matter and much foul matter, and if the chest-box contains little oxygen and much carbonic acid and filth and disease-germs. A more satisfactory test is the amount of oxygen which you can inhale and the amount of carbonic acid which you can

exhale. We should rather aim at a flexible apparatus, flexible all over, than at a huge apparatus, stiff all over or stiff in certain parts. Many of those who have had large chest-boxes have actually died of consumption. Among other reasons, perhaps they have not held themselves rightly.

With regard to better positions for practice, as well as with regard to practice itself, I shall welcome every suggestion. This is a huge subject, and I cannot pretend to offer more than my personal experiences, which may put the reader on the track of independent self-activity and original research and experiment, without risk, yet with advantage to self and others. That is my object—to say what I know now, even if in another six months I have to say something different.

My object is not to make people conform to any "Course," but to make them think, think in such a way, with such self-conviction, that they will be inevitably led to act sensibly, to adopt practice where they need practice, and to keep up such practice until it restores the normal.

The first chapter should arouse such thought, and should enable each reader to convince himself of the effects of better breathing, or else to suggest a more desirable scheme than mine. For the highest praise this book can have received is that it has incited someone else to write a much better book. There can be no finality in it. It only represents, genuinely and candidly, my knowledge up to date.

To show how little shame I shall have in confessing that once I was wrong—that once I did not emphasise this enough, that I did not even mention that at all, that I emphasised the other items too much—let me now explain in what respects this book differs from what I have already written elsewhere on the subject of breathing—*e.g.*, in "Chambers' Journal," the "Daily Mail," "Pearson's Magazine," "The Training of the Body," and the "Physical Educator." In all these works I said what I felt to be best, at the time. Now, though most of what I said there, I still believe to be right, yet I seem to have arrived at sounder views on the following points. In a good many details the ideas in this book

are new not so much in themselves as in the greater importance attributed to certain of them. Here are a few of the chief differences :—

1. When you keep your mouth shut, do not clench your teeth but close your lips. There is no need for any appreciable tension ; you can have quite a calm face while you shut your mouth.

2. When you breathe in through the nostrils, breathe in and up fully. This is a point of great moment. For most people, even while they breathe in through the nostrils, do not send the air right up to the top of the nose. Try now, and see whether it is not so in your case.

3. As to the lower breathing, in many men and women already the abdominal organs are too far down and need to be drawn and held higher up. These people should not practise the lower breathing, at least the kind which sends the abdomen out and the diaphragm down, to excess. They should rather practise holding the diaphragm up while they develop their middle and upper breathings.

And it is very useful to practise sending the diaphragm down without sending the abdomen out : that is to say, holding the abdomen in and sending the diaphragm down against resistance.

But the drawing up and the holding up of the diaphragm, and the strengthening of the muscles which help to hold it up—this is almost more necessary than any other breathing which we can mention, for people as they are to-day. The lapse of the diaphragm and hence the sagging of the stomach and liver and spleen and the pressure upon the colon and other organs below, are a fruitful cause of mischief.

4. With regard to the outward breathing, that is to say the middle breathing, it is necessary to exercise the ribs in their back and side as well as in their front expansion. This I did not realise till recently.

Neither did I realise how one could practise each expansion in turn,—*e.g.*, by keeping the opposite side stretched and tense. This will practise the loose part by giving it easy play, the tense part by giving it difficult play, as it were against a severe handicap.

5. As to the upper breathing, I have suggested an exercise, though it must not come till the end of the Course, by which it may be considerably helped ; namely, first to breathe in fully ; then to draw the abdomen in, the diaphragm up, and the chest-walls in ; then to send the shoulders well down and to bend the trunk forward till the hands nearly, or quite, touch the toes. By this means you narrow the lower parts of the breathing-apparatus and force the air, which you have inhaled, into the upper parts. But be careful to avoid strain.

6. I have not emphasised sufficiently in former writings the importance of exhaling as thoroughly as possible. To exhale fully is an impossibility, but we can exhale far less partially than we do. This more thorough exhaling corresponds to more thorough washing, more thorough excretion, more thorough mental excretion—for example, in the mental sphere it corresponds to more thorough forgiveness, more thorough putting off of worries.

7. Many of the exercises which I have offered elsewhere have been to help the breathing by relieving it of difficulty. Equally important, in an advanced stage of practice, are the opposite exercises, which develop the breathing by practising it against resistance, so that almost every exercise which is recommended by almost every system as a help to breathing, should some day be practised as a reverse-exercise. For instance, you are nearly always told to lift up your arms as you breathe in, to let them down just before, or while you breathe or perhaps after you breathe out. That helps a certain kind of breathing. But you develop even that kind of breathing more thoroughly later on by the opposite exercise against resistance. First breathe in fully through the nostrils ; then, as you breathe out, lift your right arm above your head, keeping your left arm relaxed ; then, as you let down that arm, breathe in again. This is a more difficult exercise.

8. It shows another difference from earlier writings. In "The Training of the Body" (which I translated and edited from Dr. F. Schmidt's German work) nearly all the exercises were for the two sides together, developing a person who, as it were, stood or sat or moved

straight all the time. During most of our life we are not straight, either laterally or in other ways. For this and for other reasons we must perforce develop the two sides independently, including the two nostrils and the two sides of the lungs, instead of making all the exercises like freehand drawings, so to speak. It is surely far better at the beginning to keep one side relaxed while the other side goes through the exercise. By developing the two sides independently, we cannot fail to help our brain considerably. The exact effect is still unknown. It remains for scientists to work out what the precise mental results are when we develop each side, including each side of our breathing-apparatus, independently, while the other side reposes more or less. There is no doubt that we develop the hands better by developing them independently. Learn a thing thoroughly with the right hand, and you will probably take only a third of the time now to learn it with the left. Learn it with the two sides together, and you have not practised one side at working while the other side rests.

9. Rhythm I had not emphasised sufficiently. By the brisk "Full Movement" system, excellent as it is in many ways, the rhythm is sadly neglected. The muscles of breathing, whatever may be said of other muscles, such as those of the hands, are probably not best exercised at sudden and unexpected words of command. Not only do such words of command force an unnatural rhythm upon individuals, but it seems that they are almost as ridiculous as it would be to give a command to alter the heart-beat so that it might pulse jerkily.

10. This does not mean that everyone has the same rhythm. Each person has a different one, a rhythm of his own, which in its turn differs according to the position, the exercise, and many other conditions. But in each case the breathing has a certain rhythm according to the conditions ; and that rhythm should be cultivated. Hence, in class-work as well as in individual work, when an order is given to the pupil to breathe, let us say, with the diaphragm up and the ribs sent outward, it is important to encourage the pupil to use his or her own rhythm even while all pupil are doing a given set

exercise. Let the exercise, if you like, be commanded, but let the rhythm be left far more free than it has been left hitherto.

11. Then, again, in this book I lay more stress on mental practice by imagination and self-suggestion. Here is an example. You know the value of a few full breaths of sea-air amid fine scenery. Well, this you can rarely secure. But in ordinary air picture to yourself this scenery and fancy yourself taking in a breath of this air. You will probably find that the results are decidedly satisfactory.

As another example, I have advised people not to regard their breathing-exercises as simply physical exercises, but to use them as an opportunity for self-suggestion. We are told to forgive people, we are told not to worry. These two are as positive commandments as any, and as definite as any. Now we can use the breathing-exercises as a help. As we breathe in—provided the air is fresh—we can say to ourselves (without anyone guessing what we are doing) "I am breathing in oxygen and energy—and success." The oxygen and energy are easy enough to understand, the success is the new idea which one switches on to the old ideas. So when one breathes out one can say, similarly, "I breathe out carbonic acid and fatigue—and failure." Instead of "success," one can mention any quality one wants, such as kindness, calmness, happiness. Instead of "failure," one can mention unkindness, worry, unhappiness. Or one can say in the first "I breathe in poise," in the second "I breathe out a disturbed rhythm." That, again, is suggested by the very rhythm of the breathing. As one breathes rhythmically, one does actually breathe in the poise, and breathe out the disturbed rhythm. Next time you are put out in some way or other, notice the effect of rhythmical breathing. You will find that by degrees it will make your heart beat rhythmically again, and make your mind again poised and balanced.

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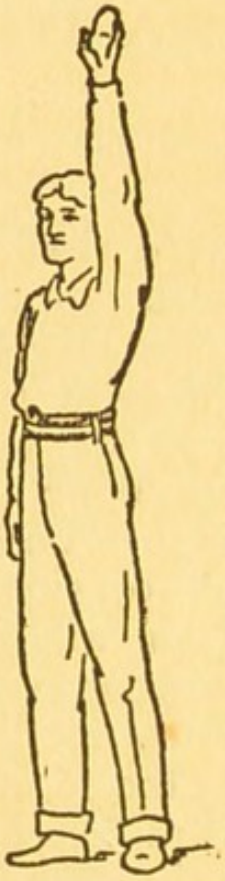
BREATHING.

CHAPTER I.

A FEW EXPERIMENTS TO CONVINCE OF EFFECTS.

OUR first experiment shall be of a very practical kind—a kind for which you are likely to find many opportunities during the day or, at any rate, during the week. Take the next occasion when you feel inclined to worry or to be angry—only choose an occasion when you are alone. Now do not grip your hands, but focus your eye on something far away or something nearly out of sight, and, while you are sure not to focus it on anything in the immediate neighbourhood, close your lips (do not clench your teeth), and breathe fully yet leisurely in through the nostrils. As you breathe in, let your left hand hang limp by your side, but extend your right hand up above your head with the palm facing forward. Hold it thus for a moment as you keep the breath in, then as you let the breath out (do not force it out), let your right hand sink slowly forwards and down, and let your head also and all the muscles of your face relax. Now take another full breath in through the nostrils and, as it oozes out, hold your hands looser and limper and heavier, and allow your face to become more and more relaxed, and your head and spinal column also. Stay thus for at least a quarter of a minute. Be sure not to frown. Now rise slowly up as you open your eyes and take a full breath in.

Do not rise hurriedly, whatever you do. See if this has not removed a good deal of your worry or angry feelings. Try this practice before some crisis—before some competition, examination, interview—or before sleep. I cannot guarantee results. I want you to find out for yourself, and to convince yourself, or else not be convinced at all. I have a large number of letters thanking me for having brought the notice of those this exercise before been nervous, who previously had I have adapted it fidgety, and so on. exercise which Mrs. from a Delsartean taught me. I have William Archer when it alone, with-known instances at all, has cured out any other help you must decide insomnia. But your case. Give it its exact value in chances. at least a dozen



Now for a second test—a much more feasible one, since it is much less con-spicuous. You feel depressed? Lift up your chest and hold it up and forward; do not frown, but keep your face placid and looking slightly upwards. This simple little practice may go quite a long way to-wards removing the

FIG. 1.—BREATHING AND RELAXING.

With your left hand relaxed, raise your right hand as you breathe in, stay thus for a moment, then, as you let your breath quietly out, let your right hand sink down and your body relax.

depression and giving you back your self-respect. For depression is frequently due to want of self-respect. A self-respecting person usually keeps the chest up and forward. When you try this, easy as it sounds, you are likely to find that some of the muscles, most likely the neck-muscles, are weak; you can almost tell for

yourself which muscles you need now to exercise. Exercise them before you condemn the simple practice as worthless.

A third test. On a wintry day you feel too cold. Stretch out your extremities, your hands and your feet. Do not grip your hands, but expand them out as open as you can make them go. Stretch out and down, first your heels, then your toes, then your heels and then your toes again. Meanwhile breathe fully and deeply, yet without strain, through the nostrils. Do not force the breath out; do not even force it in, at any rate at the beginning of the inward breath. You are likely to find yourself warm to the tips of your fingers and the tips of your toes, where you felt the cold most a moment or two before. By warming your hands and feet you may help to cool your head.

Here is a further test, though one not so easy to apply. As I shall show in the book, after two months' work with one lesson in breathing each week, the increase in breathing-capacity of the pupils at a training college was in some cases 100 or more cubic inches down to 40, and in chest-girth (a matter of much less importance) from 3 inches down to ¾ of an inch. Your chest-girth you can easily measure. Your breathing-capacity you cannot so easily, though a spirometer may be better than nothing. But read the chapter suggesting good occasions for practice, practise the various breathings during such occasions, and at the end of a couple of months notice the results, not merely on your chest-girth, or even on your breathing-capacity, but on your feelings of energy, endurance, poise, and general comfort. I believe you will be pleased with the results all-round, unless you are already an adept at the various ways of breathing, in which case you are not likely to benefit much by reading the following pages.

CHAPTER II.

POPULAR FALLACIES.

I HAVE touched on the popular fallacy that mere size is a proof of the excellence of the practice. If the various weight-lifters of to-day could be examined, it would be found that as a rule they had a huge girth of chest. Now part of this girth has very little relation to the lung-capacity; in fact, it is a positive drawback rather than an advantage. The lungs do not fill the chest-walls properly, and the chest-walls are stiff and hard, rather than lithe and pliable. Even chest-expansion is not always a sure sign of good breathing, since expansion may be due to muscles that should help the breathing, rather than to the muscles of breathing themselves. Far more important is the amount of carbonic acid gas exhaled and the amount of oxygen inhaled, and once more, the satisfaction, endurance, energy, and, in a word, all-round health. Many people believe that a big chest is a proof of good breathing; the real proof of good breathing is not this, but what it is that your breathing helps you to *do* and to *be*, what it is that your breathing helps you not to do and not to be.

It is an equally common error to imagine that breathing is simply physical in its effects and in its methods; for instance, that it simply prevents your body from becoming tired so easily, or perhaps that it prevents your body from catching cold so easily. It is not simply physical either in its effects or in its methods. As to its methods, by your mental emotions, and by your control of them, you can control your breathing also. Good news comes to you; it alters your breathing at once. Bad news comes to you; it alters your breathing at once. Now give yourself

good news—tell yourself that you are going to succeed, remind yourself of some past success or enjoyment—and you develop a better way of breathing, without any special physical practice. It is not merely a muscular method and act, this better breathing, nor is it merely a muscular effect and expression. When a telegram comes to you, or to anybody else, watch the varieties of the breathing while the receiver waits and while the receiver reads. Of course the breathing here is a muscular expression of the emotion. But it can be made something more; it can be made a muscular controller of the emotions. In this very case, before the telegram comes, you can control your emotions and regulate part of the effect of the telegram by certain ways of breathing. For instance, by a modified practice of the relaxed breathing (see the previous chapter) you will prepare yourself to receive the news with very little loss of poise and self-control. By certain muscular movements you can alter your feelings, before you visit the dentist, for example. Breathing is more than muscular effect and expression; it is or can be made a regulator of the mind, if only you know when and how to use this or that sort of breathing.

It is, indeed, a vulgar prejudice that physical expression is only physical expression, without mental effect; as a matter of fact, all physical expression, if you let yourself go to it, may have its mental effect.

It is obvious, therefore, that better breathing is not, as many would have us believe, an unimportant matter. It is a vital matter, an art, which is stupidly treated by many as a fad or a triviality not worth doing well—not worth practising.

The ignorant masses seem to suppose that the inside muscles and organs are not worth cultivating or attending to. People make clean the outward surface (they do not always do even that), and they make big several of the outward muscles. They forget to make

the inside clean and to make the inside muscles strong yet lithe.

Perhaps they imagine that much practice of breathing, or indeed any practice of it, is morbid, self-introspective, and so on. They think that always to be attending to such matters consciously spoils a person's "naturalness" and makes life an intolerable burden. Now always to be attending to such matters would be a nuisance; but the mind is so formed that, after attention to a practice, this practice may be handed over, as a formed habit, to the under-mind, which henceforth, like a confidential servant, sees to the carrying out of it. This is so with leisurely eating. At first it may be well to count the number of bites; but afterwards you can give that number of bites, let us say 30 or 32, subconsciously, without any worry or priggish self-introspection. We are not urging a constant attention to the breathing; we are urging occasional attention until the *normal* has been restored.

The practice of better breathing is often condemned by loose thinkers as abnormal and forced. Now the test is not what these authorities say, but what happens in your case, whoever you are. If the practice establishes a permanent habit which helps you all-round, if it does that, then the practice is neither abnormal nor forced; it is the creation of the normal, the natural, the easy.

It is true that the practice may be morbid if it is done too much as a duty, too little as a pleasure; and, above all, if it is done wrongly. But we are talking now of the practices which are as correct as you can make them, yet not nuisances, but rather pleasures, if only because of their good results.

A great deal of the popular misconception about breathing is due to the preaching of ignorant fanatics who say that there is only one way. There are many ways. For each individual it might be best to

develop all ways in early youth, unless all ways come naturally. But for most people, as they are to-day, it may be better to restore the balance by special care for the weakest breathings.

Another popular fallacy, due to ignorant teaching, is that exercises which help breathing are exercises in breathing itself. Take such an exercise as rowing. Or look at the exercises which we suggest. You will find that you can get good from the exercise of lifting up your arms, then lowering them again. You are exercising what are called the subsidiary muscles. You can do this exercise, of course, inhaling as you lift your arms, exhaling as you lower them, and vice versa ; but you can also do both movements while you hold in your breath, or, once again, while you hold it out. A more striking proof that these exercises are not necessarily exercises in breathing you can apply here and now. Put your hands upon your middle ribs. Now take a full breath and expand your ribs. It will force your hands out. Now hold your breath in, and you can move your ribs in as well as out. That is muscular work, but it is not breathing. *The mere fact that the ribs move in and out is no proof that the lungs are being used.* Now exhale as fully as possible, then put your hands on your middle ribs, as before, and move your middle ribs in and out. Merely to move the ribs is not necessarily a breathing-exercise. To move the shoulders, to bend the trunk, and so on, may be valuable exercises to help the breathing ; on the other hand they may have little or no connection with the breathing itself.

We are not pretending that such exercises are useless, still less are we saying, with the writer alluded to above, that when you breathe correctly you need no other help. We have known people who have made better breathing a speciality, but are far from healthy. Almost equally important with breathing is the attention to better diet and the leisurely eating

of it, and attention to what we may call the healthy attitude of mind. For, to come back to our former contention, breathing is not simply a physical process with physical causes and physical results; without the right mind as well, right breathing is of comparatively small value. Its general effect and value is mental—including self-control. Its general method is mental also—including intelligence to devise and alter practices, and will to adhere to those that help you.

CHAPTER III.

COMMON FAULTS.

THE most frequent fault in the world is, of course, ignorance. People to-day do not know the commonest things; how to spell the commonest words of physical life. They do not know the advantage of being able to do the simplest things quite well. The commonest fault is not only to be ignorant of the right ways of living, but also to be ignorant of their all-round advantages, including the pleasure of them, and—it is no small matter—the monetary advantage. But in this chapter we must deal especially with the commonest faults in breathing.

First and foremost is the fault of breathing in through the mouth, if not during waking hours, at any rate during sleep. During waking hours we instinctively feel that the open-mouthed man is a fool—at any rate he looks it. Perhaps we do not trouble to find out why we think him a fool; but one reason is that the open mouth is likely to be a sign of want of self-control.

Another common fault is that people inhale incompletely. Test yourself this very moment. Inhale through the nostrils. Now has that breath gone right up through your nose, as it were, almost to the eyes, or has it been in through the nostrils, indeed, but not well up the nose?

Again, people exhale too incompletely. Mosso, the great Italian physiologist and authority on fatigue, has shown that much fatigue is due to the presence of poisons in the system. Among these poisons, carbonic acid is conspicuous. Endurance and energy are due not merely to the large amount of oxygen within a

person, but also to the small amount of carbonic acid within him, that is to say, to the large amount that he has managed to exhale. To exhale less incompletely (for we can never exhale completely) is as important as to inhale less incompletely. Indeed, in the foul air in which we spend much of our life, the art of exhaling—rare as it is—is of the utmost moment.

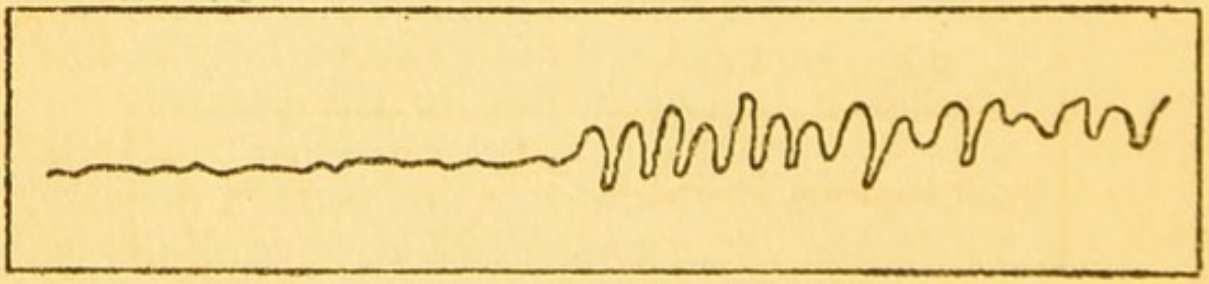
People breathe far too quickly and jerkily, with far too many breaths in a minute. See how many breaths you take in a minute now. Test yourself again after a month of practice. You may reduce that number by ten. Of course, if you breathe very incompletely, then you must of necessity take more breaths in a given time, so as to secure the same amount of oxygen. The quickness and jerkiness are largely due to the incompleteness.

Jerkily and unrhythmically—that is how most people breathe. It is a grand error. Of course every one has his own individual rhythmical way of breathing—for example, according to whether he lies, or sits, or stands, or moves thus and thus. But rhythm there must be, if there is to be economy. It is only by working rhythmically with the heart among muscles, and with the legs and arms in walking and swimming by athletes, that work so vast is ever performed. Disturb the rhythm, and you make an increase of effort without gaining advantage.

The next fault is that too many people breathe in only one way. An interesting experiment has been

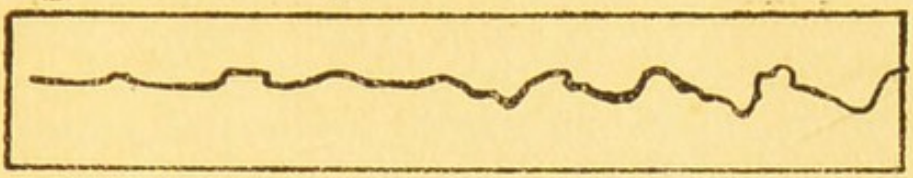
FIG. 2.—SUPPOSED NATURAL BREATHING OF MAN.
(*Adapted from Dr. Kellogg's Diagrams*).

A. Middle and Upper. Lower.



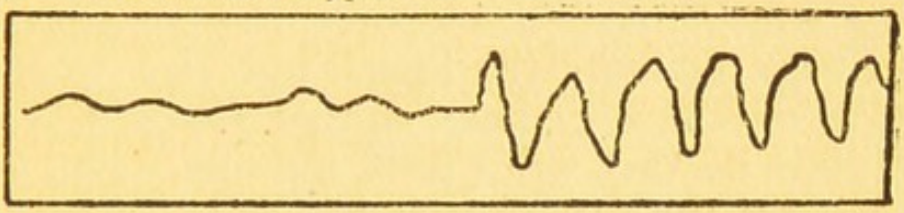
"Uncivilised" Indian Woman.

B. Middle and Upper. Lower.



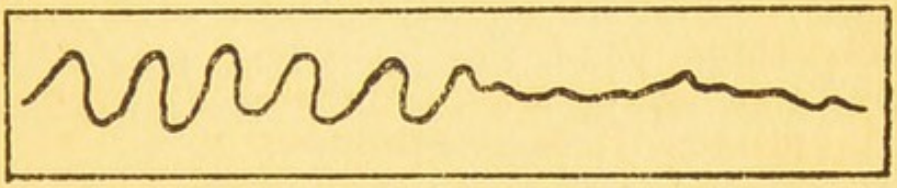
Woman who never wore a Corset.

C. Middle and Upper. Lower.



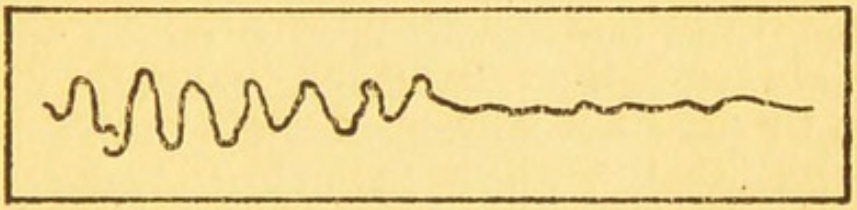
Man.

D. Middle and Upper. Lower.



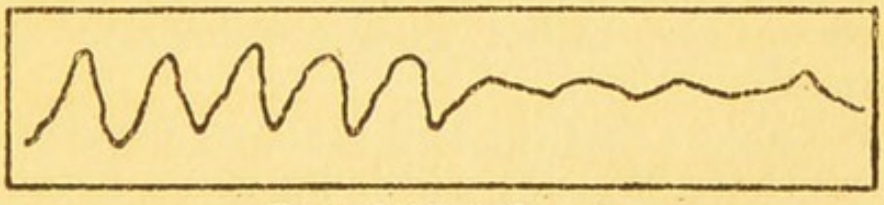
Woman with bad Corset.

E. Middle and Upper. Lower.



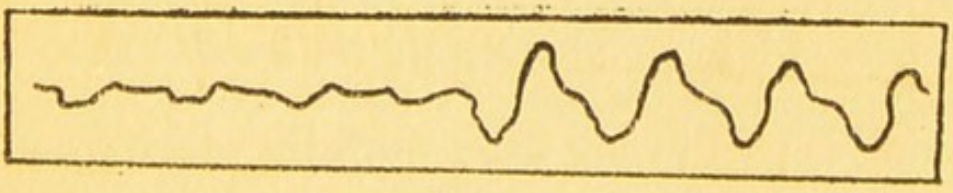
Man with bad Corset.

F. Middle and Upper. Lower.



Dog with bad Corset.

G. Middle and Upper. Lower.



Dog.

made with women hampered by corsets, and with women unhampered by them. Their ways of breathing were quite different. Without the corset the breathing will be more nearly all-round, lower and middle and upper as well. With a certain kind of corset, the lower breathing will perhaps nearly cease, the middle breathing will be much cramped, and the upper breathing will be over-developed. There are corsets that constrict not only the lower, but also, to a great extent, the middle breathing, so that almost the whole work is done by that weak part, the upper part of the lungs. Nearly the same result has been shown when a corset has been put upon a dog. It has forced the dog to breathe in one way only. As a matter of fact, we should breathe in all ways; now with one way alone, as perhaps when the air is bad, now with two ways, now with all three ways when the air is particularly fine.

People will not take trouble with their breathing-practice; and almost, if not quite, as great a fault as any of the above, is to treat the breathing-practice as a dull duty, and perhaps to keep it on for too long a time at a stretch. As Editor of the "Physical Educator," I have received many letters telling of the different "Courses" which individuals had practised and then given up. In almost every case, the mistake was to try too much at first, and to try it as a stern and dull duty rather than as a pleasant occupation; to try too much grimly, rather than a moderate amount affectionately.

You will notice that the bad practiser usually shows tension of those muscles which he gains nothing by keeping tense. He does not relax, he does not enjoy himself, or at any rate he shows no repose or poise. There is before me a book of breathing-exercises. The man who is photographed looks thoroughly miserable and distressed, as much as to say, "This breathing is part of my daily work by which I earn my

bread, but, upon my word, it *is dull*!" Now that is the wrong spirit of exercising; we may doubt whether such exercise has good all-round effects. No, breathing, if it is done at all, should be done well, but also leisurely and affectionately. If a father will take pleasure in playing a game with a child, surely a man should take pleasure in playing a game with his lungs!

I have noticed that numbers of people habitually keep the wrong position, whether they lie or sit or move. With the wrong position of the body it is almost impossible to breathe rightly.

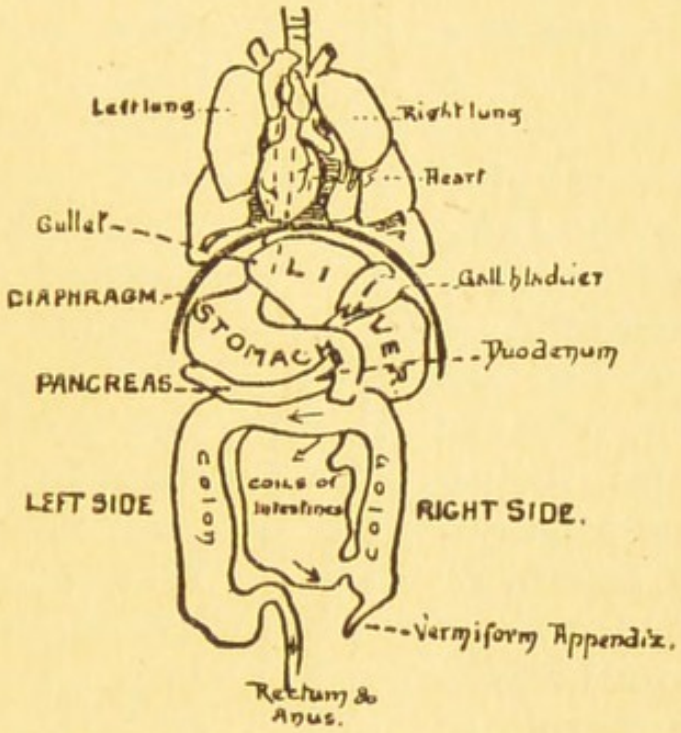


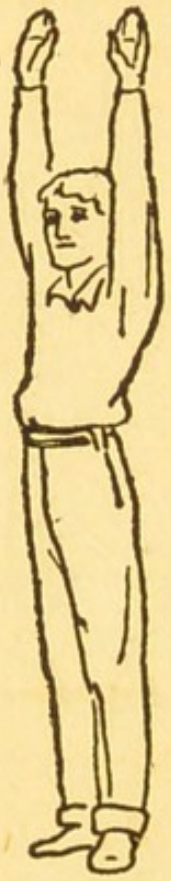
FIG. 3.—Organs affected by the position and movement of the Diaphragm.

Perhaps the most conspicuous fault is that the chest is too low and too far back, and that the lower organs of the body are too low. Exactly how much too low they are, whether two inches, or more, or less, I cannot tell. What I feel sure of is that most people have their organs—their stomach, liver, and colon—far too low; these sag down; the diaphragm is sagging down on the top of them, weak and flabby; and the lungs

are sagging down on the top of the diaphragm. Unless there is a right position, it is impossible to breathe satisfactorily. It is just as important that the diaphragm should go well up, and send the air up to the top of the lungs, as that it should go well down, so as to give the lungs plenty of room to expand.

Then, again, it is a common fault in breathing always to practise the two sides of the body together, instead of letting one side often work while the other, as far as it can, rests.

In our exercises we have urged the importance of breathing not only through the nostrils, one at a time, but also with the lungs one at a time in so far as our anatomy and physiology allows us to do so; for we imagine that nearly every person has one lung weaker than the other.



Another error, touched on in the previous chapter, is to imagine that, because you lift up your arms and lower them again, because you send back your elbows and bring them forward again, because you send out your arms and bring them back again, or because you perform gymnastic feats or tricks, therefore you develop your breathing. To take exercise is not merely to breathe. For my own part, I think the best exercises are

FIG. 4.—This need not necessarily be an Exercise in Breathing.

those which are almost independent of the movement of the arms; at any rate, these are among the exercises which it is easiest to practise at intervals during the day.

Once more let me repeat that very common fault—to begin too violently, to put too great a strain upon your will and self-control, and then—to give up the

practice after a day or two. Far better would it be for most people to master only one exercise the first week, then, during the second week, to do a second exercise without giving up the first, and so on, until eventually a Course of twelve exercises had been mastered without any great effort. Surely it is no great effort for you to master one exercise; it should only take you a few minutes a day for a week. It is no great effort for you then to repeat this exercise. It is no great effort for you to master a second exercise. By the time you have reached the fifth exercise, the first has become as usual as blowing your nose or brushing your teeth directly you wake in the early morning.

CHAPTER IV.

GENERAL RULES AND REASONS WHY.

FIRST realise that breathing is a thing which it is worth while to do well, and therefore to practise well. If you consider only its effects on your feelings of satisfaction or dissatisfaction, you must conclude that it is an art which deserves considerable time and trouble—decidedly more time and trouble than, let us say, the playing of the piano, or even dressing!

Very few of us are trained to consider a subject or a pursuit in the light of its all-round effects. The result of it is that we have the pursuit put before us, we have excellent advice given as to training for it and in it, but we are not convinced that the training is worth while. Perhaps we have been told that it will help us to save money, that it will improve our appearance, and so on, matters in which we are not particularly interested. Our great ambition may be to help others, or it may be to improve our athletics. In order that we shall not miss "the point of contact in teaching," whoever the reader may be, we suggest to you here a little scheme of life in its different departments. You must work out in detail whatever departments appeal most to your ambitions. We cannot do that for you, since we do not know you. We can simply suggest vague headings:—

Physical, including hygienic, remedial, and athletic.

Aesthetic: that is to say, improving for the appearance. For the other sense of the word, see below.

Spiritual and moral.

Intellectual, under which heading we may perhaps class economical.

Prospective: that is to say, influencing posterity as well as the future self.

Recreational and competitive. Here we may class the feelings of enjoyment.

It is vital that you should find out what are your ambitions, your habits, and your likings. Start with these, and see how better breathing would help them on. Remind yourself of the ambitions, and remind yourself that the practice of better breathing will be well worth while in view of them.

It is a good plan to keep records of your measurements, and of your feelings as well, so that you may have an interest in your practice and your progress. Needless to say, your records should be private.

Indeed, your whole practice should be private and unobtrusive, lest you become a prig and a nuisance to others. Fortunately, the practice of breathing is, as we have said, among the least obtrusive and exasperating of all practices.

Do not accept any other person's scheme of work. Consider every scheme, for some part of it is quite likely to appeal to you; but map out your own according to your own times and conditions. And give extra attention to Sunday; that is the best day for breathing-exercises.

I am devoting a special chapter to the special times for practice. Besides Sunday, note the vast number of odd moments every day, and chiefly the moments after awaking. It is true of breathing in particular, that "the beginning is half of the whole." Begin the day by breathing rightly. Practise also before any crisis, before a meal, after a meal, while you are waiting, and before you rest—till you are normal.

Be sure also to practise between your exercises. If you can manage to do it, lie down and relax after the deep and full breath. It is surprising how you can contrive, by good breathing at intervals, to get through

nearly twice the amount of exercise with far greater enjoyment and profit and with far less fatigue.

Be sure to secure good air and light, and as little clothing as you can; especially avoid cramping clothing.

And avoid the wrong positions of the whole body and of its organs. As a rule, keep the chin comfortably in and the chest well up and forward. With regard to the straightness of the body, we are not so sure as most teachers. The body is very seldom straight during the day, and we ought to learn to breathe fairly well when the body is crooked. Nearly all the practices that we have seen recommended, are practices for the straight body, that is to say, for the body in a position which it seldom keeps in daily life.

Although the practice of simple breathing is important, yet breathing together with various movements is important also. Perhaps the most popular of these movements is the one in which you lift up your arms as you breathe in and let them down as you breathe out. I prefer to keep one hand and arm relaxed while the other moves up; but this is only one example out of twenty or thirty. It is an exercise which will help the breathing, make the practice somewhat less dull, and also develop various useful muscles by the way.

Gradually increase the severity of the movements. This applies not only to your practice from day to day, but also to the single breath. In singing, as a rule one does not start suddenly upon the note as loud as one can sing it, but one starts more gently, then one increases the loudness, then at the end one tapers off again. So it is in breathing. Begin gently, put the greatest effort into the middle of the breath, and leave off gently. That is a fine rule for every kind of muscular work, and probably for every kind of mental and moral work as well. Certainly the curves of general fatigue worked out by Professor Mosso are

in favour of this gradual ascent and gradual descent. In the practice from day to day also increase the severity gradually. For example, it might be well at first to do the breathing with exercises that help it, such as the lifting of the arm with the inward breath; then to do the breathing by itself without any such exercise; then to do the breathing with the exercises reversed. You are now practising against resistance. To begin by practising against resistance would be a great mistake for most people. In the end, however, you ought to be able to breathe in easily as your arm goes down; to breathe out easily as your arm goes up.

But we are altogether against much strain at the start. Some teachers say "Force the breath suddenly and violently in, shoot the breath suddenly and violently out, hold the breath in while you count sixteen, now count sixteen while you hold it out and keep the lungs comparatively empty." Such practices may be good in their place, but their place for the great majority of us is not in the first stages of learning.

Above all, avoid unnecessary tension which wastes your energy. Smile rather than frown. Many grossly ignorant "experts," as they call themselves, tell you to clench your hand all the time that you are breathing. Now breathing is an exercise for the lungs, not for the hand. A certain amount of tension of the muscles of the chest and round the chest is good for certain exercises, but a tension of the hand is good, we maintain, for very few breathing-exercises. It comes in occasionally as a useful subsidiary help, but for the actual breathing it is often a positive hindrance. Make the experiment now. Suppose you want to force the breath up to the top of your lungs—the apex where consumption so often starts—you take a full breath in; then you draw your diaphragm up; you draw your chest-walls in; you bend slightly forwards, and you bring your shoulders down. You can now almost feel more air concentrated near the summit of the lungs.

While you are bringing your shoulders down, and keeping them down, keep your hands relaxed. You see that you can bring your shoulders down far enough for our purpose without gripping your fingers. While you do this exercise, keep your face relaxed, too. The exercise will be worth far more to you under such conditions, even if you simply regard it as an exercise in self-control.

This, however, is a personal opinion of which many (who have not tried it) would at once deny the truth. All, however, agree that it is good, as a rule, to breathe in through the nostrils, for the reasons to be given directly.

As a rule, too, breathe both in and out with a certain rhythm, which may be helped by counting or by singing or by recitation. One of the advantages of rhythm is that it exists throughout the universe; by making use of it you relieve yourself of some of the effort of supervision. You get Nature to help you. You save energy. The heart which works rhythmically works economically. It is partly because they work rhythmically that the cyclist, the walker, the runner, the swimmer, and the club-swinger, as we have pointed out elsewhere, manage to keep up their prodigious exercise hour after hour.

And, whether you practise for better breathing, or whether you breathe in daily life without the idea of its being practice, be leisurely. I have known some of the most successful business-men, whom no one could accuse of sluggishness or idleness. The most truly successful of them have been leisurely and at the same time thorough. Indeed, it seems that the person who is leisurely, who can focus his eye on a distant object instead of gluing it almost (it would seem) to an object a yard away from him, is much more likely to see things as they are, in proportion and perspective; and, though he may miss a detail here and there, he will compensate for it by his broad and

wide view of life and by his kindliness to others and to himself.

Sometimes practise a full breathing with the lower, middle, and upper parts of the apparatus in turn. This will massage the organs below the diaphragm, and will enable you to take in more oxygen, and, if you breathe out with equal fulness, to get rid of more carbonic acid. Sometimes, however, practise each breathing by itself. Sometimes practise two breathings together. One of the favourite ways is to lift up the diaphragm while you bring in the abdomen and to practise the middle and upper breathings together. We know some people who, thanks to this simple art, can stand all day, and talk nearly all day, without fatigue—except to their listeners. For every purpose, however, it is not equally advisable. These same people find it extremely difficult to untense themselves and to rest. They work for long hours, but after their work they cannot throw off the working habit. The practice of the relaxing breathing is just as important, for repose after work and for poise at intervals during work.

Perhaps the best general rule besides the above is the individual rule: Find out which of your breathings are the weakest, and pay special attention to these, so that you may *restore your normal all-round breathing.*

As we have already shown, you may be deficient not so much in lower, or middle, or upper breathing, as in the breathing of one side compared with the other. Look at yourself in the glass, holding your head up. Is not your left nostril considerably narrower than your right? There is an upset balance to be restored by the individual practice of breathing with the right nostril closed and the left nostril open. Possibly your left lung at the back is weaker than your right. In that case find out exercises which will develop your left lung in particular. For instance, bend your body

back to the left as far as it will go without strain. You feel now that your muscles on the right front side of your chest are fully stretched. Now breathe deeply and fully, and you will help your left lung, because it will have more space for working, while you develop your right lung also by breathing against resistance. To stretch out still further that already outstretched wall on the right side is an exercise which the right side is strong enough to do, the left side probably not yet.

Perhaps this piece of advice may be misleading. All that I offer here is provisional. I want you not to follow what I say as if it were necessarily good for you. I am giving you the best of my experience, but a good deal of it may be a mistake. Perhaps I have not understood the theory or the practice. I should urge you, then, as a general rule, to study by reading and asking and observing with a view to improvement of my advice here. Above all, I would recommend you to buy some good book that will describe the Hindu and the Delsartean systems of breathing. Books on abdominal, diaphragmatic, middle rib, and upper chest breathing abound; books on thorough, on rhythmical, and on relaxed breathings are rare.

The next suggestion will be: Use the imagination. I know one teacher who commands all her pupils to yell aloud every morning. They are to shout out on different notes Ah, Oo, Oh, and all sorts of words with m's and n's in them, such as "Good morning"; they are to recite Shakespeare's tragedies or Shakespeare's comedies; they are to sing certain successions of notes. But perhaps you are living in a semi-detached house, and either are too kind or are too shy to practise. What are you to do? I suggest that you should practise in imagination. You can get a harmless form of vocal practice by imagining yourself as shouting to a person two or three fields off.

While you are doing your exercises, occasionally use this opportunity for self-suggestion. I will give a few examples in a later chapter. This practice should always be unobtrusive; do not thrust it upon others, or at any rate do not do so until you can show good all-round results, regularly and consistently, in your own case.

And, above all, do not rely on breathing, or even on breathing together with self-suggestion, as the only thing about which you need trouble. Attend also to diet, if only with a view to better breathing. Here is an instance of how the wrong diet may interfere with the breathing. Fig. 3 (above) has shown how the diaphragm separates the lungs and the heart above from the stomach and liver below. Now, suppose you eat a meal that is likely to disagree, let us say a meal of porridge and sugar, followed by other fermenting elements, and suppose you eat it very fast. It is likely to make your stomach swell. Your stomach will press downwards upon your colon, upwards upon your diaphragm, and hence upon your lungs, and perhaps upon your heart as well. I have made tests with the pneumauxetor after a too heavy meal. Whereas before the meal I was easily able to make the machine register 250, after the meal, with the greatest effort, I was scarcely able to make it register 150. That was chiefly because my distended stomach was pressing into part of my lungs and stopping the action of the diaphragm. If only with a view to effects of better breathing, it matters a great deal both what you eat and how you eat it.

CHAPTER V.

SURROUNDINGS AND ACCESSORIES.

SOME of the accessories of breathing-exercises I shall reserve for the chapter on apparatus; I wish this chapter to be rather more general.

First of all, we must remember that better breathing is helped by better digestion. Next time—if ever there is such a time—when you have eaten too fast and have over-eaten as well, observe how difficult it is to breathe fully and rhythmically and leisurely. One reason is that the stomach is inflated and is forced up against the diaphragm, which in turn is forced upon the lungs as well as the heart; presses into them and does not allow them free movement. There are other reasons as well, but, anyhow, attend to food and feeding if you want to breathe more satisfactorily.

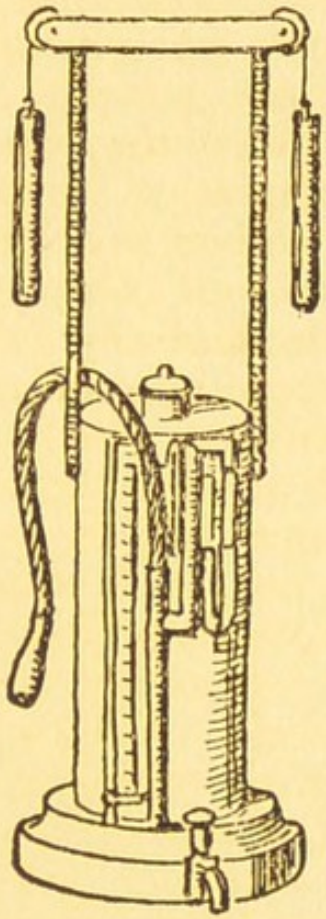
The air rich in oxygen, and, if possible, in ozone, is a more obvious accessory. You cannot always secure it, but at least you can secure it in your bedroom.

Then there is light, which again you cannot always secure, even in your bedroom. You can go a step towards getting more light by wearing less thick clothing. There can be no doubt that such material as the Deimel will encourage better breathing of light as well as of air by the parts of the body which it covers. Of course, clothing which cramps the organs of breathing is to be avoided, particularly during practice. If a woman *will* wear an unhealthy corset during the day, let her be sure to remove it whenever she can and make up for its mischief by sensible exercise.

Another help is the imagination. When you cannot actually secure the best possible air and surroundings,

imagine them. Imagine yourself, for instance, on the best cricket or lawn tennis ground that you know. Imagine yourself enjoying yourself on it, succeeding at your game; and meanwhile enjoy the imaginary fresh air, so long as the actual air at the time is comparatively fresh. You will find yourself inhaling a far more vital and invigorating breath.

In the special chapter I shall speak of the inclined plank, the chest-expander, the "Girbola" (a useful skipping machine), the pneumauxetor (an improved spirometer), and the pipe for the blowing of soap-bubbles.



Water is another necessary accessory, warm to cleanse you, cold to invigorate and harden you. And with the water there should be some kind of glove or loofah, both to cleanse you with the warm water and to restore your circulation with and after the cold water.

A chart or memorandum-board is another useful accessory. A good plan is to have a large

FIG. 5.—A Spirometer, to measure the air exhaled.

piece of cardboard, in the top left corner of which you paste or pin your own description of the first kind of exercise in breathing. Practise that either for a day or for a week, according to the difficulty you find in mastering it. Having mastered it, repeat it on the second day or week, and then add to it the second exercise, which you now paste or pin next to the first; and so on, till by easy steps, "line upon line," you have mastered a

good Course. This for many natures, especially in these hurried days, is better than the complete Course practised all at once on the very first day.

The last help may sound fanciful, but there is much value in it. Get—you can buy them for a few shillings—some statuette or statuettes to represent correct attitudes and pleasant expressions. If you can, get one which will show you a good position for a breathing-exercise. Then have these in your room and look at them occasionally and treat them as models. To many people they would be ever so much better than photographs, which seem too flat. The statuette may be almost, or quite, as good as a personal teacher, at least for certain positions and exercises. You can, as it were, turn it on at will to teach you, and you will never find it impatient or wanting in tact.

CHAPTER VI.

GOOD POSITIONS, AND WHY.

ABOUT some points it seems that all authorities are agreed; as that, for ordinary purposes, the chin should be in, the head up, and not tilted too far back, the eyes looking forward, the chest up, and at first, perhaps, the spine straight laterally, but inclined very slightly forwards from the hips.

Later, however, there should be various bendings sideways and various movements of each arm in turn, so that each side of the chest may be developed individually.

With regard to the position of the feet, nearly all orthodox authorities state, without a shadow of hesitation, that the heels must be together and the toes turned outwards. Now in life, whether we look at people who sit, or who stand, or who walk, or move in other ways, or get ready and alert to move, whether we study models of oratory or of anything except gymnastic or military exercises, we simply never find feet in that position. No one can claim for a moment that the position is graceful or pleasant to look at. Its most devoted exponents must confess that it is stiff. Whether it is "hygienic" or not, I do not pretend to say. For my own part, however, I far prefer for every purpose a position of the feet more like that of club-swinging, the heels being some little distance apart, and the toes not being turned out much. But the legs here need not be stiffly straight. From such a position one is ready to start in any direction, and one feels comfortable. Certainly the position looks better; it looks much less like the stiff wooden soldier, who, whatever he may be a type of, is assuredly not a type

of lithe alertness. Later on, one can step forward from this position quite as easily as from the first position. One can step, or lunge, or make other changes to render the exercises more difficult.

With another dictum of the gymnastic schools I have far greater sympathy. This is that at first the hands should be placed on the hips, with the fingers in front and thumbs behind, so as to support the organs. But here, again, it helps the different kinds of breathing to put at least one hand over the part which is to be exercised. The other hand I certainly prefer to keep relaxed. During the simple movements there is little risk of strain; during some of the more advanced movements—as during the full lunge—perhaps the "hands on hips" position may be safer. When the back, rather than the abdomen, is being stretched, it may be better to have fingers behind and thumbs in front.

But, the less we cramp our extremities during the exercises, the better the exercises are likely to be as training for daily life. Already we cramp our extremities enough without that perpetual use and that indiscriminate use of spring-grip-dumb-bells. As a nation we do not need to be made any slower and "stuggier" and more bent and tense and strained than we are at present. The organs should not be cramped either.

Hence it may be a good thing to begin many of the practices as one lies down. The organs then are not cramped, nor do they sag too low, as most people's stomach and other organs do. We believe that often they sag as much as two or three inches too low, pressing against more than one of the organs below and producing more disorders than the casual observer would imagine possible. For my own part, I would as soon begin the exercises on the inclined plank, with supports beneath the neck and the waist. The inclined plank is more comfortable than the floor, in so

far as it does not send an excess of blood to the head. True, the organs are not in quite so good a position as they would be on the flat floor. On the other hand, the shoulders can be brought ever so much further back and down. Anyhow, some kind of lying position is an advantage, because it is an economical position; when one lies one breathes less rapidly and with less effort.

When one sits, one breathes with more effort than when one lies, with less effort than when one stands or walks. But one must take great care to sit properly. Mrs. Aldrich, in "Life and How to Live It" (Gale and Polden), has some very good remarks, not so much on the right way of remaining seated, as on the right way of sitting:—

"In the act of sitting, nearly everybody slips the organs out of place by bending the head forward as the first movement in sitting. This depresses every organ in the body, as anyone may see who will place the hand upon the pelvic region and bend the head forward. One might suppose, without knowing the construction of these organs and their marvellous adjustment, that the organs would right themselves again after the person is seated; this, however, is a mistake. There is a beautiful provision for keeping the organs well in place, but only if the hip-joint is used *before* the head and shoulders are bent forward. The ligament which passes entirely under the pelvic organs is so related to the hip-joint that these organs are drawn back by bending the joint. . . . It is much easier to bend first in the hip-joints, and when the body is at an angle of 45 degrees the ligament is so fastened and the organs so held that the flexibility of the spine may do the rest without injury and give to every movement the grace that it is the office of the spine to give."

In other words, when you are going to sit down, have the chin and head back, and keep them thus until you have sat down.

The extra difficulty and strain of a position increases the volume of the breath, and, of course, if one adds movement, that movement increases the volume of the breath still further. Now this increase may be an advantage if the air is fresh. The changes in the body (called the metabolism), the assimilation of the food, the excretion of waste-products, go on far more quickly; the whole system receives a series of shocks, as it were, that make all its processes more lively. True, many parts of the body are used up and die, but if the air is fresh and the exercise is of the right kind, not dull, not strained, then better parts, better cells, are perpetually born in their place. It is only by the death of the inferior parts and the birth of better parts that we keep or improve our health and life at all.

But the standing position and the moving of the body do not tend to economy. They are not advisable during all brain-work, I believe. During brain-work I find that I can almost always do better when my body is lying down; occasionally it is a relief and a quickener to the intelligence to get up and walk, and of course intervals of exercise help; but I do my best work when my body is reposing as much as possible, and when my breath is as gentle and rhythmical as possible. And especially is it important to keep the body relaxed and the breath gentle instead of violent when, as is usually the case in modern civilisation, the air is foul.

CHAPTER VII.

IN THROUGH THE NOSTRILS, AND WHY.

FEW people understand what it means to breathe in through the nostrils; they take a half-hearted, jerky little breath instead of a breath well in and up, one might almost say so far up as to go between the eyes. Pause for a moment and try that breath, closing the mouth—not the teeth, please, but the lips only—and drawing the breath up right away beyond the bridge of the nose,* as if you were going to get that lovely oxygen into the brain, and as if you were going to refresh with that oxygen the whole upper part between your eyes. Now do you not agree that your former breathing in through the nostrils was a very inadequate affair?

This is so important, so much neglected—it was neglected by myself in my earlier writings and practices—that it bears a little illustration to emphasise it. Take a mouthful of biscuit and masticate it. What has been the action of your teeth? You have masticated it, let us suppose, for sixty bites; have you really masticated it or have you simply sent some of your teeth straight up and upon it? That is probably what you have done. But at any rate your back-teeth were meant to be grinders as well as crushers, and saliva is brought out by the grinding and crushing together as well as by the crushing alone. The movement of the jaw should be a much more thorough movement, not simply up and down, but also sideways.

Let me emphasise again the other point, too, since perhaps you had not noticed it in this first experiment,

*In order to help this breath, hold the bridge of your nose between your finger and thumb.

that while a breath in through the nostrils means a breath taken up as far as it will go, to keep the mouth shut means not a tight clenching of the jaws so that your teeth almost grind one another (as they should do in mastication), but a slight closing of the lips. I can see no virtue in clenched teeth; I see a great deal of virtue in closed lips—in more senses of the phrase than one.

An advantage of the inward breath through the nostrils is one of appearance. You cannot imagine how unfavourably you affect people if you have your mouth open at leisure-times, except, for instance, at the seaside, when you want to inhale the ozone; otherwise people—half unconsciously, perhaps—put you down as an unrestrained person, very likely as a fool.

And the mere closing of the lips will increase your self-control and self-restraint.

It may be imagination, but to breathe in and well up through the nostrils has with me the effect of lifting up my thoughts. Do not pooh-pooh it, however, because it is "mere imagination." If it is, then it only shows how useful imagination may be! Instead of saying: "I will not do it because it is mere imagination;" say: "I *will* do it because it is imagination; because it is so cheap, so simple, so unobtrusive." Surely your imagination is your own for you to use, isn't it?

Besides this, there are the oft-quoted reasons against breathing in through the mouth, namely, that this brings the perhaps cold air, and all the foulness that is in the air, more directly to the lungs.

The nostrils, on the other hand, with their longer passage and their mucous linings, filter the air of dust and disease-germs, as you can tell when you blow your nose after a day in the city. I remember some time ago hearing that during an Agricultural Exhibition in London, when London was extra foggy, many of the cattle died, and a post-mortem examination revealed

their lungs clogged with foggy matter which had not been stopped on the way to the lungs, as it would have been stopped by the mucus in the human nostrils. Drs. Thomson and Hewlett have shown how the cavities behind the nose tend to destroy the germs of diphtheria and of certain other diseases. Nor need this breathing make any particular noise, as breathing through the mouth is likely to do—for instance, when you—or, rather, when other people—snore at night.

The nose-passages will warm the air before it gets to the lungs. Possibly there are times when a shock of cold air would be good for the lungs, like a shock of cold water for the skin; but as a rule it will be safer to let the temperature of the air be regulated by the nose-passages before the air reaches the lungs.

If the air be too dry, the nose-passages will moisten it. The next time you wake up with a dry mouth at night, you will probably find that you have a tendency to keep your mouth open. Now, while you lie awake for the next few minutes, keep your mouth shut, and notice the difference. The saliva, which before this had been dried up by the air, now remains wet and makes your mouth comfortable, removing from it and flushing away those acids which your mouth does not profit by retaining.

The breathing through the nostrils, then, is a great advantage; and to practise that breathing, especially if you begin early in life, will clear away and keep away most, if not all, of the usual obstructions. We are not maintaining that these obstructions, which in an advanced form appear as adenoids, are entirely due to mouth-breathing. They are partly due to inefficient mastication of food. But to breathe in and well up through the nostrils will certainly help to prevent them or to cure them.

While you are breathing in through the nostrils, remember that the nose-passages must be kept as clean as possible. One of the first duties of man, that

is to say one of the earliest duties every day, is to blow the nose. He should blow it at intervals during the day.

To breathe in through the nostrils is, as we have said, not a rule without exceptions. In time of stress —as during the end of a long race—you may be forced to breathe in as well as out through the mouth; for you will need an extra amount of oxygen; and again, when you are at the top of a cliff by the sea-shore, a few deep and full breaths through the mouth may be as good as one of the finest drinks, and far less expensive. But the exceptions are not so many as one would think. It is almost wiser to ignore them altogether during the early stages of practice.

As an example of how far one can extend the practice of breathing in through the nostrils, first yawn in the ordinary way; now try to yawn with closed lips and through the nostrils. You have no idea how much healthier this sort of yawn is likely to be. Learn to yawn with closed mouth and to breathe with closed mouth, as a general rule, and you will find yourself after a time sleeping with closed mouth also.

Our object should be to make this nasal inhaling a habit even when the mouth is open. We must have it open when we speak and when we sing, but to breathe in through the nostrils when we speak and when we sing is, for most of us, an extremely difficult art. Observe how the unskilful speaker finds his throat dry and takes a sip of the flat and tepid water by his side. This is mainly because he has been breathing in through the mouth, not through the nostrils. First learn to breathe in and out through the nostrils when the mouth is shut, then to breathe in through the nostrils and out through the mouth, and so on.

And be sure to practise each of the nostrils in turn, by closing the other. Especially close the stronger and open the weaker. One of many exercises is the

following. With one of the right fingers close the right nostril, and, while you count four, slowly breathe in through the left nostril; hold the breath while you count four and breathe it out through the right nostril,

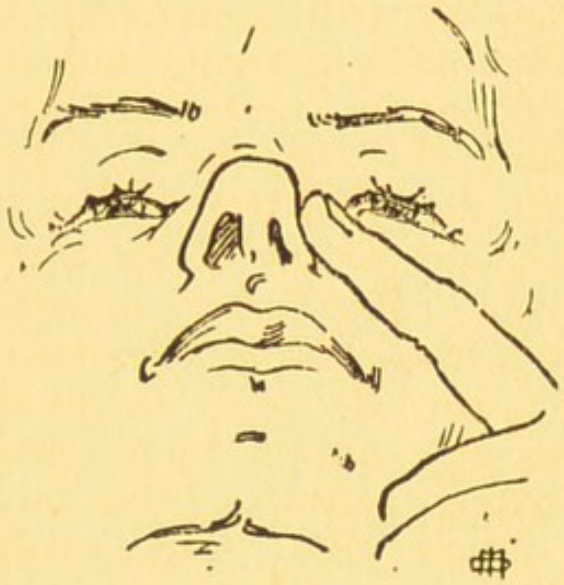


FIG. 6.—Inhale with each nostril separately, especially the left. Look in a mirror and see whether it is not far the smaller of the two.

while you now close your left nostril. Reverse. Then repeat three times.

A way to clean the nostrils with water will be suggested in a later chapter.

CHAPTER VIII.

OUT THROUGH THE NOSTRILS OR THE MOUTH?

PROFESSOR MOSSO has shown how important it is to eliminate. This is another point which I did not realise sufficiently in my earlier writings. I laid much emphasis on a fuller breathing in; I laid not nearly enough emphasis on a fuller breathing out. The latter is every whit as important as the former; perhaps it is more important still; for it seems that, in certain cold-blooded animals, without oxygen some life is possible, with an excess of carbonic acid life is impossible. In other words, it is more important not to be clogged with acid than it is to have an abundance of nutritive elements. Fill an animal with poison and you paralyse it or kill it; empty it of its blood, put in its place water, with a slight solution of table salt, and the cold-blooded animal at any rate will live for quite a time. Hence there is more science than there is often supposed to be, in the Ten Commandments of the Old Testament, which start with "Thou shalt not." Excretion of evil is as important as assimilation of good. To excrete, in other words, seems no less vital for our health than to take in and assimilate what is nourishing and generally healthy. Our elimination in all its branches is sadly incomplete.

How can we best eliminate the carbonic acid, etcetera? For the "cetera" form an unspeakably important item. There are plenty of air-poisons that are not carbonic acid.

To blow the nose sensibly is the first commandment; to blow it far more frequently, far more as a matter of course than we do. Then to breathe out

through the nose, at any rate during sleep, is good, so long as the nose-passage is free.

To breathe out through the mouth is often better, provided it does not encourage us to breathe in through the mouth also. In the first stages, however, we should recommend ordinary people to clear their nose-passage and to breathe out as well as in through the nose. For we must keep in view the habit during sleep, when the air is likely to be far fresher.

During sleep there is little or no question. The man who sleeps with open mouth is liable to snore, and we cannot expect a man during sleep to keep his mouth shut while he breathes in, and open it while he breathes out.

Nor is there any question as to the right way during the eating of food, if that eating be leisurely. Suppose that a mouthful of food takes at least thirty bites; then it may take a quarter to half of a minute; during that part of a minute how many breaths do you take? These breaths, as distinct from the breaths during the intervals between mouthfuls, must be in through the nose and out through the nose also.

During voice-production there is no choice either. Here the outward breath must be through the mouth, even while the inward breath should be mainly through the nostrils.

During physical stress there is little or no choice either. The breath may be in through the mouth as well as out through the nostrils and mouth. Notice the sprinter who has finished his quarter-mile. Perhaps you see him go up to the barrier and rest his hands upon it, so as to set in action the muscles that help and relieve the breathing-muscles; he wants to exhale and inhale as fully as he can; he not only breathes in through his nostrils but also breathes in through his mouth. Even thus he scarcely gets all the oxygen that he wants.

Apart from these special occasions, where there is

very little or no choice, learn to breathe out either through the nostrils or through the mouth. To breathe out through the nostrils is easy enough if your passages are clear and if your lips are closed ; in order to breathe out through the mouth, however, observe the following order :—

First learn to breathe in through the nostrils and out through the nostrils, keeping the lips closed all the time.

Then learn to breathe in through the nostrils and out through the mouth, opening the lips as you breathe out.

Now (but do not hurry to this stage) learn to breathe in through the nostrils, opening the mouth, and out again through the mouth. When you can do this, you are much better prepared for life than you were before ; for the air that reaches your lungs will be less cold, less dusty, less " germy."

CHAPTER IX.

RHYTHM, AND WHY.

THE rhythm of life's processes is little understood by most of us. We know that Nature has her rhythms for her seasons and days and nights, and even for her "inanimate" matter, as Professor Bose has shown; in fact, a tendency of modern times is to call everything rhythm and vibration, whether it be air, or light, or warmth, or electricity; nothing in the world is still, all is perpetually moving and changing.

And man's life, and the organs that go so far to make or mar that life, are no exceptions to the rule of rhythm. Man, for instance, has a rhythm of seven years in his life; every seven years there is likely to be a crisis; man's organs of digestion and excretion have a rhythm, as Dr. Cannon has demonstrated; we have not yet found out whether his extremities have theirs, but we know that the large organs have theirs.

The rhythm of the organs and appetites is seen very clearly in the case of the meals. At certain times you need your food. But you can alter this rhythm. You must not assume that your present one is the only natural one. It may be that you, who take four meals a day, and feel a craving as each hour for a meal draws near, would after a week of change be better for three meals, then, after another week of change, better for two.

But the subject of this book is breathing. We merely quote the eating-rhythm to prove that your present

breathing-rhythm is not necessarily your best—best for your all-round fitness. Only do not expect the new rhythm, which will some day prove to be really yours, to agree with you the moment or the day you start it. We prophesy, however, that with practice you will find this: as with meals, so with breaths, you will lessen their number and get more good by having fewer meals and breaths if these fewer be more leisurely and more thoroughly utilised.

Realise the value of rhythm if only in saving energy and relieving the system. Here is a tired company of soldiers who can scarcely move another step. Suddenly the band strikes up, and they move five miles with almost perfect freshness. To recite ten pages of prose would be a difficult feat; to recite thirty pages of poetry would be a far easier one. It is the rhythm that helps. We have already alluded to club-swinging and other practices by which one gets through a vast amount of work with little strain. That is to a great extent because the work has its regular swing.

Rhythm of breathing both brings and shows endurance and control; want of rhythm, in my own case, spells fatigue. Take a fatigue-curve made by the pneumograph, and contrast it with an energy-curve. The energy-curve goes with a beautiful undulating rhythm; the fatigue-curve goes in sharp, rapid, jerky snatches; it is not so effective, it is not so beautiful.

Therefore learn to breathe rhythmically in through the nostrils, gradually increasing the length of the breath in and the length of the breath out, perhaps while you count or while you sing to yourself. As Vivekânanda says in one of his books, practise this for many hours, not necessarily consecutively, and you will find that your voice is becoming gentler, your mind more calm, more poised, more clear; your whole appearance is becoming pleasanter.

And this rhythm will affect the organs above and below your diaphragm. There is no doubt that by calm breathing you can produce a smoother and less expensive heart-beat. You may thus also be able to help the digestion and other movements of the stomach and the liver and the excretory organs; for they have their rhythm as well.

But there is no one uniform rhythm for all people on all occasions. You must adapt your rhythm to your exercises; each exercise has its own rhythm, its own proper way of breathing.

As an example of this need to adapt one's breathing to the circumstances, consider the case of sea-sickness. You are on board ship; the ship has its own rhythm, you have your own; and you feel queer. Now, as the ship seems to go up, breathe in; as the ship seems to go down, breathe out. You may find that this will take away the tendency to sea-sickness, though some find the reverse plan more effective.

There is a rhythm in speaking also, quite apart from the sing-song rhythm of the man who recites mechanically. G. H. Lewes said: "No sooner have the [inferior] actors to express excitement or emotion of any kind, than they seem to lose all mastery over the rhythm and cadence of their subject. Let them study great speakers, and they will find that in passages which seem rapid there is a measured rhythm, and that even in the whirlwind of passion there is a strict regard to tempo, as in passionate music."

We are not then urging one single rhythm for all people wherever they are, in whatever position they are, and whatever movement they are performing; we are simply insisting that for every occasion there is an ideal rhythm, and that for ordinary occasions the rhythm which is likely to be right is a slower one than the one we use at present.

Besides this, another exception is that there are some exercises during which it is advisable not to

breathe rhythmically, but to hold the breath in; other exercises in which it is advisable to hold the breath out.

On the whole, however, it is a good general rule to attend to the even rhythm of the breathing if only in order that you may secure poise and economy and ease of mind as well as of body.

CHAPTER X.

PRACTICE AND CORRECTION TILL THE NORMAL IS RESTORED.

PEOPLE object to the practice of leisurely eating, that it is intolerable worry to be thinking incessantly of the number of bites. It would be, if one had to be thinking of them incessantly. Instead of that necessity, however, proper practice will soon make a good (or, alas, a bad) habit almost automatic and inevitable. Go back to the days when you learnt walking, piano-playing, anything you like, even putting on your clothes; now you do such things sub-consciously, once you did them again and again with great thought and care. So proper practice of better breathing, till you have restored the normal, will lead to careless ease together with correct action. That is the ideal of life. You do not want to bother about it at all, that is the wrong word; you want to attend to it sensibly and without boredom, till you have got back the health which is your right.

This may, of course, mean self-correction at intervals. But, in the case of breathing, such self-correction is quite easy, quite brief, and not of necessity morbid. You need not lie on the floor to do it; you can do it anywhere, anywhen.

When we say "restore the normal," what do we mean? A normal man is one who is so fit that he can turn his energy at will in any direction which his higher conscience dictates. He is not over-developed; he is developed all-round. He is capable of prolonged effort, if need be, without exhaustion.

In order to become normal, begin at once. It is never too early to mend; it is never too late either; but the earlier you begin the easier it is.

For, when you are set, when the bones of your body and the cells of your brain are less pliant and docile, it is difficult to change. Teachers say how much easier it is to teach military riding to a duffer than to one who can already ride in the ordinary way. Therefore begin to practise as early as you can, and as often, before stereotyped old age comes; and remember that old age may come while, theoretically, you are only fifteen or sixteen. It is not a matter of actual years; it is a matter of open-mindedness and adaptable-bodied-ness.

But do not practise hurriedly and tensely. Practise leisurely and affectionately. Practise gradually, too. Here is an example of gradual practice, taken from Behnke's book on the Speaking Voice:—"In exercising the lower breathing first, begin slowly breathing in through the nose and out through the mouth." (I should prefer to begin breathing in through the nose and out through the nose, with a view to the good habit during sleep). "Then increase the pace, then add these syllables in turn as you breathe out through the mouth—*ah*, *oh*, *oo*; then, when these are easy, say all three syllables in succession as you breathe out through the mouth." Begin to practise while you lie flat on your back; let the next practice be when you sit; the next when you stand; and the next when you walk or go through various exercises.

Do not over-develop beyond the chance of future exercise up to that mark. Take warning from men who have rowed much in races, and who then give up their rowing. They have over-developed their various breathings; they have, as it were, built for themselves a ridiculously large house of which they can only use a small part in later life. That house they cannot suddenly unbuild or let. Remember that you can "let" no part of your lungs or your chest-box. The result is that dust and disease-germs accumulate in the lumber-rooms.

How can you practise without becoming morbidly self-introspective? Your help is not to practise with tension, but rather to smile when you are in private. Another is to be unobtrusive, to let no one guess that you are practising, or that you have practised, until you can invariably show improved results. Then is the time to tell others what may help them.

And always keep the sense of poise and proportion. See that better breathing is an essential member of better living, but is not the whole of better living; that it is only a means to all-round fitness, but is not all-round fitness itself.

CHAPTER XI.

INDIVIDUALITY.

In spite of all that specialists have said about breathing, they have for the most part missed the important point above-mentioned, that each has his own rhythm. This tells against orthodox class-work at the word of command. But it is possible to practise breathing in a class. Only the pupils should be allowed to find their own "tempo." That is to say, when the order is given, the individual should be allowed to carry out the order at his own time and with his own rhythm. He should do the exercise none the less correctly because of that freedom.

Individuality must also be considered when we come to correction or self-correction. A man may need to develop his upper breathing; a woman who has been used to wrong corsets may need rather (see Fig. 2) to develop her lower breathing.

Nor must the correction be violent. I remember a paper-knife which I once had, made not of ivory, but of imitation ivory; it became bent in one way. Now it was not sufficient to put the blade straight, for it returned almost to its original curve; it was necessary to bend it too far in the other direction. But by bending it too far I produced another wrong curve, and nearly snapped the knife. There is need for care and gentleness.

There is individuality, too, with regard to the ways of practising. Some may be able to arrange the breathing-practices, by judicious change, so that they last for half an hour at a time without dulness or strain; others find a minute of concentrated work every now and then sufficient. The late Archbishop

of Canterbury had a friend who worked best with his brain when he went at full speed for a few minutes, then had a long rest. Some people work best with very long stretches.

Many individuals can get more advantage by practising breathing alone, others by practising breathing together with exercises that help it.

There is individuality, too, in the motives. I need only refer to the following chapters. A is interested in athletics—show him how he can enjoy them more and succeed better at them by better breathing, and he will practise better breathing. B does not care about athletics; she only cares about personal attractiveness; you must show her how she can improve herself in this way by better breathing. C is anxious to strengthen his character; you must show him the effect of better breathing on character. D wishes to know the "logic" of better breathing; convince his reason that such and such ways are right, and he will practise them. E just wants some example of a person who has found better breathing of great use; without this personality, she will not be induced to practise at all. So it is in diet. Whereas many will pretend that there is only one way, perhaps wholemeal bread and apples, and only one motive, perhaps humaneness to animals, we know as a matter of fact that there are many ways and many motives, according to the individual.

Individuality is ignored by those who teach only one system and who appeal to only one motive. They forget that motive is not motive unless it moves people.

CHAPTER XII.

"ONLY-ONE-SYSTEM" TEACHERS.

LOOK through the advertisements of almost any paper, and you will see the meaning of this expression. Here is a man advocating his system of exercises as the sole system for one and all. As a matter of fact, his system is good for certain purposes, but is not needed by all, not useful for all, not even safe for all. The stress and strain system has its value for certain classes; for certain other classes it is a positive hindrance to activity and health. Just as misleading as this advertiser are those who do not advertise at all, but simply repeat that games and athletics are all that a man needs in the way of physical training. Then there are the gymnasts who find work with fixed apparatus amply sufficient. Against them rushes the specialist who condemns apparatus altogether, and will have nothing but short and sharp free work. After them comes the exponent of a strong spring-grip dumb-bell system with the two hands always working tensely together. Yet another "only-one-system" teacher says: "Never do a movement that is not slow and tense; use my 'antagonizing' system without apparatus." A Delsartean teacher, on the other hand, may say: Firm centres, free extremities, repose, no strain, no quickness, no apparatus either. What nonsense!—says yet another teacher—every exercise should be an exercise in tension without apparatus; never mind about the extremities, develop the trunk-muscles in this way, for it is all that anyone in the world shall ever need.

Now all these teachers are likely to have some sort of truth in their systems. But to teach one system is

only, so to speak, a single facet in the many-faceted crystal of truth. And these teachers do have their function in the world; they help us to see their one side of the truth far more clearly because of their very exaggeration. Dr. Haig is against Uric Acid. By reading his book one gets a clear, because an exaggerated, idea of the mischief which Uric Acid might possibly do, and of the sources whence diseases might possibly come.

So it is with breathing and voice-production. We have already described a lady's experiences, in the "Physical Educator." Each master in turn gave her an entirely different Course. She seemed to think that every one of her masters was wrong except the final one. We think otherwise. We see some virtue in all of them, all virtue in none of them.

We might perhaps be in favour of the "Only-one-system" teacher if his or her system developed all the breathings in the right order; this would do little harm, at least, for the young. If a teacher came forward who trained first the lower, then the middle, then the upper breathing, then two together (especially, perhaps, the middle and upper, with the diaphragm raised), then all three together; and if he also taught the relaxed breathing, and the gingerly breathing in bad air, he would be doing a very great service to the world, though he might be training some people to develop that part of their apparatus which was well-developed or over-developed already. Even this last method of teaching would not be ideal; the selection of methods is an individual matter.

Most teachers, however, are in favour not of every kind of breathing, but of only one kind. This teacher says, "Breathe only abdominally"; that teacher says, "Breathe only diaphragmatically"; another teacher says, "Always keep the diaphragm up and use the outward (or middle) and upper breathings." Another says, "Use the gentle top breathing." Another says

"Use the relaxed breathing most of all." Now this last advocate is not as absurd as one might think, seeing that the best relaxed breathing should be preceded by the full breathing: *i.e.*, it involves the three kinds of breathing as part of itself.

Again, there are others who say, "Always breathe out through the nostrils," others who say "Always breathe out through the mouth."

Others will give breathing-exercises invariably with some subsidiary exercise, for instance, the raising of the arms as you inhale, the lowering of them as you exhale. Others attend not at all to the breathing, and say, "Shut your mouth, take exercise, and the breathing will attend to itself."

In order to avoid such ignorance, I will try to explain the different kinds of breathing, so that each may find out for himself the special kind in which he is weakest, and may attend to that kind par excellence. Possibly, if he is a man, his upper breathing will be the weakest; if she is a fashionable woman, the lower breathing.

CHAPTER XIII.

DIFFERENT KINDS OF BREATHING.

THE next chapter (XIV.), on comparisons, will help the non-expert reader to understand something about the lungs. Of all the comparisons we suggest that he should keep in mind the one of the room into which he wishes to introduce as much fresh air as possible. The room has floor, walls, and a ceiling, which he can send out and in. It has an open window; but the window is in the ceiling. It is through this window that he can let in the air. The lungs themselves and the whole apparatus are described more fully in almost any book of anatomy and physiology.

The lungs may be compared to a large sponge full of cells innumerable, and permeated by the blood-stream. This sponge is able to take in oxygen, to mix the oxygen with the blood, and to send the oxygen-laden blood through the body. As the blood travels through the body, it gives up its oxygen and takes instead carbonic acid gas and other waste-matters, which it brings back to the lungs, thanks to the pumping of the heart. The lungs then purify the blood once again, thanks to the oxygen, of which they keep a large reserve, but of which they welcome additional supplies sent from above.

The heart shares the chest-box with the lungs. The floor of the lungs is called the diaphragm, a vast muscle which serves for the ceiling of the stomach, liver, and spleen; below these organs again are the

colon and the small intestines—organs of digestion as well as of excretion. Behind are the kidneys.

The ways in which the lungs take in more air are various. It is well to realise what happens when we breathe in fully. First we can send down the diaphragm; it presses upon the liver and stomach below, and allows the lungs to expand downwards; then we can draw up the diaphragm, relieving those organs, and can send the ribs out in all directions—forwards, sideways, and backwards, and allow the lungs to expand outwards; then we can send the air up to the top of the lungs, where the expansion is very small. The chief expansion is below and at the sides. Then there is another kind of breathing—when we follow this full inhaling by a relaxation of the whole apparatus, letting the breath ooze slowly out.

I believe that if you lie down flat on your back you will rather use the lower breathing, even though you may use the middle and upper more when you walk. Many other conditions change the ways of breathings. It is of interest to observe this occasionally.

Now each kind of breathing is good in its place, according to the bodily position and movement, and the mental state, and other conditions. Suppose, for example, that you wish to aid your digestion; by sending down your diaphragm, you help to massage the organs below; by holding up your diaphragm, you free these organs. Or suppose that you feel worried or angry, and need an antidote; you take a deep and full breath in, and you follow it by the relaxed breathing—first all three kinds, then the fourth kind.

Each kind of breathing probably has special effects. Delsarte may be considered fanciful when he describes these effects as narrowly as he does, for he lays down the following law: "The top breathing," he says, "is intellectual and directive, the middle breathing is moral and impelling, the lower breathing is physical

and sustaining." He then points out how people who are wanting in a certain kind of breathing are wanting in a certain kind of faculty or virtue—some being too cold and calculating, others too impulsive and reckless.

Anyhow, a person who experiments is likely to find that one breathing by itself will counteract certain tendencies and feelings. Hitherto we have looked upon one breathing as being of use rather to relieve or supplement another; for instance, a person who is lying down may use the lower breathing particularly, but make that person run hard and the two other breathings are called into play. Delsarte's view suggests a use of a special breathing to counteract some other breathing that goes with some undesirable emotion. This is a pregnant idea.

Perhaps the genius thinks that there is only one kind of breathing, because he does not consciously bring other ways into play. The duffer thinks there is only one way, because he has not experienced the value of any other way of breathing so as to be able to judge by contrast. As a matter of fact, there are many breathings. If you are a genius at the art—if you are able to turn your energy easily in any good direction—it will be as well to let your breathing alone. It would be a pity to bother with practice, except in order to interest yourself and to help others. But if you are not a genius in the art, then try each in turn and notice the special effects. You will find that some kinds are better for some purposes, others for other purposes. If you are quite well, you *instinctively* adapt your breathing to your particular conditions. When tempted to be angry, you instinctively check the short, sharp, jerky breath, and breathe long and full and rhythmical breaths. If you are not well, however, you must work consciously. Instinct is in abeyance; intelligent carefulness, "forethought without fearthought," must take the place of instinct,

till sensible practice and repetition has turned the conscious device into an "acquired instinct." Then you will cease to bother about this or that kind of breathing. Your well-trained under-mind will see that the right kind is used for the special occasion.

CHAPTER XIV.

COMPARISONS.

ILLUSTRATIONS are indispensable. By the illustration of the organs above and below the diaphragm, you can see at a glance some of the organs which are affected by the movement of the diaphragm. But comparisons with what you know already are scarcely, if at all, less useful.

Daily you take meals, daily you excrete in various ways—for instance, through the skin. Now your body should take in just as much food as will nourish you and cleanse you, and should excrete all the rest that you have taken by mistake, as well as all that you have taken and used up. The process of breathing is very similar.

You take in oxygen, you give out carbonic acid gas and other elements.

You take air into your room with elastic sides, which we have just described. We said that it had a ceiling as well as a floor and walls which can be expanded or contracted; we said also that it let in fresh air through a window in the ceiling. It lets in this fresh air through tubes which branch off into smaller tubes in the lungs, and these into still smaller tubes. The ventilating shaft terminates upwards in two openings, one the mouth, the other the nostrils. We may compare the nostrils to a system of purification like that of cotton-wool. Air passed into a room through cotton-wool is theoretically far purer than air passed direct into a room. The mucus of the nostrils serves as a sort of cotton-wool.

Or we might compare the lungs to a football-bladder with a pipe through which it can be filled.

You know how, when a football is well blown out, it moves with more elasticity. If you want, on the other hand, to be calm and quiet, do not keep your football-bladder blown out to the full, but at intervals let the breath ooze out through the narrow pipe.

Probably this is the most helpful comparison for the relaxed breath. Do not force the air out, but let it find its own way quite slowly through the opening.

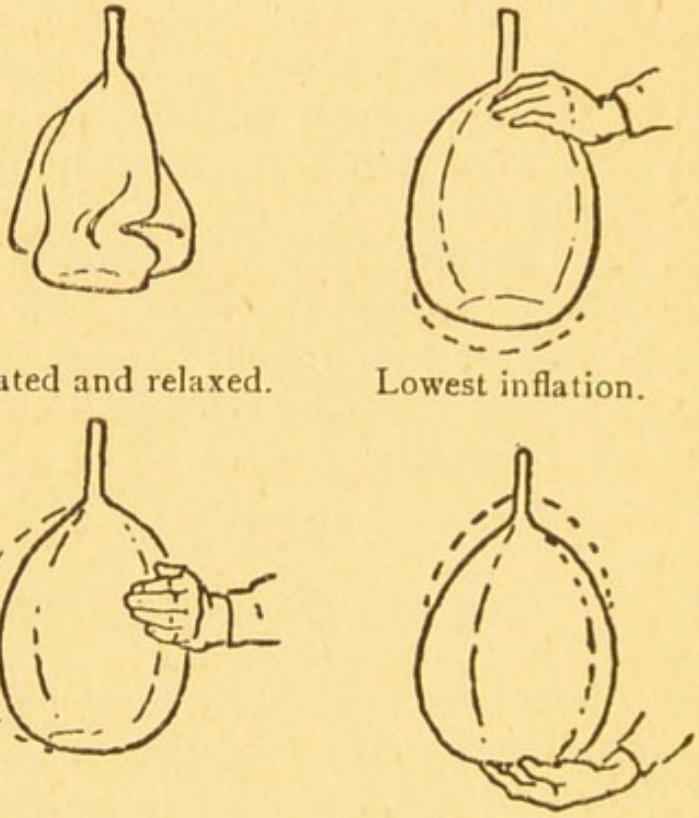


FIG. 7.—Comparison of the Lungs and Chest-box with a football bladder, to illustrate the relaxation after deflation, and various kinds of inflation. (Idea suggested by W. N. Wethered, Esq.)

You think at once of the pneumatic tyre of a cycle or motor. This suggests a further comparison. India-rubber, in order to keep its elasticity, must be made of good material to start with; then it must be kept warm and not too tight and not too loose. Now the diaphragm most of us usually keep too loose; it sags down too low, without elasticity. We can compare it to a piece of perished indiarubber. The way to restore it is to build it anew of better materials (that

is to say, better food), and to bring it gradually back to its right position by strengthening exercises.

The sponge is another life-like comparison. Take a sponge, grip it in your hand until it is quite dry, then dip your hand into a basin of water, let the sponge go, and it *naturally* becomes full of water. You have no part in the drawing in of the water; the sponge draws in the water for itself. When your sponge is greasy, you have to squeeze it out with extra care; and indeed the sponge should always be well wrung out after use. In another respect this comparison is useful. The size of the sponge is no test of its power of washing you well. If your big sponge is full of slime, it may wash you less thoroughly, it may pour less water over you when you squeeze it, than a much smaller sponge kept clean and elastic.

In order that we may offer too many rather than too few comparisons, liken the lungs to a tree which sends its roots downwards to draw nourishment from the soil. That is how a tree grows. Its trunk and its branches and its leaves it sends outwards and upwards to draw other nourishment from the air and light. When the leaves relax, they point downwards. Your breathing, to draw nourishment from the air, may start downwards, then go outwards and upwards, then upwards; and you may relax. Of course this comparison must not be pressed too far; its only merit is that it may help the memory of the order in which the various breathings may be practised.

Trees and plants again suggest the importance of air. Deprive a plant of air and it dies; deprive it of light and it dies; deprive it of water and it dies. A human body, no less than a plant, needs water and light and air to breathe or eat, whichever we like to call the process.

The advantage of plenty of oxygen can be best realised, I think, by the experiment with mice, which

die self-poisoned when air is excluded from a glass jar. Or it may be illustrated by the Bessemer process. A huge cauldron of iron is heated; into this iron, through tiny holes in the cauldron below, there is forced abundance of oxygen. That oxygen vitalises the iron and turns it into the more precious steel. The effect of oxygen in vitalising the lungs and the whole body is somewhat similar.

A few comparisons that may help voice-production are cited in a separate chapter. When you are singing, keep your mouth well open and think of yourself as yawning. Others say that when you are speaking and singing you should try to send your heart into your mouth. Such words may sound ridiculous to the strictly scientific mind; that is no matter; the question is whether they will help you.

More accurate, perhaps, than many so-called scientific "truths," so barren of practical use, is the Eastern parable of the beetle. A prisoner at the top of a tower told someone below to catch a beetle and put honey on the end of its nose and tie a silk thread behind it, and then to start it so that it might climb up the tower. The beetle climbed up, thinking that the honey was just in front of it. The prisoner then drew up the silk thread, and at the end of this a piece of string, and at the end of this a thick rope, by means of which he was able to reach the ground. The beetle would never have pulled up that rope. The moral is, first of all, get something to interest you, some interest and motive, such as greater attractiveness or athletic success; then begin with something easy. The breathing is easy to regulate. Through it, the Hindu says, we may learn to control the various states of the body, and the various states and actions of the mind. Breathing, he says, is the silk thread. Get hold of that. Then you will be able to pull up the string and then the thick rope, and finally lift yourself.

Or we may compare the lungs to some great city like London. Into it come all kinds of things, and out of it go all kinds of things. If London kept to itself all that came into it, or if fresh things ceased to come into it, it would be a mass of disease in a very few days. London, like our lungs, needs plenty of excretion.

Certain people may be helped by a study of words. The word *animal* at first denoted a breathing thing; the word *animate* had a similar meaning to start with, except that *anima* meant not only the breath but also the soul and spirit. That word *spirit* at first denoted breath or breathing. It has a noble ring about it. *The Holy Spirit* is the highest example of its use. Compare also the words *spirited*, and *inspire*, a term connoting vigour and ease of movement. Then there is the word *expire*, which denotes death and the beginning of rest, and the word *dispirited*; which call attention to the importance which people know the breath to possess. Then again we have the words *perspire* and *transpire* in reference to excretion, and *conspire* and *aspire* in other uses. We should like to cite many words from other languages. But it must suffice here to say that these words for breathing, both now and then, wrongly or rightly, have been connected with some of the most striking hygienic, mental, and spiritual expressions that exist anywhere.

CHAPTER XV.

THE LOWER BREATHING AND AN EXERCISE TO HELP IT.

SOME teachers are against the lower breathing. They think you should always hold your diaphragm up. Now it is true that the diaphragm of most people presses on their organs below, including the organs of digestion. To restore the physical balance, you may find it good to keep your diaphragm up for much of the day. Again, the abdomen of many people is too far out; they have what is called the bow-window. To hold the diaphragm up will tend to keep the abdomen in and to improve the figure. For these two reasons, and for many reasons besides, certain teachers taboo lower breathing altogether. They think that it prevents the air from reaching up to the top of the lungs, where consumption so often starts. And there are yet others who maintain that lower breathing is sensual if not bestial. This is exaggeration; yet certainly it has some truth in it. Notice how, when you have eaten too much or drunk too much, your tendency probably is to breathe abdominally.

But abdominal breathing is not the only kind of lower breathing. It is quite possible to expand the lungs by sending the diaphragm down, without sending the abdomen far out. It is important to be able to use this lower breathing, at any rate.

Some people need it particularly, especially badly-corseted women, whose lower breathing may be almost entirely atrophied. Such women depend on middle and upper breathing, or, if they have a particularly bad corset, on upper breathing almost entirely. The lower and middle are cramped, as in Fig. 3.

This lower breathing will certainly massage the organs below the diaphragm, and, indirectly, the colon below those organs. It will thus help the digestion and excretion. The only warning is that you must also get the power to lift it up and to keep it up, as well as to send it down; merely to send it down is not enough.

Here (see Fig. 8) is a simple exercise.

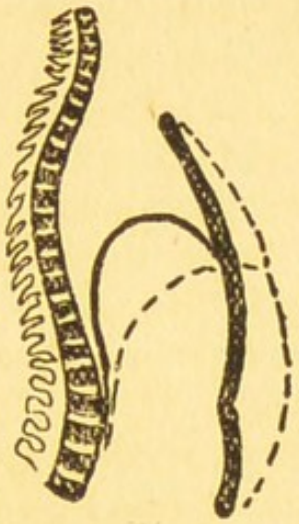


FIG. 8.—The lower breathing.

First send the abdomen out and the diaphragm down as you breathe in and up through the nostrils; then draw the abdomen in and the diaphragm up as you breathe out through the nostrils or through the mouth. When you can do this exercise easily, try to send the diaphragm down while you keep the abdomen in, holding it in with your hands. This is a resistant exercise, to strengthen the diaphragm. Later on you may set a heavy weight upon your abdomen as you lie on the floor and then send the diaphragm down. But do not start with this exercise. As an occasional exercise, later on, it may be valuable; it also will help to strengthen the diaphragm.

Learn to keep the diaphragm up for a long time, as well as just to move it up; for this will take the pressure off the stomach in case of the distension of the stomach popularly known as indigestion.

A very different practice, but one that may be useful as a remedy for certain forms of indigestion (do not practise it after a meal), and of constipation, is to breathe well in and down; then, as you hold the breath in, move your abdominal walls vigorously in and out.

Among many exercises to help you to keep the diaphragm up, practise the following, which kills two birds with one stone. First, as you breathe in, send the abdomen out and the diaphragm down, then draw the abdomen in and the diaphragm up, and keep them thus while you hold your breath and bring your hands, with the shoulders well back, above your head, and with your finger-tips massage the top of your head so as to promote the growth of the hair.

CHAPTER XVI.

MIDDLE BREATHINGS AND EXERCISES TO HELP THEM.

MANY authorities maintain that it is more effective, when you practise the middle breathing, to keep the diaphragm held up and the abdomen held in most of the time. In that case, practice of the middle is to a certain extent practice of the upper breathing also; for the air is sent well to the top of the lungs. While you do this exercise, keep one hand, or both, on different parts of the ribs in turn. Do not neglect the ribs at the back; they should move outwards as well as the ribs at the front. Holding your diaphragm up and your abdomen in, your hands on your ribs in front, extend the ribs as you breathe in through the nostrils, and draw them in as you breathe out. Now hold your hands on the ribs behind, and extend your ribs as you breathe in, and draw them in as you breathe out.

You will notice a very considerable sideways movement. Now each of these breathings—forward, back, and sideways—should be well developed. In each case you keep the abdomen in and the diaphragm up. So as to encourage the forward breathing, keep your back stretched by bending forward; but do not strain; do not be too rigid and stiff. The chest, being unable to expand backwards easily, tends to expand forwards. Conversely, keep your front part stretched by bending backwards, and you will expand your chest backwards. Keep your right side stretched by bending to the left, and you will expand your chest to the left; and vice versa. Suppose you want to

expand your ribs on the right front side, bend back to the left. In each case—*e.g.*, in Fig. 9—notice that *you also exercise the opposite breathing against resistance.*

Most people ignore the different kinds of middle rib breathing, as I did myself in my earlier writings; and, indeed, they pay too little attention to the exercises in actual breathing, too much attention to the exercises of the subsidiary muscles. For my own part I should rather not practise such exercises much until I had mastered each breathing by itself—for

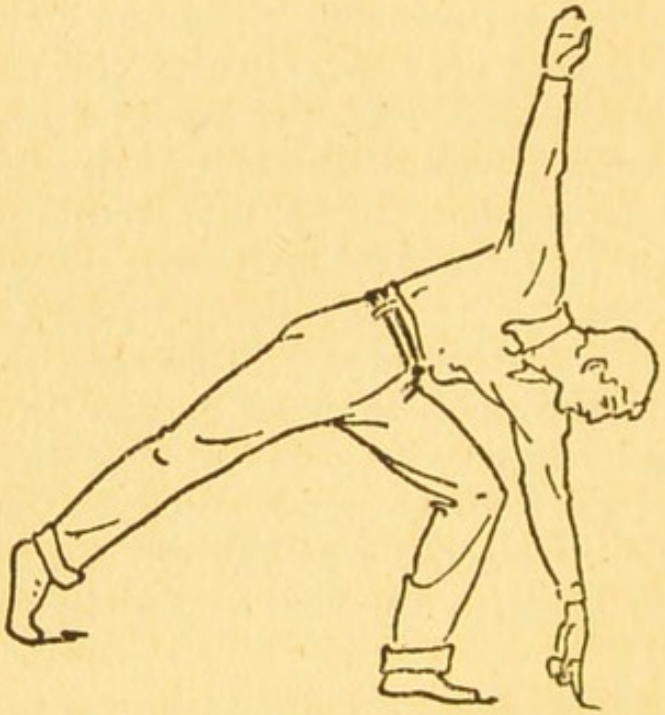


FIG. 9.—Sometimes breathe in as you come down to this position. Sometimes breathe out as you come down to it.
(Adapted from Behnke's "Speaking Voice.")

instance, until I could do each kind at will when I sit, without moving my arms at all.

The best exercise with the hands is to put the hands on the parts which you specially wish to move out or in.

Then should come exercises to help on the different breathings.

Then should come exercises to hinder the different breathings, so that you may perform them against resistance.

So I prefer to begin game-practice (for Racquets, etc.), without implements, then to use very light implements, then we use the implements of the game itself; then occasionally I use extra-heavy implements.

There are many subsidiary exercises. They have been cited in "The Training of the Body." The fault I made there and in the "Physical Educator" was that the exercises were for the two sides of the body together, not for the two sides in turn. I now prefer the latter kind, relaxing one side while the other moves, and not moving so often with the two sides parallel, as if I were a freehand drawing.

Standing well poised, with the feet not too close together, and with the chin comfortably in, keep your left hand limp and relaxed by your side all the time. Now take a deep breath in and up through the nose, holding your abdomen in and your diaphragm up, and, as you breathe in, lift your right hand, with the palm forwards, above your head. Meanwhile lift your head up and back so that it looks at your right hand above you. Now begin to let out the breath as you bring your head forward and your hand down. Perform this exercise with the right arm relaxed, and the left arm raised. Repeat it three times altogether, with each side, then do it once with the two sides together.

After a week of practice, reverse this exercise. That is to say, breathe in; then, as you raise the right arm and hand and head, breathe out, hold the breath out for a moment, and, as you breathe in again, of course through the nostrils, let your head come forward and your right hand down.

Fig. 10b shows the kind of exercise I prefer to the orthodox one in Fig. 10a. Keeping one hand relaxed, raise the other hand to the level of your shoulder as you breathe in; lower it as you breathe out. Reverse the sides. Perform twice more. Then use the two sides together twice.

We must remember that there is probably no one exercise that helps all the breathings equally. The exercise that will best help the outward movement of the ribs in front, will not best help the outward movement of the ribs behind.

I could suggest a large number of movements that are valuable, but I am forced to select only a few of them here. First practise them breathing in as you move up, breathing out as you move down. Then, after a week of practice, reverse this rule.

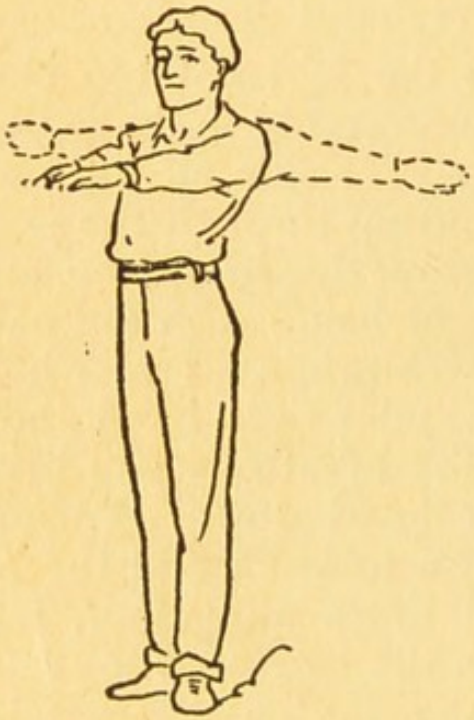


FIG. 10.—(*a*) Orthodox Exercise with the two sides together.

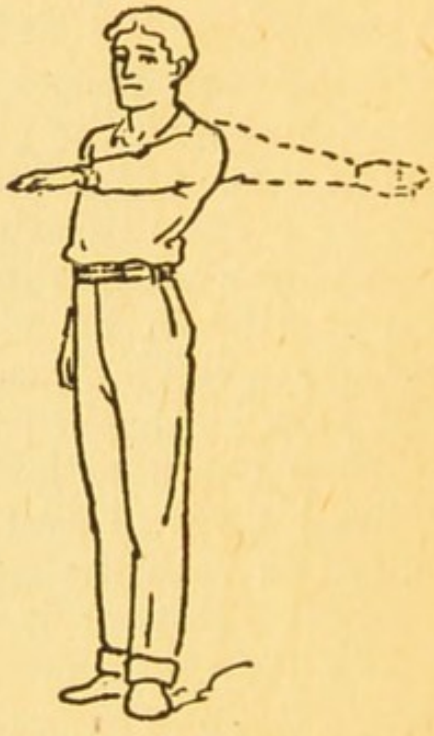


FIG. 10.—(*b*) I prefer often to use the two sides independently.

Breathe in fully—through the nostrils, of course; now, as you breathe out, stretch and stoop down with your right hand (but keep your left hand limp and relaxed), to a point about 12 inches from your right foot; pick up an imaginary ball, and, as you rise up and back, bring your right hand well behind your right ear, while you breathe in fully. Now breathe out while you shoot out your right hand well in front of your face as far as it will go, with a throwing action.

Now do this exercise with the left instead of the right side.

A modification of a Doherty Lawn Tennis Service may next be practised. Keep your left arm and hand hanging relaxed all the time, and your left foot a fair step in front of your right. Now, as you breathe in, draw your right hand well back and down to a good distance, so that your weight is brought upon your right foot. Hold your breath in for a moment or two. You should throw your head well back.

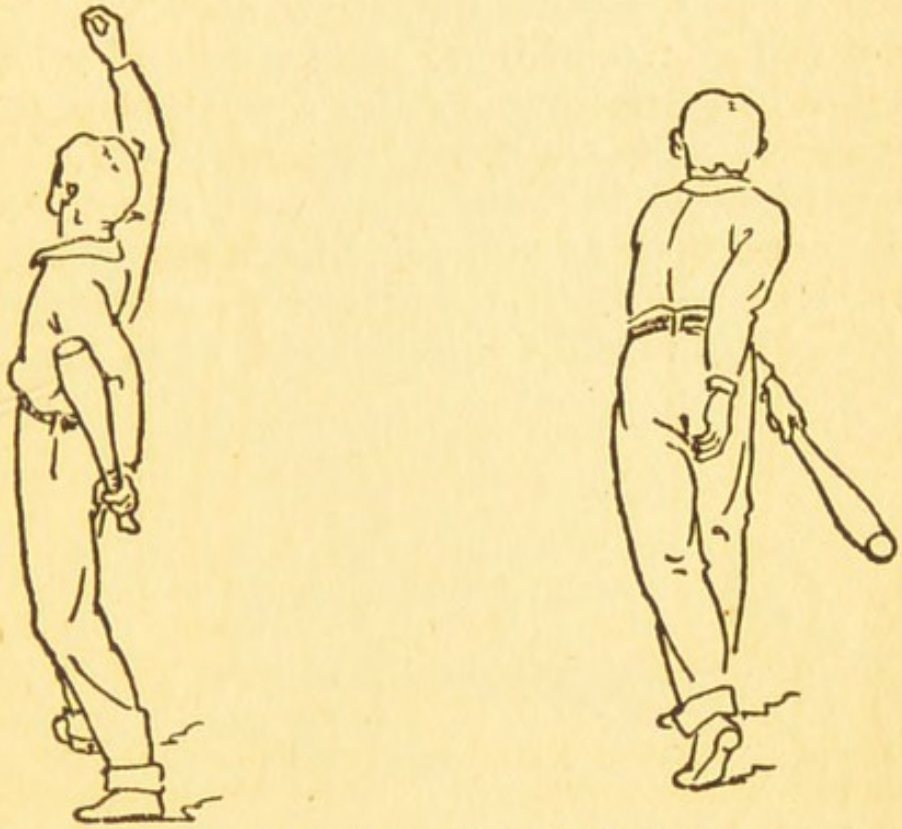


FIG. 11 (*a*) and (*b*).—An adapted Lawn Tennis Service, left-handed, as a breathing-exercise.

Now, as you bring your right arm and shoulder round and up to its full extent, with the action of the overhand lawn tennis service, let your head come up and then forward and down, and let your breath come out. You should end up the swing with the weight on your left foot and your right arm not far from your left leg. Now, as you breathe in, recover the earlier position, and hold

your breath for a moment; then, as you shoot it out, spring forward with both feet.

Afterwards do the exercise with the left side, as in Figs. 11a and 11b. But keep the right side relaxed all the time.

Then go through a rowing stroke, but keep the left hand relaxed as you do the action with the right hand. Swing the trunk forwards from the hips, keeping the chin in, and the small of the back hollow, and at the same time extend the right hand well forward—all this as you breathe in.

Then, as you breathe out, draw back your trunk as far as it will go; next bend your arms and go through the action of feathering. After a week of practice, do this exercise with the breathing reversed. That is to say, breathe in; then, as you come forwards, breathe out; then as you come back again, breathe in again. Now do both these exercises with the left side, keeping the right side relaxed, as in Figs. 12 (a) and (b).

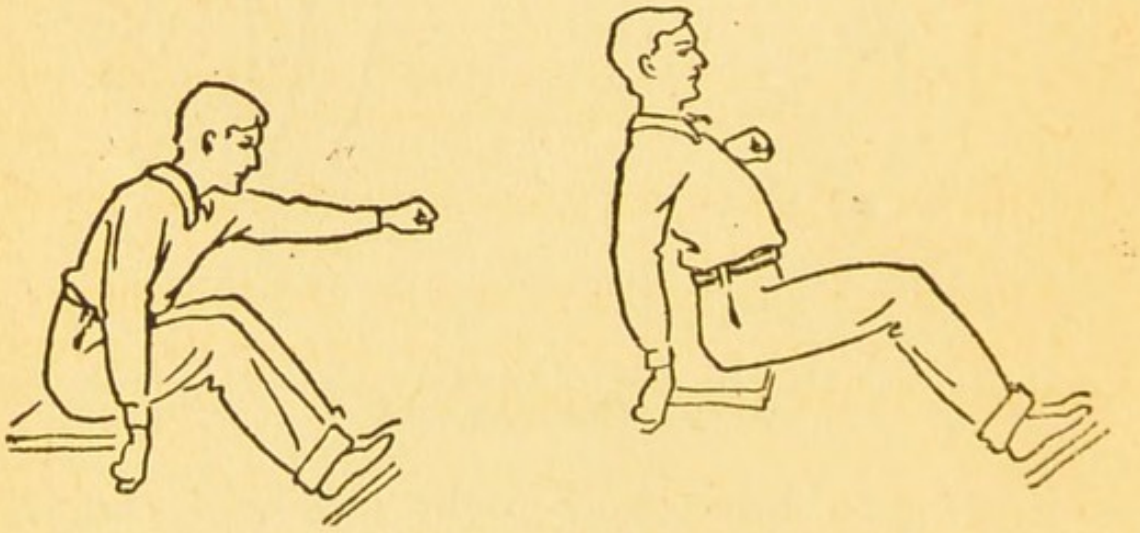


FIG. 12 (*a*) and (*b*).—An adapted Rowing Movement, left-handed, as a breathing-exercise.

For a change, take a good breath in, and go through the whole exercise with the breath kept in. But do not strain.

Now lie flat on the floor or on the inclined plank, with something to hold your feet down. Keeping

your hands to your sides, breathe in as you lift your trunk up to a sitting position, letting your head rise last of all, so that your back is hollow; now come forwards till your hands touch the tips of your toes. Breathe out as you slowly come back to the first (lying) position. Afterwards reverse the breathing.

Then get down on the floor, with your face to the floor and your abdomen nearly or quite touching the floor, and raise your weight upon the palms of your hands, your elbows, of course, being bent. Keep your chin in. As you raise yourself up from the floor,

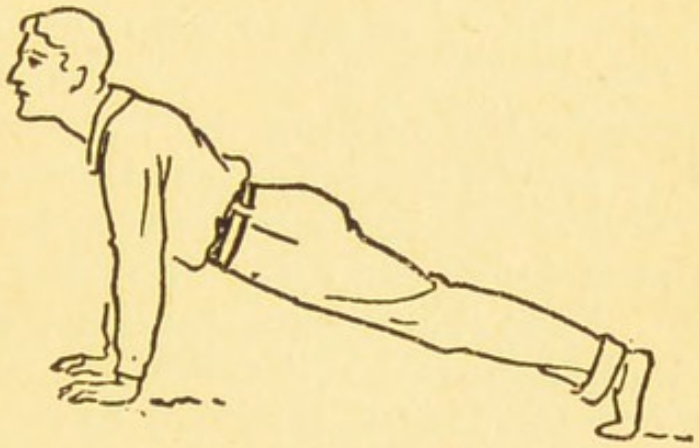


FIG. 13.—A Floor Exercise which should strengthen some trunk muscles as well as the breathing.

breathe in. As you let yourself down again, breathe out. (See Fig. 13.)

After a week of practice, reverse the breathing.

Other exercises will be found among the general exercises below (see Chapter XX.).

CHAPTER XVII.

THE UPPER BREATHING AND EXERCISES TO HELP IT.

OF "gingerly" breathing in bad air, we shall speak presently. Here we wish to say a few words about the art of sending the air up to the top of the lungs after the lower and middle breathing. Put your hands (or one of your hands, while the other hangs relaxed), over the collar-bone, so as to help you to send the breath upwards.

Now through the nostrils fill the lungs, first by sending the breath downwards; then draw in the abdomen and send the ribs outwards; then, still keeping the abdomen in, draw the ribs inwards. Do not strain. Then bend the trunk forwards to the right, and afterwards to the left as you push the shoulders down. This is intended to force the air to the top of the lungs, by sending it away from the lower and middle parts of the lungs.

A more severe exercise is to fill the lungs fully once again, as before; then, with the abdomen in and the diaphragm up and the chest-walls in, to bend in these various directions with the shoulders kept well down, and to pat the chest with the hands.

A still more vigorous exercise, not to be tried at first, is this. After breathing in fully, as before, and then constricting the lower and middle parts as before, and keeping the shoulders down, bend your trunk so far forwards, and then so far downwards to each side in turn, that you force the air still higher up than before. But begin gently.

CHAPTER XVIII.

THE RELAXED BREATHING, AND EXERCISES TO HELP IT.

THE person who is naturally restful or naturally sluggish has little need of this exercise. It is meant especially for the New-York-like person who is tightly and uglily knotted in face and in hand, and indeed almost throughout his body, and who thereby is wasting valuable muscular and nervous energy. He may seem to be working quickly and hard, but he is working without poise and without repose, and in a way most extravagant of power. No one can accuse him of being passive.

Now the relaxed breathing is good on many occasions—before crises, such as examinations and matches; before worry; before other unpleasant emotions, such as fear and anger, or in order to remove these emotions; before sleep, before meals.

It is not everyone that has the courage to practise the relaxed breathing in public. But a modified form of it is quite easy. As an instance of relaxation, look for a moment at something in the far distance, or shut your eyes and picture and think of something in the far distance. Is not that a relief? Now screw up your eyes, and focus them anxiously upon some object just in front of you: you realise the contrast. Now unfocus and untense your eyes again, relax them, and you are more restful.

Or try the same with your mouth. You are clenching your teeth; unclench them, smile, try to make your face tranquil, and away with that frown. This is another instance of untensing.

I have a whole Course of exercises in untensing and relaxing. Only one or two of the movements can be cited here.

Before you relax, you can shake your extremities, especially your finger-tips and hands, and then you can extend your extremities; that is easy enough. Next rise on tip-toe, stretch one hand out to your side, rotate it as far as it will go in both directions, then stretch it up and rotate it again, then stretch it back and rotate it again; then stretch your head up as far as it will go and rotate it, but very cautiously at first.

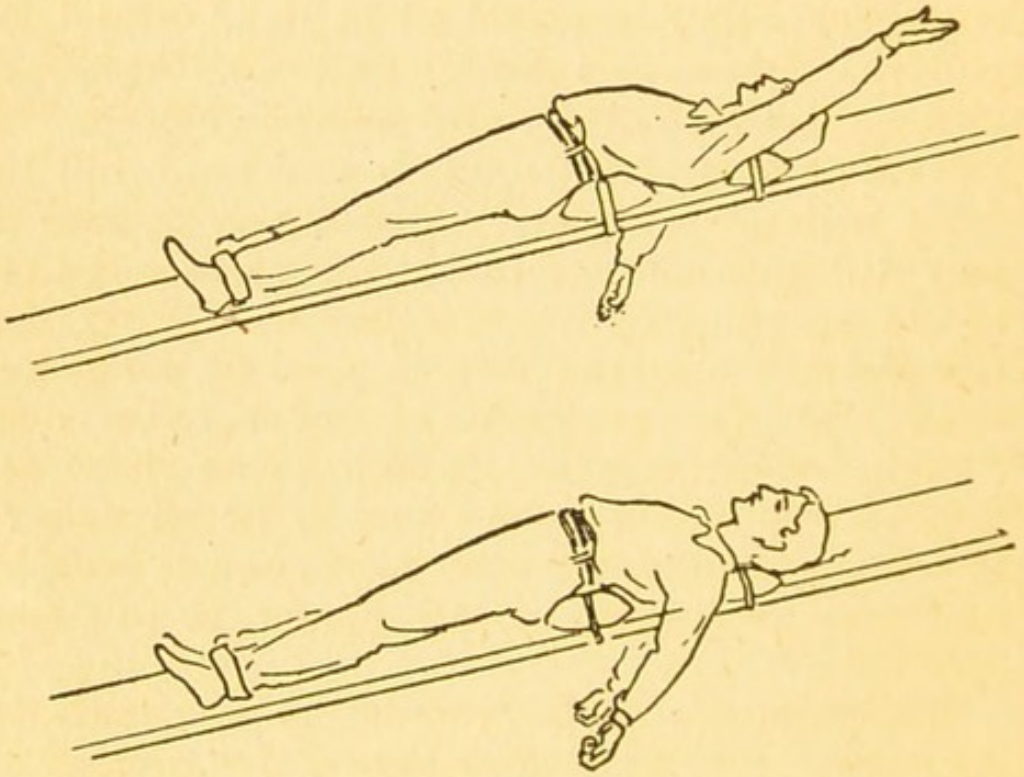


FIG. 14 (*a*) and (*b*).—A Breathing Practice on the inclined plank.

Now for the relaxed breathing itself.

Be sure to take advantage of every outward breath to make every possible part of you more limp and heavy and reposeful than before. We quote the first exercises from the volume on "Quickness."

Get a plank, and lean it securely against some article of furniture; or else use the special kind, covered with cork lino, etc. Lie flat on it, and you

will find that the blood will not rush to the head. You can do on this plank certain exercises which you cannot do at all on the floor, and which you cannot do so well standing.

As you breathe in fully—be sure not to frown—lift your right hand above your head, with the palm facing forwards, while your left hand hangs limp and easy. Hold the breath a moment. Then, as you let it ooze out of its own accord, let your right hand sink quietly downwards. Repeat the full inward breath, but do not lift up your hand and arm a second time. Relax your right hand more and more, as the second breath oozes out. Feel yourself heavy, let yourself go completely. Do a similar exercise with the left side, as in Figs. 14a and 14b. Do a similar exercise with both sides together.

Be sure not to hurry. You are in private now, so you can smile comfortably. And even in the presence of others you can come nearer to smiling than you usually do; you can have a sort of a shadow of a smile. In the presence of others you need not "lollop" your head forward upon your chest, as in the full relaxing exercise; it would be better than nothing to relax a little, to let your head come a little forward, and your arms hang a little limper, if only for a few seconds.

Ridiculous as such exercises may sound, they are necessary for men accustomed for generations to plenty of outdoor exercise as a physical outlet of physical energy. These men are pining for physical expression, and they express themselves by the clenching of the whole body. The energy which in past generations would have been expressed physically may now be expressed intellectually and spiritually, if only you can conserve it by such means as we have suggested.

The essence of the practice is for you to untense yourself for awhile, and to become poised and rhythmical and reposeful. This you can do by making your breathing more thorough, more regular, more leisurely, and by using each *outward* breath to enable you to relax more and more completely.

CHAPTER XIX.

GINGERLY BREATHING IN BAD AIR.

AN art much neglected by breathing-specialists is that of breathing as lightly as possible when the air is foul. When the food is foul we eat as little of it as we can; then we use more good food when we can, so as to restore the balance. Here also we must use more good air when we can, especially at night when the bedroom window is open, and in the early morning under the same conditions, and when we go out of the house, the train, the office, the restaurant, and so on.

For the most part, however, we spend our time in foul air. The air of cities, even out of doors, is somewhat foul; but think of the still fouler air in places where we feed, travel, work, listen—at concerts, in theatres, in churches, and even in many gymnasia.

To inhale through the nostrils—that will keep out a great deal of the dust and a great many of the disease-germs, but it will not keep out the carbonic acid and the waste-products given out and given off by ourselves and others.

Such conditions being what is popularly known as "inevitable," let us adapt ourselves to the foul air; let us breathe not hastily nor unrhythmically, but gingerly.

Let us use as little physical effort as possible; for the more physical effort we use, the more air we are inclined to inhale. Let us get into as easy a position as possible.

As a good method of breathing, when the muscles of the trunk are strong enough, I suggest that you should keep the diaphragm up, allow the chest-walls to move very little outwards, and do most of your

breathing—without strain, however—with the top of your lungs.

This may help also to raise the thoughts, which in foul air are none too satisfactory. Foul air is very depressing and enervating, specially for those who are accustomed to fresh air; those who are already poisoned with foulness feel it less. A man can become inured to almost any poison—arsenic, alcohol, tobacco, meat-juice, opium—by gradual acclimatisation, till he can stand doses which would kill a pure-blooded person. But his physical and mental and moral condition is not likely to be so uniformly reliable as if he were pure-blooded. While he is purging his system, he will not be happy; but when he has purged it he will probably be capable of sustained work of such a high level as he never thought possible before.

Part of his way of purging himself will be to add just as little extra poison as he can manage, and to trust to Nature to cure him through his extra care to use all opportunities for restoring the upset balance.

Note.—It has been suggested to me that, in cases where the top of the lungs is clogged, it may be better to do this slight breathing, equally rhythmically, but with the more easily working middle and lower apparatus. I think this is well worth trying.

CHAPTER XX.

EXERCISES TO HELP ALL THE BREATHINGS.

WE should be able to hold the breath in when we have inhaled in the various ways, and we should be able to hold it out when we have exhaled afterwards, and in each case without strain. Exercises in holding in and holding out can easily be devised. You can gradually increase the number of seconds, counting four, five, six, and so on, up to and beyond sixteen.

Most of the exercises will help all the kinds of breathing if you take them rightly; but there is one exercise in particular which will kill a large number of birds with a single stone, and that is better mastication of food.

Leisurely and more thorough eating will give you easier self-control, will keep your mouth shut, and so encourage the breathing through the nostrils, will exercise muscles which are closely connected with the parts about the nostrils, will make the blood and the lymph in that region circulate more freely, and will have—thanks to the digestion—a good general effect on the blood, and therefore on the lungs and muscles of breathing.

Another exercise is the right sort of laughter. There are several wrong sorts, and among the wrong sorts, as a general rule, is the kind that lifts the shoulders up and contracts the chest.

Needless to say, singing and voice-production are magnificent exercises, if you do them rightly.

So is soap-bubble-blowing, provided you avoid strain. It is especially good for the more thorough exhaling of the breath.

In order to develop any individual way of breathing, stop practising the rest. For instance, perhaps your middle breathing is weak at the back; in order to facilitate that, bend backwards so that your chest will expand very little in front, hold up your diaphragm, and breathe in fully, yet without strain. This will give your back-breathing greater freedom. So, if your left lung is weak, get yourself into the position

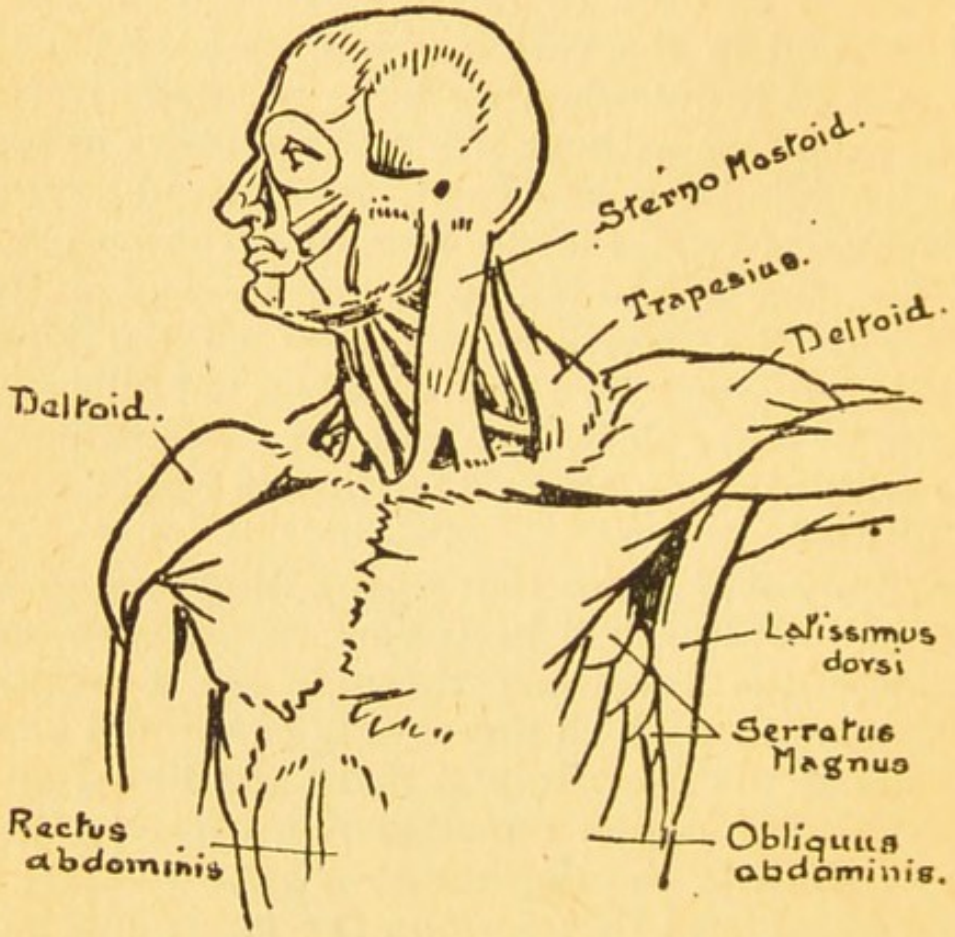


Fig. ...e Neck and other Muscles.

which ...at lung more play. For instance, str... ...k downwards towards the left; that w... your right lung against resistance and let ... lung work easily without resistance.

N... ...xercises would seem at first to have little connection with the breathing; yet think for a moment how, when you send your head back and chin in, you

lift up your chest; by way of contrast, poke your head forward and your shoulders forward as well, and notice how you constrict your chest, and also how you almost force your abdomen out and keep it out. The usual series of neck-exercises, therefore, will help the

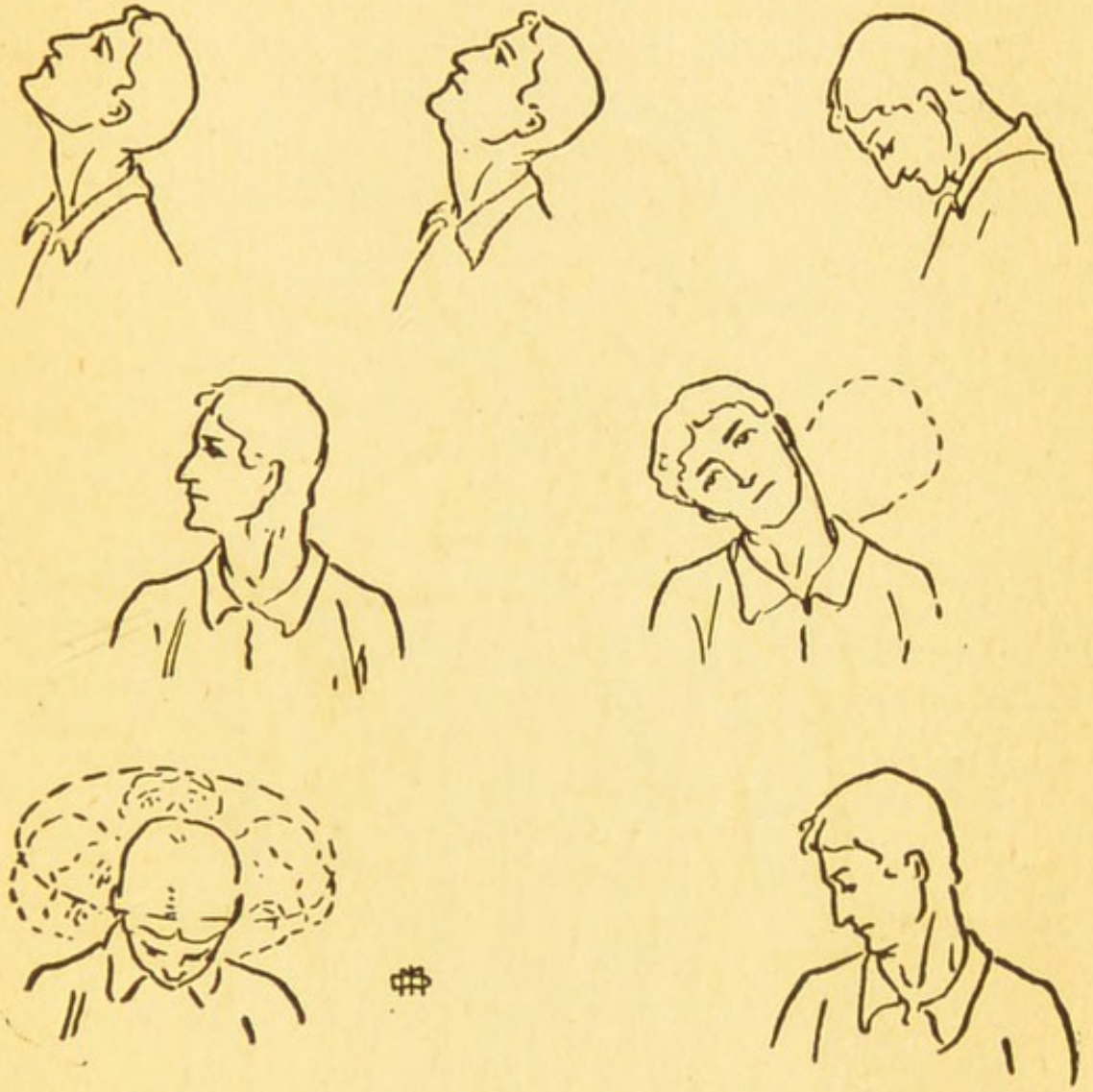


FIG. 16.—Exercises for the Neck-Muscles, which are important for a better position of the body and better breathing.

breathing. They belong to several systems, and have been given in Cassell's "Physical Educator."

First send the head back; then draw the chin in and send the head forward; then, with the chin well in, turn the head to the right, and afterwards to the left; then bend the head over to the right, afterwards

over to the left; then rotate the head, but keep it facing forwards all the time; rotate it in both directions in turn. Keep the lips shut, but do not clench the teeth. Also, turn your head to the right and make a bow to an imaginary person; then do this to the left. This exercise was suggested by a friend some time ago.

Whatever helps better positions and attitudes of body, inevitably helps better breathing.

Whatever helps better attitudes of mind, inevitably helps better breathing. Self-suggestions, which we

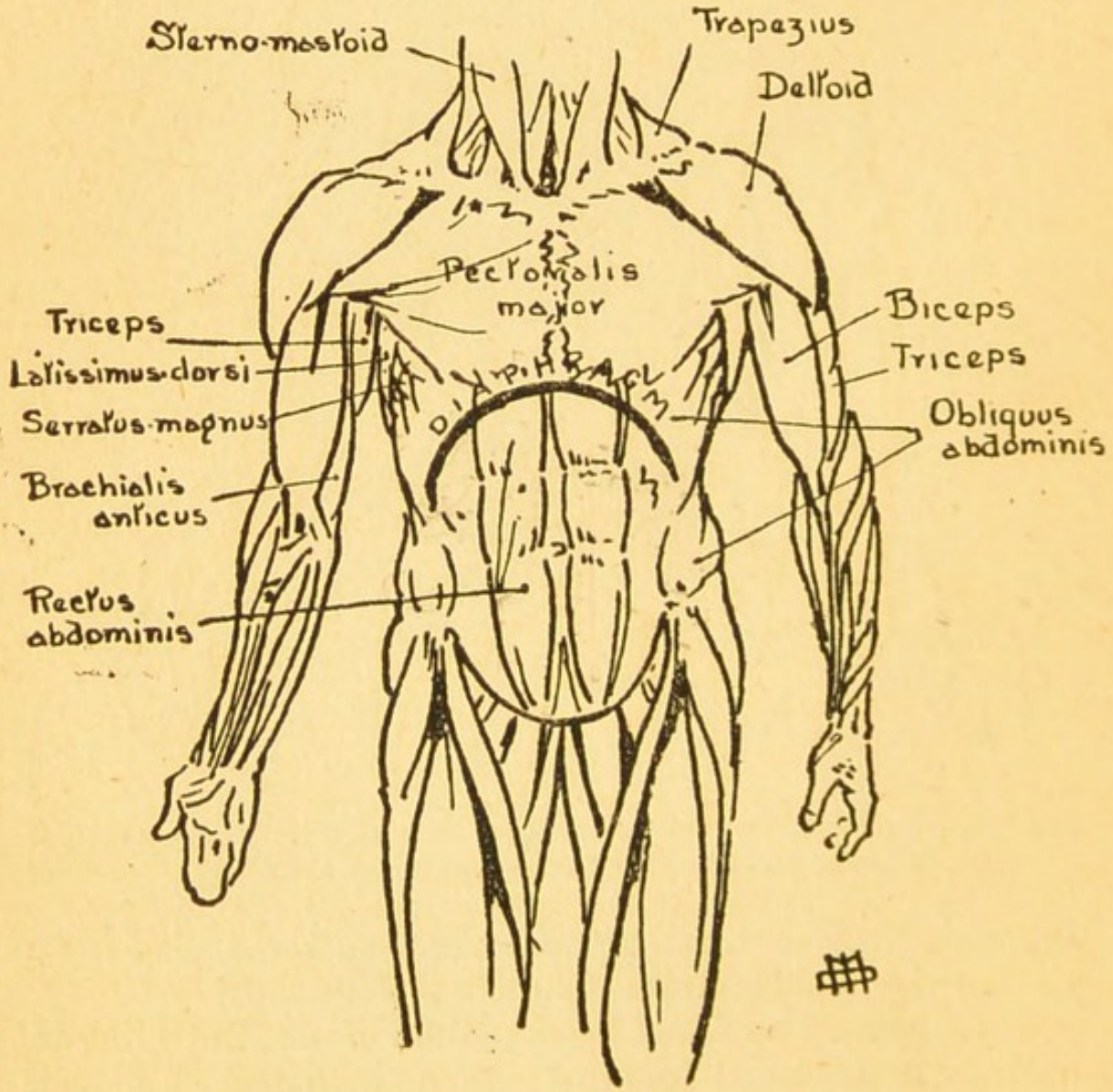


FIG. 17 (*a*).—Trunk Muscles that are important for a better position of the body and better breathing.

shall explain directly, may be your best mental breathing-exercise. Under the heading of self-suggestions we can class imaginations. Think of some good piece of work which you have in hand, and imagine that you have done it and have succeeded thoroughly;

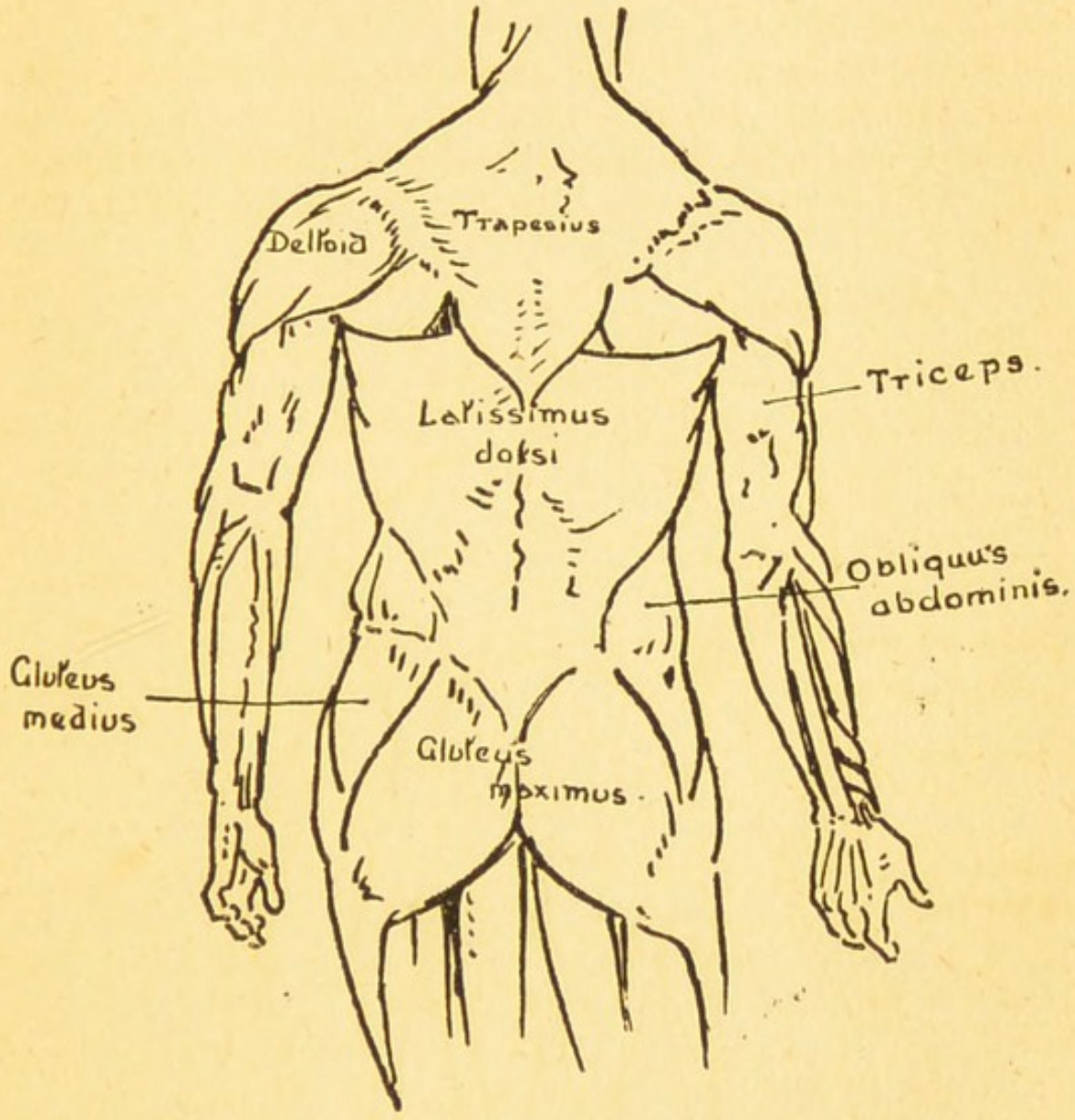


FIG. 17 ((*b*).—Trunk-Muscles that are important for a better position of the body and better breathing.

picture the result, and notice whether it does not raise your breathing, make it more active, more exhilarating.

So, when you encourage anyone sensibly, you are really giving him a tonic not only to his system as a whole, but also to his breathing in particular.

CHAPTER XXI.

OPPORTUNITIES FOR PRACTICE.

CITY-LIFE, much as we abuse it, is full of magnificent chances. But we do not realise them—they are offered to us, but we let them slip by—perhaps while we are worrying.

Now the first thing to do is to work out easy little exercises—not cranky nor yet obtrusive—and to think of the chances which are sure to present themselves to you. Switch on your practice to those reminders. For instance, you will see the door-handle just before you go out; let that remind you to take a deep and full breath in directly you have gone out. Let the door of the railway-carriage serve the same purpose. Let the putting on of your hat serve the same purpose. Also let the taking off of your last article of clothing—whichever that may be—serve the same purpose. But make your own list of good opportunities.

In the early morning blow your nose, and, after you have cleaned your teeth, breathe fully, and relax (we have suggested an exercise above); then massage yourself, if that will help you; then once again practise the full breathings.

The first times, the previous times, so to speak, are the best times; before your day's work begins, before your prayer or self-suggestion, before your washes, before your meals, before your walks, before your work, especially if it is critical work, before your comings in, and before your sleep, and, let me repeat, before—that is to say as a preventive or cure of—fear, worry, fidgetiness, despair, or anger.

Then use intervals during your work or exercises, as the Japanese do, and between your nightly sleeps, if you have any intervals.

Use also your waiting-times, which are probably somewhat numerous; you wait to cross a road, you wait for someone who is to meet you, you wait for a meal. As long as the air is fresh, use it for some breathing-exercise. If the air is foul, as when you are waiting in a train or a bus, anyhow practise breathing rhythmically.

Practise unostentatiously, but keep your own private registers. Notice, for example, the number of breaths per minute now, and a month or two hence.

In private, also, do any exercises which you dare not do in public. Eventually, of course, you do not want to have any such habits as you would be ashamed to perform in public. But the practice for such good habits may be so ridiculous, so exaggerated, that you would rather no one saw you. Remember that a practice is not necessarily exactly like the actual result. Study, too, the American practices for athletic sports, say for walking a mile. Do the Harvard athletes practise simply walking a mile? No. That practice would perhaps only come once a week. During the other times they may go in for short sprints, long distance jogs, and so on. The best practice for a thing is not necessarily the thing itself, especially if naturally you do it wrongly. The best practice may be to take each part, and to exaggerate correct form, as in the goose-step regarded as a training for the walk or march.

But during every day, and especially during Sundays, you will find abundance of openings for useful little practices—such as untensing the eyes and mouth and forehead and hands while you breathe leisurely and rhythmically—which you can do without any fear of annoying or even amusing others. And you might do worse things than amuse others!

CHAPTER XXII.

INCENTIVES TO PRACTICE.

THE fact requires to be dinned into a reader's mind, or, rather, into a teacher's mind, that a motive is not a motive unless it moves. I should say to the reader: "Get as many motives as you possibly can, include all the greatest and highest, such as the desire to help others; only do not omit the least and lowest as well, so long as they lead you in the right direction—in the direction of sensible practice." The greatest and highest will come as realities, of their own accord, if you use the least, yet most genuine, first, to encourage you to persevere in the right direction.

We would appeal to the reader's reason. Is not breathing the commonest act of life? Is it not vital that we should do it far better than we do now? Is not its practice very cheap, brief, easy, and feasible anywhere, and safe and unobtrusive if you use tact?

With regard to other appeals, we must refer to the following chapters. There we touch on athletic success, which breathing may help by increased endurance and calmness; economy, which breathing may help by the saving of energy all-round; improvement of the appearance, including a better figure and better complexion, and greater attractiveness; health, and the prevention or cure of disease; better emotions; more enjoyment; better character through self-control and other results of less incorrect breathing; better intellect—for instance, through calmness and poise; better voice-production; and so on. Note also some of the advantages of the exercises that help the breathing, such as the exercise in lifting one of the arms while you keep the other relaxed.

Add other advantages if you can, under each main heading ; find your own sub-division that moves you to steady practice. What is it that you really want in life? Is it more money? If so, work out how better breathing will help you to save more money and to earn more money.

And, having worked out your own attractive ambitions, switch on your practices to them. Say to yourself, " I want so and so, and the practice of better breathing will help me to get it. I *will* practise. I'm not so weak-minded or idiotic as to neglect this simple little road to success."

CHAPTER XXIII.

BREATHING AND ATHLETIC SUCCESS.

THERE is no doubt that better breathing will tend to greater power and strength, not only of the trunk, but also of the limbs. This may not be so obvious as that better breathing will tend to greater endurance; first because it improves the general health; secondly because it makes you inhale more oxygen; thirdly because it makes you exhale more carbonic acid, etc.; fourthly because it helps you to physical economy through muscular relaxing and non-use of the parts which you would gain nothing by using.

This physical economy, poise, and calmness that comes from the special breathing which gets rid of unnecessary tension, and that also comes from all rhythmical breathing, will tend to remove nervousness, which itself means loss of energy and frequently means athletic failure.

For to be successful as an athlete you must be not only quick, but also, as we have pointed out in the volume on Quickness, calm to direct; otherwise you will be, as it were, hypnotised by your opponent or some trying condition.

Then, again, there is what is called the "eye." It is not really correct sight alone, but a quick and correct communication, first from the outside "stimulus" to the eye, then from the eye to the sensory centres in the brain, which interpret the message and send on an order to the motor-centres in

the brain, then from these motor-centres to the various muscles which are to be combined.

Quickness itself will be increased by better breathing, partly because better breathing spells better health, and partly because the special kind of breathing for muscular relaxing will help to free the extremities as well as to extend them, and extremities that are on the one hand free and lithe, on the other hand able to move to their full stretch, are likely to be much quicker than before.

CHAPTER XXIV.

BREATHING AND ALL-ROUND ECONOMY.

READ carefully the lists of so-called cures and remedies in the next dozen papers that you buy. Calculate the cost, either of the stuffing treatment, the electricity, electric light, and artificial heat treatments, many of the water-treatments, massage-treatments by another, stimulants, drugs, operations, apparatus, holidays, change, and even rest; are not they all expensive?

Now better breathing is not in the least expensive, especially if it be practised sensibly at odd times, as we suggest.

It will save a great deal. By breathing more correctly you will digest more food, and so need less food. You will digest more food because of your more correct positions, your larger amount of oxygen, and smaller amount of carbonic acid, and your better emotions, which undoubtedly help the assimilation of food.

Whereas food is expensive, air and light are free to all; so are opportunities for practice. The above-mentioned remedies are not free to all; they, like the law, are for the rich rather than for the poor.

Not only will you save money, you will also be able to earn more money by more work, quicker work, easier work, better work, with less fatigue, thanks to your energy and purity and poise, and all-round health and physical economy.

You will learn to store up more power as well as to use less power. The Hindus, who have studied and practised this part of physical and mental culture for thousands of years, speak of the breath as the

most valuable help towards the storing of energy. Their word *Prâna* is often confused with breathing or breath; really it is a general word for every kind of energy. Perhaps modern science might rather call it vibration. The Hindu who wishes to store up his energy or *Prâna*, succeeds in doing so to a great extent by the practice of various rhythmical breathings.

We, on the other hand, are supposed to waste nine parts of strength and force for every one that we use to good purpose. We waste these parts largely through failure to breathe correctly, and especially through failure to relax when relaxation would be good. We lose a vast amount, of course, through over-eating, but we probably lose an equal amount through unfavourable emotions.

Now better breathing will tend to every sort of economy, because it will tend to less fear, worry, and anger. This is not merely because it may bring in more energy and more money to you, but also because of its very rhythm and its relaxing influence upon the over-tense muscles. Keep your rhythm leisurely and your muscles relaxed, and you cannot even imagine yourself being nervous or worried or angry, can you?

Remember that these emotions actually break down or tear up the body, poison it, paralyse it. The opposite emotions, which are so easily influenced through the breathing, build up and confirm the body, nourish it, and energise it.

Then by better breathing and its results you help not only your own economy, but also the economy of others. Your poise and calmness and your quiet appearance will be of very great value to others as well as to yourself. This is not the selfish sort of economy usually advocated by narrow-minded commercial and (so-called) "practical" bodies.

CHAPTER XXV.

BREATHING AND GREATER ATTRACTIVENESS.

WE cannot but admire the person with a good chest. Even the fat singer with his double chin and his general puffiness would be a far more miserable object if he had not that fine chest-expansion. The man or woman with a fine chest can hardly fail to give us a certain impression of power.

Then, again, better breathing certainly improves the carriage, if only because it lifts the chest up and sends it out, and because it fills the body with energy, and yet at the same time, if the relaxing kind is included, increases the repose and gracefulness.

In so far as better breathing clears the body of its impurities, helps the digestion, and increases the stock of power, it must improve the complexion and the eye.

Another kind of attractiveness that the art increases, is that which comes through better voice-production. We all must know the persuasive powers of clearness and good tone, as distinct from the dull and muffled sound of some speakers, and the rasping and aggravating sound of others.

More generally, better breathing tends to better expression of face, attitude, and other kinds, for the ways of expression are legion. Better breathing tends to all kinds, especially if it be combined with such simple helps as exercise, water-treatments, and more sensible diet.

CHAPTER XXVI.

BREATHING AND BETTER HEALTH.

FEW people understand what health is. Most people call themselves healthy, although they may have colds regularly three times a year, influenza once, headaches often, worry generally, and although they are at certain seasons of the year almost entirely dependent on their holidays, and throughout the year almost entirely dependent on their exercise. Now this is not real health. I should call Mr. Horace Fletcher far nearer to the ideal, since he is practically free from the above-mentioned minor ailments, and is dependent neither on holidays nor on exercise.

If you ask a man for tests of health, and tests of correct breathing in particular, he will mention the size of the chest. That is a simple enough test, and probably better breathing will tend towards chest-development. Still more important is chest-expansion. Still more important, even than that, is breathing-capacity, which is not the same as chest-expansion. It is essential to realise this. Try the exercise we suggested above. Put your hands on your ribs and fill your lungs with air and keep them filled; now, without emptying them, you will be able to move your chest-walls in and out. That is chest-expansion, and you can practise it just as well with empty lungs; but it is not breathing-capacity. It is really, to a great extent, a use of the muscles that may help the breathing. When, on the other hand, you find that after two months' class-work, with only one breathing-lesson a week, the breathing-capacity has increased, according to Behnke, from 14 up to 68 inches, you have something far sounder; for, provided

the air is fresh, this means that more oxygen has been inhaled and, almost certainly, more carbonic acid exhaled.

As another example of a real advance, Mr. McMillan, in "Means and Ends in Education," says that breathing-exercises were practised in Bradford Board Schools for six months by 40 boys chosen from 80 boys of ordinary physique. The chosen 40 were older boys, and therefore not likely to grow so fast, but they grew one-tenth more than the younger 40 who had no such lung-training.

So striking is the effect of better breathing upon the health, that the practice cannot begin too early. A Hindu *Yogî* will begin to teach his child from the very earliest years not only about God the Father, but also about better breathing. The two educations go on, as they always should, side by side.

The mere fact that you inhale more oxygen, and exhale more carbonic acid, etc., must tend to health.

So must the better position of the body, the organs being kept in right or, at any rate, in less wrong places. Then you are likely to do things better and with less sheer will-effort.

For various other advantages we must refer to special articles in the Physical Educator. There the various aspects of health are considered. Here we need only note, in conclusion, that by better breathing you store up more energy, and therefore have more power to work, more power to resist and prevent or cure disease.

CHAPTER XXVII.

BREATHING AND THE PREVENTION OF DISEASE.

PREVENTION is cheaper than cure. It is also pleasanter than cure. This certainly applies to prevention by better breathing in particular; for it is not every cure or every prevention that is so pleasant. Now better breathing, whether as prevention or as cure, is not in the least unpleasant if you practise it rightly—not violently, not indiscriminately, but sensibly.

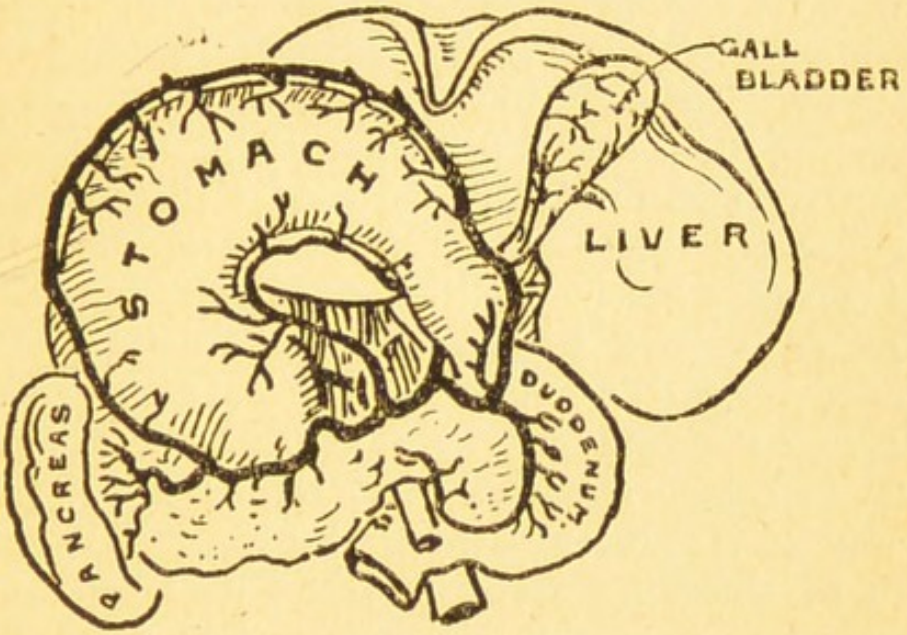


FIG. 18.—The organs below the Diaphragm, and affected by its positions and movements. The Stomach on the left, the Liver on the right.

Its power of prevention and cure is amazing. We quote an extract, from the "British Journal of Nursing," as to the value of breathing-exercises:—

"Dr. Hoffman (*Therapeutische Monatshefte*) urges systematic expiration as the best prophylactic or curative treatment for emphysema. The emphysematous patient in his desire for air does not take time for expiration, because of the rapidly following inspiration, and his respiratory force gradually

becomes weaker and weaker; therefore, before the disease is advanced too far, and whilst the breathing apparatus still retains its strength, the patient should for a quarter to half an hour every day practise deep exhalation. In case of insufficient expirations, a rhythmical pressure on the thorax may be employed to alleviate the condition. The abdominal viscera are affected in an important manner by deep respirations, due to the movement of the diaphragm and the abdominal muscles; it affects the liver, and to a less degree the other movable organs, subjecting them as it were to internal massage. (Fig. 18). The resulting pressure also acts on the veins, promoting venous return. The intestines are also activated; thus deep breathing is of value to those suffering from habitual constipation. In cases of syncope it is an excellent remedy. In threatened sea-sickness it improves the cerebral circulation; it also facilitates the return flow of blood from the abdominal organs, and has a marked psychic effect on the patient."

Consumption and pneumonia are among the most fatally prevalent diseases in America and Germany, as well as in England. It would be ridiculous to pretend, as many breathing-specialists do, that they arise solely from incorrect breathing. Incorrect eating and drinking have a great deal to do with them; so has incorrect thinking. But at any rate better breathing will go far to prevent them. When we remember that, according to the United States census of 1900, consumption and pneumonia were responsible for over 200,000 deaths, and other diseases of the lungs for nearly 75,000, out of less than 700,000, we begin to realise the importance of better breathing in addition to better habits generally.

Then, again, a glance at advertisements is by itself enough to convince us that a second fatally prevalent disease is the self-poisoning due to constipation. Among the many causes of constipation one is that

the organs are in the wrong position, and so are not only squashed down, but also inadequately massaged and exercised. Better breathing will help in these respects, and by its effects in energising the whole system. Moreover, he who excretes many impurities by full breathing out, will have fewer impurities to excrete in other ways. And we must remember how better breathing will warm the body and enable it to cast out many impurities through the skin.

Indigestion is another mischief of the day. Better breathing will help to remove it through better emotions, through better positions of the organs, through better movements of the organs, and through the extra oxygen which is necessary if we wish to assimilate so much food.

But the worst disease of all, surely, is worry. And it is a disease that seems to be on the increase. Listen to the conversation of people at meals, when, above all times, they ought to worry least of all if they wish to digest their meal. Does it not generally return to a key-note of complaint about something or someone? Now worry one can certainly remove to a great extent by better breathing, and especially by the particular breathing that helps muscular repose. Make yourself, or even *imagine* yourself, quite limp and heavy; you cannot easily worry at the same time, can you?

Then there is the terrible disease of immorality, and, more generally, want of self-control. Take the alcohol-habit, for example. Why does the person crave alcohol? There are many reasons, but the chief seems to be that he has lost his poise, he has upset his balance somehow, and wishes to restore the poise and balance in the quickest possible way. Now of all the quick and feasible ways, and at the same time cheap and safe ways to restore the poise and balance, and so prevent disease, and dis-ease, and remove temptation, better breathing is probably among the very best.

CHAPTER XXVIII.

HOW BREATHING MAY HELP THE EMOTIONS.

We all know how the emotions may affect the breathing, if we let them act upon it. Perhaps we do not realise that this is a matter of the will. It is the permissive will rather than the commanding will. Notice how far worry, love, calmness, every sort of emotion, will alter the breathing in a particular way, will alter its rhythm, its deepness or shallowness, and so on. Professor Elmer Gates, of Washington, has proved that every emotion alters the blood chemically. We all know, by watching the face, that it alters the expression, and indeed the muscular action. But we are apt to forget the converse truth, so well emphasised by Professor James in his "Talks on Psychology." He omits to mention, however, that it is necessary not only to form the expression of the emotion you require, but also to *let yourself go* to that expression. Now breathing is only a part of our expression; our attitude, our tone of voice, our pace of speaking, our actual words, the focussing of our eyes, the position of our lips, and so on—all these are also our expressions. But among the most important of our expressions we must certainly count the breathing. By regulating that and becoming, as it were, passive and receptive to the breathing, and at the same time by regulating our other expressions, we can learn to regulate our emotions with extraordinary ease. Professor James cites the case of depression. You feel sad; now express cheerfulness, look cheerful, sit up, talk cheerfully, and as if cheerfulness were already there, and continue this for a short

while, and you must inevitably become cheerful. It is a pity that he did not mention the breathing as almost the easiest and most potent form of expression to regulate.

Think of it for a moment. You can breathe once in a second or sixty times in a minute; you can breathe once in fifteen seconds or four times in a minute; you may even learn to breathe only once a minute; you can breathe in while you count one, out while you count sixteen, or vice versa; you can play all kinds of tricks. As tricks they are of little value, as gates through which you may pass to better emotions some are of value inestimable.

Dr. Maudsley has said that he who is incapable of controlling his muscles is incapable of controlling his mind. He probably was not thinking of the diaphragm as the largest of muscles, nor was he thinking of control in the sense of *not* using. He meant rather that he who is incapable of making his hand or his foot perform this or that movement, is incapable of controlling his mind. As we said in Cassell's "Physical Educator," he who is capable of controlling his diaphragm, and we add here he who is capable of not using his various muscles needlessly, and of regulating his muscular expressions, has gone far towards being able to control his mind.

With regard to another effect of breathing, upon the emotions, everyone is agreed; only this depends rather upon the air. Stand on a mountain, or by the sea—better still, stand on a sea-cliff—and inhale the air. Contrast this with the air of a sewer or a church, and you see that the breathing of different airs may affect the emotions very differently.

Another result of breathing, upon the emotions, comes not only through the air, but also through the digestion. Breathe sensibly, take in more oxygen, relax the unneeded muscles, and so on, and you help your digestion; thence you help your emotions.

How many of our worries and cares come not from the outside world and our circumstances, but from our stomachs and their contents?

By warming us, better breathing will help our emotions also. Comfort and warmth are closely connected together.

Then, again, there is the effect of rhythm, mysterious it is true and little understood, but very potent. What calmness it can bring.

And there is the effect of the better position, which goes with better breathing. Merely to lift the chest for better breathing, cannot fail to improve the spirits also.

It has been held that we live and move thus or thus in order to get less pain and discomfort, more comfort and enjoyment. If a quarter of what we say holds good, then we have abundant reason to practise better breathing. It must give us less pain and discomfort, more comfort and enjoyment.

CHAPTER XXIX.

HOW BREATHING MAY HELP THE MORAL CHARACTER.

WHAT Professor James and Dr. Maudsley have said about the emotions, applies also to the morals. The Latin word for breath and breathing, *spiritus*, from which we have borrowed our word spirit, tells a tale of itself. So does the other Latin word for breath or spirit, *anima*. There is no doubt that the effect of better breathing is towards moral and *spiritual* purity, poise, and patience, yet towards *animated* promptitude and power and persistency.

All these good qualities can be helped enormously by better breathing. It may be to some extent a mysterious way, and indirect, by the effects of the breathing upon the general health, but it is certainly the case that the healthier a man is, the more easily he can behave himself.

A special example of the effect of better breathing is the effect of the breathing for muscular repose. In a month or two, by this breathing alone, without any other help, you may overcome anger, and that other sin, worry. Exactly how far you strengthen your character thereby, it is impossible to say. There are some who hold that the only way to strengthen your character is to give up all such tactics and make up your mind that you will not worry or be angry. But for my own part I do not believe that a man weakens his character by devising and adopting simple tactics.

I have many letters alluding to another effect, and that is the effect of the upper breathing, upon the

self-control in general, when the diaphragm is held up and the abdomen drawn in and the rhythm attended to.

We are not speaking merely of the results of any and every kind of breathing tried indiscriminately. We are speaking only of the results of right breathings practised in their proper places, breathings adapted to the individual and his special conditions and needs.

Nor do we pretend that better breathing is the end and aim. It is merely a means, merely one of the easiest beginnings of moral training. For too many people, however, the moral training stops there. If they breathe rightly, yet do not improve their moral character, by the practice, and afterwards, then the breathing is comparatively valueless to them.

It should always be an exercise for the mind as well as for the lungs and the muscles. As an exercise simply for the lungs and muscles, it does less than a tenth part of its work, this culture of better breathing.

CHAPTER XXX.

HOW BREATHING MAY HELP THE INTELLECT.

SOME of the effects which better breathing may have on the intellect must be obvious already from what we have said about the effects on the emotions and the character. We may add also the advantages of practice itself, *qua* practice, and of method. If the practice of breathing, as we have outlined it, has taught you only just one thing about method, namely, the value of dividing up a difficult thing into parts and of practising it part by part, then it must inevitably have helped your intellect. Apply this same method to whatever your work is. Perhaps it is the work of a journalist. You find it hard to write; now you will learn to divide up your writing into parts, to find out which part is weakest, and to practise that, and bring it up to a higher level. Are you weak at collecting ideas, or at selecting them, or at proportioning them, or at arranging them, or at emphasising the most vital, or at expressing them clearly, vividly, forcibly, and so on? Then, as you have practised your own weakest breathing, practise similarly your own weakest points in English composition.

With regard to another effect of better breathing, upon the intellect, we need say little. By increasing the health, and especially the self-control, calmness, and poise, better breathing must inevitably improve the brain-work. Notice again that many who have big chests, or, rather, big breathing-capacities, can last much better not only in physical but also in mental work.

Nor must we forget how better breathing may help the intellect by leaving more time and energy for work, by making us very much less dependent on external conditions. A leading physician was recently lunching with me, and he told me that he found his lecturing sufficient exercise for the day so long as he produced his voice rightly. Think of the amount of extra time one would be able to give to his work if he were released from the heavy tax, which regular exercise and other luxuries become for most people.

CHAPTER XXXI.

HOW THE MIND MAY HELP THE BREATHING.

ONE of the prominent "mental scientists" in America indiscriminately and uncompromisingly condemns all physical practices, ignorantly forgetting how all physical practices are also mental practices. With regard to breathing in particular, she says, "Never practise better breathing, simply practise a better mind; for the better mind by itself will produce the better breathing. Say to yourself," she proceeds, "I am all mind; my mind controls my body and its surroundings."

Now we freely admit that the person who has absolutely the right mind must inevitably have absolutely the right breathing and body. We admit, also, that if we could practise the better mind, we should have little or no need to attend to the better breathing—it would attend to itself.

But for most of us this piece of advice by this purely mental personage is an exaggeration; it does not appeal to them, *per se*, on their present plane of progress. Of course there should always be the better mind all the while. But at any rate it may save time and labour, and failure and despair, to attend to the better breathing also.

And another branch of the mind's work this "scientist" altogether ignores—never does she urge ingenuity. With her it is will-power, will-power, will-power. Tactics she undervalues. Why not use tactics and intelligence as well as will-power? Why not find out first of all your strongest motives, then

your best ways of practising, including your best ways of reminding yourself of your best motives, and your choice of the best times?

We see, then, that the mind can affect the breathing in several ways. First it can use the body, then it can use ingenuity so as to find out effective interests and methods.

All the time there must be a certain amount of will-power as well. We are not against that. What we are against is the reliance upon that alone, to the neglect of physical and tactical helps.

So it is with diet. Undoubtedly the person with the right mind would choose the right diet without further care. But ordinary people have not yet the right mind, and it may help them considerably to try a certain number of theoretically good foods, and to work out a certain number of tactics, such as to ask themselves, "What motives have I for improving my diet? How can I best begin and continue the change?"

The intelligence comes into play also in observing the effects of this or that diet or way of breathing, especially the effects on the emotions, on the physical and mental work, and their ease and endurance, and so on.

To show how the mind can affect the breathing through the emotions, take Emerson's "Essay on Self-Reliance." It is one of the grandest works in the English language. Read it through and feel if it has not improved your breathing, made it more energetic and full and vitalising. Here are a few quotations from it, followed by the beginning of the familiar quotation from Browning, and another from Walt Whitman:—

FROM EMERSON'S ESSAY ON "SELF-RELIANCE."

. . . . We lie in the lap of immense intelligence, which makes us receivers of its truth and organs of its activity. When we discern justice, when we discern truth, we do nothing of ourselves, but allow a passage to its beams. . . . .

. . . . We but half express ourselves, and are ashamed of that divine idea which each of us represents. . . . .

. . . . The power which resides in him is new in Nature, and none but he knows what that is which he can do, nor does he know until he has tried. . . . .

. . . . There is at this moment for you an utterance brave and grand as that of the colossal chisel of Phidias, or trowel of the Egyptians, or the pen of Moses, or Dante, but different from all these. Not possibly will the soul all rich, all eloquent, with thousand-cloven tongue, deign to repeat itself ; but if you can hear what these patriots say, surely you can reply to them in the same pitch of voice ; for the ear and the tongue are two organs of one nature. Abide in the simple and noble regions of thy life, obey thy heart, and thou shalt reproduce the Foreworld again. . . . .

. . . . Why all this deference to Alfred, and Scanderbeg, and Gustavus ? Suppose they were virtuous ; did they wear out virtue ? As great a stake depends on your private act to-day, as followed their public and renowned steps. When private men shall act with original views, the lustre will be transferred from the actions of kings to those of gentlemen. . . . .

. . . . Insist on yourself ; never imitate. Your own gift you can present every moment with the cumulative force of a whole life's cultivation ; but of the adopted talent of another, you have only an extemporaneous, half possession. That which each can do best, none but his Maker can teach him. No man yet knows what it is, nor can, till that person has exhibited it. . . . .

FROM BROWNING.

There is an inmost centre of us all,
Where truth abides. . . .
(The whole poem should be read).

FROM WALT WHITMAN'S "TO YOU" (applied here as a self-suggestion).

"Whoever you are. . . . .
The mockeries are not you,
Underneath them and within them I see you lurk, ...
There is no endowment in man or woman that is not tallied in you,
There is no virtue, no beauty in man or woman, but as good is in you,
No pluck, no endurance in others, but as good is in you,
No pleasure waiting for others, but an equal pleasure waits for you. . .
Whoever you are, claim your own at any hazard !
These shows of the East and West are tame compared to you.
These immense meadows, these interminable rivers, you are immense and interminable as they,
These furies, elements, storms, motions of Nature, throes of apparent dissolution, you are he or she who is master or mistress over them,
Master or mistress in your own right over Nature, elements, pain, passion, dissolution."

Now, as another example, imagine someone saying to you (or imagine a telegram sent to you to tell you) that you have just come into a fortune of ten thousand pounds. You feel this in a small way when the hero of a novel has come into such a fortune, or escaped from a danger, or gained a success. Well, such self-suggestions you can make up for yourself and give to yourself. It is from America that we expect ideas about money. One of them which I read recently was to the effect that it is a mistake to say "I want money"; it is better to say "Money wants me. Money is searching about for me, and I will be kind enough to let it find me."

Perhaps, however, your reason opposes such suggestions. You cannot believe yet that money does want you. You can only go so far as to repeat with genuineness that you do want money.

Start, then, with what you can agree to. Here is a capital example, already cited, with regard to breathing. You can say with genuineness, "I breathe in oxygen and energy; I breathe out carbonic acid and fatigue." Now add a little to that in the way of self-suggestion. You have something which you desire, including energy and success and self-control. Say: "I breathe in oxygen and energy, and success and self-control." Say this as you breathe in. As you breathe out, say: "I breathe out carbonic acid and fatigue, and failure, and—" such and such a bad habit—you best know what it is.

So far we have treated rather of the intelligent if not the inventive mind, than of the decisive mind and what Americans call the stick-to-it-ive mind. This last is very important; for we do little without repetition. Now we wish, not to under-estimate these, but to add another mind—the permissive and receptive.

Most of our actions are not decided voluntarily and consciously by ourselves, whatever they may have been in the past. Most of them are regulated by the

permissive mind. For instance, perhaps you breathe shallowly and jerkily, not because you want to, nor because you decide to, but because you do not decide not to. You can stop that sort of breathing if you like; you can breathe more rhythmically and more fully. What your will has been doing has been not decision-work but permission-work. Its error was not a sin of commission, but a sin of omission and permission.

We do not want to bother about this self-suggestion always and for ever. We do not wish to be saying to ourselves perpetually, "I *will* breathe rhythmically and fully, I *will not* breathe jerkily and shallowly." When once we have restored the normal way of breathing, we want to be free from care. And so we shall be.

But till then it is well to watch and pray—or assert, or suggest, or whatever we like to call it—knowing that, if we do this regularly, we shall become normal again; and most good habits—or at least most good habits such as breathing—will then be easy and, to all intents and purposes, self-regulating.

CHAPTER XXXII.

BREATHING AND VOICE-PRODUCTION.

THE value of oratory is obvious to everyone. Its value in politics is often very fatal to the nation, as when a man with few ideas (or with rotten ideas) hypnotises his hearers mainly by what may be

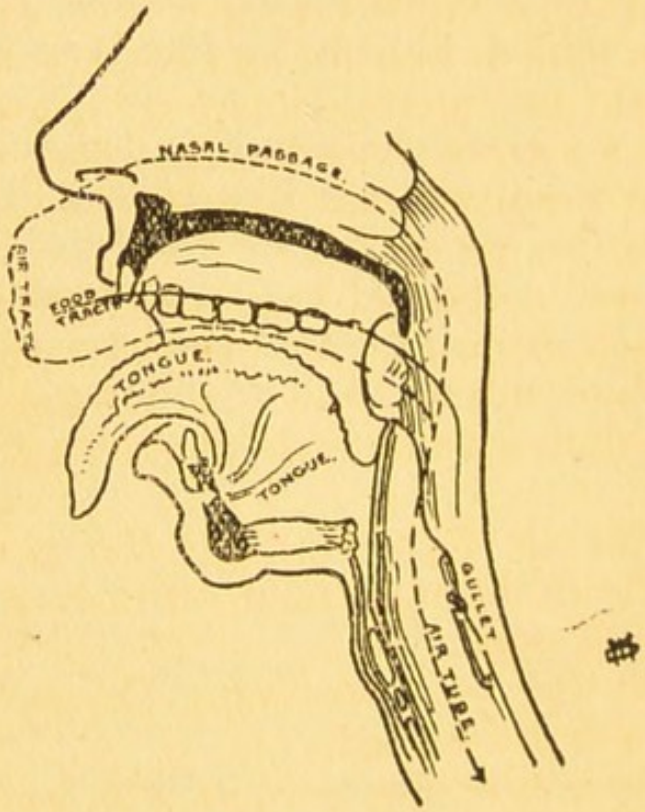


FIG. 19.—Organs and channels of voice-production.

called the unhealthy power of gas. Now much of the influence of oratory is due to better voice-production than usual; and that, again, to better breathing.

Besides this, however, besides the special platform oratory, all speaking is singing as well, and merely as singing has most important effects, effects on

others, as well as on the speaker or singer. We are not alluding only to singing as a profession, but to singing as a recreation, a means of health, and almost a necessity if our daily speech is not to become monotonous.

But equally important with all this is the art of not producing the voice, the supreme art of silence without tension. That suggests the first rule, corresponding to the prohibitive Commandments, "Thou shalt not." Thou shalt not produce thy voice unnecessarily or wrongly.

Voice-production, however, is a very positive art, one that everybody should cultivate. Lecturing and singing have often been the means of preserving or restoring health. I know one specialist who has had several pupils sent to him for singing lessons in order that they might be cured of incipient consumption or chest-weakness without knowing that they were being cured, without knowing that they had such a disease that needed to be cured.

But the actual method of voice-production, the best method, is much disputed. We have described various extreme practices in the "Physical Educator." About certain points there can be little doubt; all authorities are agreed.

First, breathe in fully through the nostrils, and learn to breathe in through the nostrils even while you have your mouth open.

Then secure the right position. Do not poke the head and shoulders forward.

Avoid needless muscular tension, which is ugly, and is likely to make the voice unnatural and unpleasant. It is unwise to practise the mere holding in of the breath. I should say, hold it in rather with your lungs than with your hands and face. Tell a person to hold in his breath, and you will see him doing it with his hands and face, perhaps with his legs as well! That is not the art. For the art is—not to waste

energy, and indeed not to waste breath at all. Waste of energy means waste of breath as well. Many people waste breath by beginning to produce the voice fully at the start. As a rule, produce it quietly at the start, not with a jerk, and produce it more gently at the beginning. At the end let it fall once more. Its full force should come near the middle of the outward breath.

But learn also to stop it at will. Learn to stop before you have reached the full force, and indeed at any spot, as it were, during the upward or downward curve.

In practising, begin with your best note. From it creep gradually up and down. Perhaps the best sounds to begin with are, as Behnke recommends, *ah*, *oh*, *ooh*; though others prefer the English letter *e*, as in meet. But anyhow, find your most satisfactory pitch, which has been called your middle range; and return to that range. Do not practise the extreme till you have made certain of correctness and skill in your mean.

For further information I can safely refer the reader to Behnke's "Speaking Voice;" and I should like to mention another little book, by Thorpe (published by Reeves). It is more conversational, and is called "Breathing and Breath-Control." Here is a quotation from this work, which is, on the whole, extremely lucid and suggestive:—

"Masters in their efforts to overcome the breathing sound in the voice have used expressions as 'Drink in the tone,' 'Sing as though you were yawning,' 'Sing in,' 'Draw in your breath,' 'Drink in your voice,' 'Sing into your head.' [others advise 'Sing up towards your eyes], or 'Sing into your chest,' all of which are based upon sensations which arise from the following fact: The instant that the out-going breath is interrupted or partly checked, it begins to accumulate and become condensed, expanding the

chamber in which it is confined. The sensation arising from this is very like the sensation when those parts are expanded as you breathe in. Study your voice and listen to it very carefully before you begin to develop it, so that you may avoid this breathy element from which very few voices are free. During the practice it is not always strong enough to attract your attention."

To this advice we might add another little help; though it must be remembered that these metaphors are only of use if they help you to produce your voice better. They are not scientific facts. They are merely practical comparisons that *may* suggest better ways. When you produce your voice, try to bring your heart up into your throat. When you wish to speak to a large audience, compare your voice to a ball or a stone which you wish to throw to the furthest person. The further you wish to throw it, the higher you have to throw it. Or compare it to your body when you are practising the long jump. The longer the jump, the higher the jump.

Anyone who observes these rules, and practises the two exercises cited in the "Physical Educator," will probably improve his voice-production considerably with very little trouble and in a very short time.

For the present, however, he probably is more interested in knowing why he feels tired so soon when he has begun producing his voice. It is partly because he has produced it in the wrong way, and partly because he has produced it monotonously. There are many kinds of monotony. You can produce your voice with the same tone, and with the same tune (some people regularly speak sentences of the same tune, generally letting their voices die away in a whisper which hides the last words). You can speak with the same rhythm always, the force coming in the same place each time. You can speak at the same pace, probably too fast. Therefore, if you wish to avoid tiredness in voice-production, as in all work,

seek variety, vary the note, vary the tune, vary the rhythm, vary the emphasis, vary the pace. This, as Behnke says, is an enormous relief to the speaker. And, we may add, it is an enormous relief to the listener, too.

We should wish that every member of the nation could sing—so long as every member of the nation who could not sing well would confine the practice to privacy. The Southern nations, such as the Italians, are naturally musical, partly owing to their climate and scenery. There is no reason why we should be so unmusical. Shakespeare condemns the unmusical man in somewhat savage language. I do not believe him to be "fit for treasons, strategems, and spoils." I am inclined to think that he is a sluggard and a dull person rather than a positively wicked one. There is no need for this. Miss Mills, who has had vast experience in teaching the tonic sol-fa system to children, told me that she did not believe in the utter absence of "ear." By starting with extremes, she found each child could distinguish between a very high note and a very low note. Gradually she would work in both directions, up and down, from the extremes, till the child could distinguish tones and half-tones. You, similarly, must have great patience with yourself if you are teaching yourself. Learn to read music, however slowly you may have to begin. Learn to reproduce some tunes from memory—you need not always do this out loud. Learn to write down tunes on paper, so that when you get a good tune you may register it on a mem.-card, as well as in your mind. And make up your own tunes as you feel inclined. That is a good physical exercise—to sing, and *let yourself go to the singing* if the song is clean and good.

In order not to annoy others, and in case you are shy of producing your voice, then imagine yourself speaking or talking, or singing. Canon Edward

Lyttleton suggested to me, as a good practice, shouting to a man a field or two off. You will be surprised at the amount of muscular effort needed merely to imagine this. The imagination puts you through the actual exercise itself in a mild and unobjectionable form.

You can apply this imaginary practice to recitation, though recitation itself is to be recommended very strongly. There is in our education too much paper-work, too little active and vital work. Young people should learn to recite so that they may overcome their shyness in public speaking. At Cambridge, when I was coaching there, scarcely one of my two hundred pupils during my last year would have had the courage to get up and lecture on any subject before a class of twenty or thirty pupils. We are not urging that children should become abominably accomplished prigs. But we think they might with advantage move a little nearer to American self-confidence, which, by the way, is not always due to extra-special ability.

Our shyness is particularly noticeable when we are forced to speak a foreign language. We then do it *à l'Anglaise*, not *à la Française*. We refuse to move at all, we refuse to move as the French or Germans do; that is a great error. We ought to learn one or two foreign languages, to learn to speak them and breathe them, with heart and soul. Here, again, the imaginary speaking will be of great value. Also listen attentively when you get the chance. You have no idea of the extent to which the power to speak foreign languages may give you general ease and gracefulness, to say nothing of the other and more obviously valuable results—social, commercial, and so on.

With regard to the expression during voice-production, many authorities say that it should be "natural." That is right enough if only you do naturally express yourself well. But if naturally you are

like a stiff doll, moving your limbs jerkily or keeping them uglily rigid, then you must practise expression as an art. We do not wish it to be affected, nor yet stereotyped. Each has his own expression. But surely, if one feels what one says, it is Anglo-Saxon affectation, and stereotyped, *not* to express it by the body also. If you wish to know what unaffected expression means, study the best Greek statues. They are nothing but expression. The marble cannot feel, cannot think. Yet by the expression, most exquisite, most natural, you know precisely what the corresponding feelings and thoughts are.

Do not imagine that success is beyond you—success in this voice-production and expression. Think of the cases of Demosthenes and Disraeli. Demosthenes, it is said, failed miserably at his first attempt. Then he studied delivery and every other help. Plutarch tells us how he had a room built underground with mirrors in it at different angles. Here he would practise for hours every day, watching and listening to himself. It was thus, and possibly by walking up hill with pebbles in his mouth, that he became one of the most famous, if not one of the greatest, of the world's orators. And personally, after studying the history of the period and of following periods, I feel bound to admit that a great deal of his success was due rather to the way in which he spoke than to the practical common-sense of what he spoke. That is only a private opinion. I hold a similar opinion of Cicero ; he uttered a large amount of nonsense, but he uttered it so well that he often convinced his hearers. Indeed, the art of speaking was a regular part of the education of the later Greeks and of the Romans. It was *too* important a part of their education. With us it is far too unimportant a part at present. Leisurely eating, better breathing, better voice-production—at present they are not a part of the education of our millions at all.

CHAPTER XXXIII.

BREATHING, AND SHYNESS AND STUTTERING.

THE disadvantages of shyness and stuttering are too obvious to need mention. Many preachers and teachers and others have lost important positions through shyness and stuttering, having annoyed others as well as having injured their own prospects. A shy person or a stutterer cannot by any possibility make other people feel comfortable; he is always a nuisance to himself and others. A shy person may even seem to be lacking in straightforwardness and candour. That is not necessarily the case, but the impression alone may be fatal to his success.

Clearly, among the causes are the mental and moral. Some people are shy owing to prudish teaching in early years, some are shy owing to self-repression and self-contempt. These causes must be removed by a proper estimate of one's own privileges and possibilities.

Much of the weakness, however, may be remedied by a practical expression of confidence. To-day there is no need of so severe a course as Demosthenes and others went through. We know far more about the arts of gradual remedy than they did.

We know, for example, how easy it is to sing without stuttering. The fact of it is that the rhythm helps, and the tune distracts the attention from the self. Therefore, in order to get over stuttering, practise singing with your words.

Take a deep and full breath as a first step; then say as many words as you can while you let the breath out; say them with a certain regular beat.

You will help this beat and rhythm by moving one hand and one leg, and, if you like, your head as well, up and down, to keep time with the words; though this—suggested to me by a well-known teacher of physical culture for women—is an exercise for use in privacy.

Gradually increase the severity of the exercise, knocking the props away from you one by one. First dispense with the tune, then with the beat of the hand, and leg, and head, then with the rhythm itself.

But if these simple ways fail, consult a specialist. For stuttering must be cured.

As to shyness, did you ever see a shy person who showed the right positions for correct breathing, and the deep and full and rhythmical breathing with them? I never did.

CHAPTER XXXIV.

VENTILATION, AND A WARNING.

Too little oxygen, too much carbonic acid, etc., are simply disastrous conditions to many people who are called "perfectly healthy." Indeed it would seem at first that, the purer the blood is, the more fatally and rapidly such impurities affect the health. For my own part, when I work or speak much in bad air, I have a tendency not only to feel rather depressed, but also to be inconvenienced by a dry throat and unnatural hunger. But this is the case far less than it used to be, now that I know how to breathe in the special way.

We have already mentioned places where bad air abounds—church, home, state, education, gymnastic exercise (in many gymnasia), recreation (in theatres, lecture-halls, and banquet-halls)—here is a formidable list that suggests execrable ventilation. We urge those in authority to attend to the better ventilation of these places, since we spend so much of our lives in them.

There is no space here for a discussion of systems of ventilation, but it is well to remember a few points. The carbonic acid gas tends to mount up so long as it is warmer than the air. As the air in a room cools, after the fire or gas is put out, any carbonic acid which has been kept at the top of the room for want of an outlet cools, becomes heavier than the air, and gradually descends to the floor last of all. When the room is cold, therefore (as Mr. Bacon advises), secure low ventilation, and do not sleep or rest near to the floor. When the room is warm, secure top ventilation.

But, wherever you can, secure both upper and lower ventilation. The upper will probably be the top of the window and the lower will probably be the crack under the door, and the fire-place. A middle ventilation you can get by means of the window. Several writers have suggested this device: Nearly close the window, but put a piece of board in below it to keep it open; there will then come in a draft between the upper and lower parts of the window. Or you can have your whole window open, with a light gauze curtain, or even a thin wire netting over it, to keep out either the smuts and flies or the curious gaze of the passers-by.

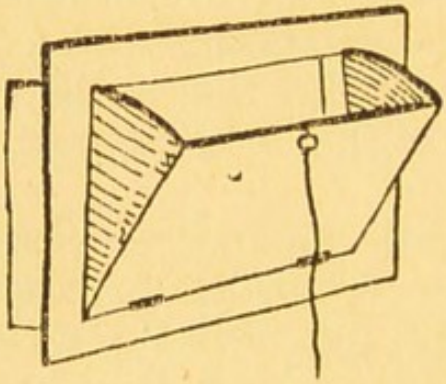


FIG. 20.—A Sheringham Ventilator.

But we should like to see hidden ventilation in all rooms. Let it look like a pattern or a dado, even while it really is good ventilation. Otherwise some unhealthy and morbid old lady will object; and then, in order that the one may be saved from cold, the ninety and nine who want fresh air have to go astray. It is a ridiculous rule that one unhealthy person is supposed to have the right to shut in the foul and shut out the fresh air because he or she is too ignorant to know how unsanitary this is.

Suppose, however, that you cannot secure good ventilation during a great part of the day, then make up for it at night. Your bedroom, at any rate, you

can keep fresh. Have the window open, without a direct draft.

For we wish to warn people against the direct drafts, and indeed against any sudden and violent change to fresh air, unless they are comparatively healthy already. It is not merely that they fear the cold; it is that their skin may not be trained to re-act and adapt itself quickly enough. The skin has relied on clothing and warmth; suddenly to deprive it of its props may be like suddenly throwing a weak person into an icy cold river. We know a case in New Zealand where this produced immediate death.

The same applies to the great coat. If you have been used to a great coat, it may be a mistake to give it up suddenly altogether. Learn to give it up gradually, or, better still, learn never to let it become a tyrannical habit.

CHAPTER XXXV.

CLOTHING, AND A WARNING.

FEW of us realise the value of breathing through the skin. Most of us imagine that all our breathing is done through the mouth or nostrils. But it would not be good for every one suddenly to begin inhaling fresh air through the whole skin; it might lead to serious disturbance. Here, as in the chapter on ventilation, we recommend, for many, a more gradual progress.

The ideal clothing would be warm, yet able to let in air and light, reasonably porous, tending to absorb moisture, not black and dismal.

We have tried to discuss the question of better clothing in the "Physical Educator." There we have pointed out that in favour of wool is the fact that it is warm. When you perspire and then expose yourself to air, you are less likely to catch a chill. On the other hand, wool may be irritating, and it is not very absorbent.

Linen and cotton, on the other hand, may lead to a chill if you perspire in them and then stand about. But a good kind like the Deimel will be absorbent as well as porous, and will not be irritating. It seems to me that it will certainly strengthen the skin far more satisfactorily than any wool clothing, so that, for under-clothing at any rate, it may be the best.

The bed-clothing, like the bedroom ventilation, can be regulated perhaps more easily than the day-clothing and day-ventilation. About one point all are agreed—the feet must be warm. About another point nearly all are agreed—that the rest should be as cool as possible, so long as it does not keep you from sleep.

In your clothing do not neglect the matters of colour and light. The skin breathes light as well as air, as we shall see in the next chapter. The Finsen experiments show that it breathes colour as well as light, if indeed the word "breathing" can be applied here. I think that if we use the words perspire and transpire in reference to excreting and breathing out through the skin, we ought to have a similar word for increting and inspiring the light as well as the air through the skin.

CHAPTER XXXVI.

THE BREATHING OF LIGHT.

WE are told that, before God breathed into man's nostrils the breath of life—after which beginning man has tended to breathe in through his own mouth the breath of death—God said, "Let there be light." And the light was as necessary for the plants as the air was. If only we studied plants, as the New Testament commands us to do, and if only we occasionally imitated them with our whole body, especially relaxing as they do when they rest, we should be infinitely healthier than we are.

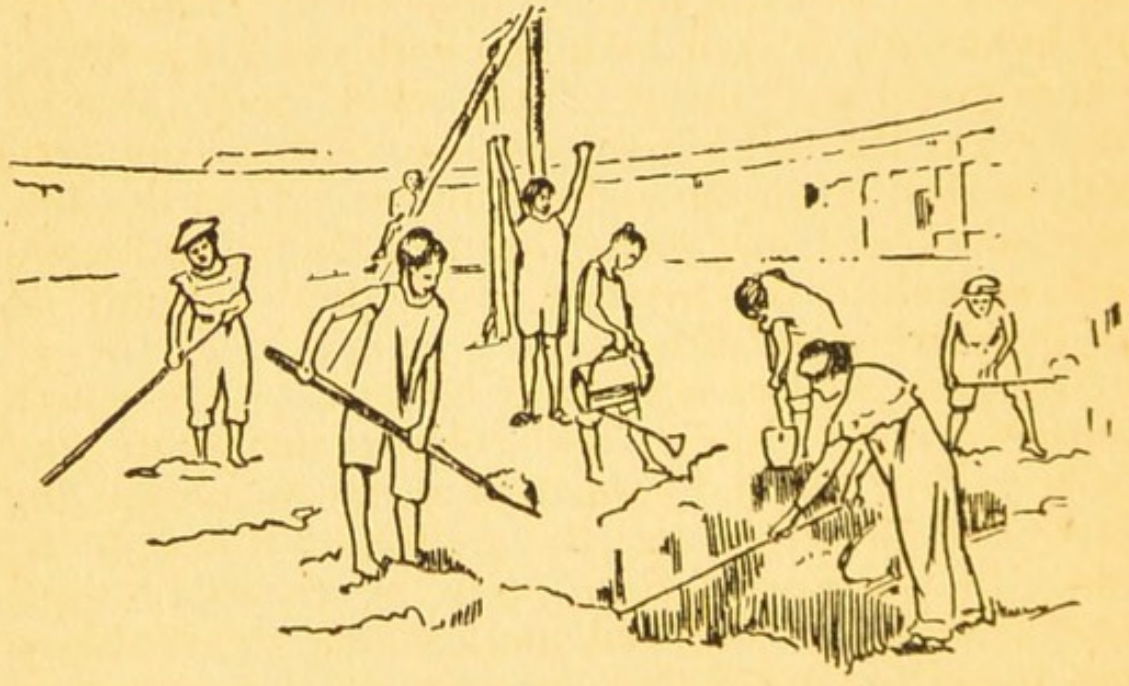


FIG. 21.—A partial air and light bath at a German *Naturheilanstalt.*

But it is not only the plants that need light. Dr. James Wylie, many years ago, showed the importance of light for curative purposes. Those patients who were on the lighter side of some building in St.

Petersburg recovered sooner than those who were on the darker side.

The air-and-light-bath (Luft Bad) is fortunately becoming more and more popular in Germany, in the Naturheil Establishments, and in the small gardens round cities like Berlin, and in America in the "Sanitaria." The air-and-light-bath is an important help to health; during it the skin breathes not only air but also light and occasionally rain. The only time when I welcome rain is when I am completely naked; under no other conditions have I heard anyone praise it and regard it as a blessing falling upon him. Now you may not be able to visit Germany or America; but if you have a little garden, you will do well to think of an air-and-light-bath in it. All that it needs is some turf under foot, a little apparatus for exercise, and a fencing so that no one can see in.

Otherwise you will have to be content with an air-and-light-bath in your bedroom with open windows.

If you will not take it for the whole body, at least take it for the feet. For instance, baring your feet, walk up and down the inclined plank. That is a fine exercise in itself, and gives your feet the air-and-light-bath, as well as the freedom which they certainly do not get during the day.

After the air-and-light-bath be sure to wash with warm water to cleanse, and cold to invigorate and harden. The air-and-light-bath seems to arouse the activity of the body and the excretions through the skin. In Germany I have seen the chests of some patients come out with red spots, which seem to show that impurities were thus brought to the surface in order to be thrown off.

The best air-and-light-bath is in the sun. You can cover your head with leaves, and you can cover the tender parts of your body with leaves, so that your skin is not parched and injured.

In case you cannot get the sun-bath (or dare not get it) in England, you have a substitute in the electric light and colour treatments. But, of course, they are expensive. We should like to see more establishments throughout England where, at very little cost, city-dwellers could get their air-and-light and occasional sun-baths with water-baths to follow. Such things would be of more value than many libraries. Among other reasons, in the light-and-air-bath one feels so vigorous that one naturally takes plenty of exercise, if only to keep oneself nicely warm.

CHAPTER XXXVII.

THE BREATHING OF WATER.

THE nostrils in city-life become clogged with impurities. This is better than that the impurities should pass into the system, but it points to the fact that most of us should blow our noses more frequently than we do in cities. Even this alone may not be a sufficiently cleansing way.

It may be better also to use cool, or even cold, water, which will cool the nasal passages and perhaps certain parts of the brain. In this water dissolve a pinch or two of table-salt. Then inhale this water through each nostril in turn, and then through both nostrils together, exhaling it partly through the nose, partly through the mouth. It is a refreshing practice in the early morning, a cleansing practice at night. It is especially important, let us repeat, for city-dwellers.

It may be compared with the enema. The tendency in recent years has been to internal as well as external cleansing. Instead of the cold bath for the whole body—the bath which does little to cleanse the body—we have had a rush for warm baths for the skin and many washings for the internal organs; a simple kind of washing is by drinks of hot or cold water. Among the parts of our body that need cleansing we must certainly not forget the nostrils. The above practice is so simple and so brief that no one—unless he is healthy—has an excuse for not trying it.

Besides this, whenever you bathe, do not close the pores of your skin to pure water. Relax, open your skin, breathe and drink in the pure water through your skin. Let the water soothe you and work its sweetening influence upon you, while you are as passive and grateful as you would be in the hands of a skilful shampooer or masseur. Do not resist.

CHAPTER XXXVIII.

BREATHING THROUGH THE SKIN.

ALREADY we have alluded to the importance of breathing through the skin, under the heading of light-breathing and sun-breathing in the air-and-light-baths. We have shown how the greater part of our skin does not breathe at all during the day. In this brief chapter we wish to emphasise skin-breathing by an exaggerated instance and an exaggerated contrast.

When a person's blood is impure, his system tries to throw off the impurity in every possible way. The most obvious ways we know; but perhaps we do not realise that the pimples and boils and abscesses are means by which Nature tries to get rid of impurities through the skin. Now it is probable that when we breathe through our skin we throw off similar impurities, which are not so obvious, only because they are not collected together, but still are impurities which, added together, would come to a very large total.

By way of contrast, close the pores of the skin completely and you die. We all know the story of the little child that was gilded all over for a Roman Catholic procession, so that it might look like an angel. It died self-poisoned; perhaps it became that angel.

Then, again, we know the case of the dog which was tarred all over; the pores of its skin were closed; it also died self-poisoned.

We must not imagine that it is merely a matter of wet perspiration. It is also a matter of what the Germans call transpiration. It is not all moisture that we throw off; it is also gas. Many of the gases as well as the acids which ought to pass through the

mouth, the nose, the kidneys, and the bowels, are not passed out through these channels owing to various reasons. The extra burden, the relief-work, is thrown upon the skin.

Various parts of the skin must have their special duties in excreting special poisons. Among these parts, one of the most apparent is the foot. Exactly what poisons it excretes we do not know, neither do we know exactly what poisons the other parts of the skin excrete. But we may be sure that each has its own duty, and we shall be on the safe side if, as often as we get the chance, we breathe through as much of our skin as possible, by exposing it to fresh air and bright light and clean water.

CHAPTER XXXIX.

BREATHING OUT AND EXCRETION.

It is, as we have already said, almost as important to breathe out fully as it is to breathe in fully; yet it is extremely difficult. Try it now. Breathe in fully in the ways that we have described, then try to empty your lungs as thoroughly as possible. Do you not find yourself hurrying through this second part of the work, willing, indeed, to take another full breath in, unwilling to let the first breath well out?

Yet it is vital. Authorities are divided as to whether fatigue, specially of the lungs, is due rather to absence or lack of oxygen or to presence of too much carbonic acid, etc. In the case of certain cold-blooded animals it seems proved that it is more fatal to have too much of the acids than to have too little oxygen, or scarcely any oxygen at all. In the same way, with regard to fatigue in general, it appears that fatigue is due much more to the excess of acid poisons than to the lack of nourishing food.

Mentally we have the same duty of "breathing out." How extremely easy it is to take in new thoughts, really good new thoughts, and even to make some use of them! How extremely difficult it is to get rid of the vile old thoughts, to empty the mind thoroughly of its carbonic and other acids, as it were. We hear a great deal about forgiveness in our religion; but how rare forgiveness is, how scarcely ever a person manages to breathe out or excrete the unkind thoughts and memories.

In the body we have comparatively simple methods. For instance, we can starve the body, and meanwhile flush it in several ways, internally and externally, with pure and soft water. But we cannot easily perform

a similar feat with the lungs. What we can do is to empty the lungs more thoroughly than before.

The act of breathing itself, if it has been thorough, will help all the rest of the excretion, partly by taking the pressure off the lower organs, partly by massaging the lower organs, partly, probably, by its very rhythm. Moreover, it will relieve the excretion. The more

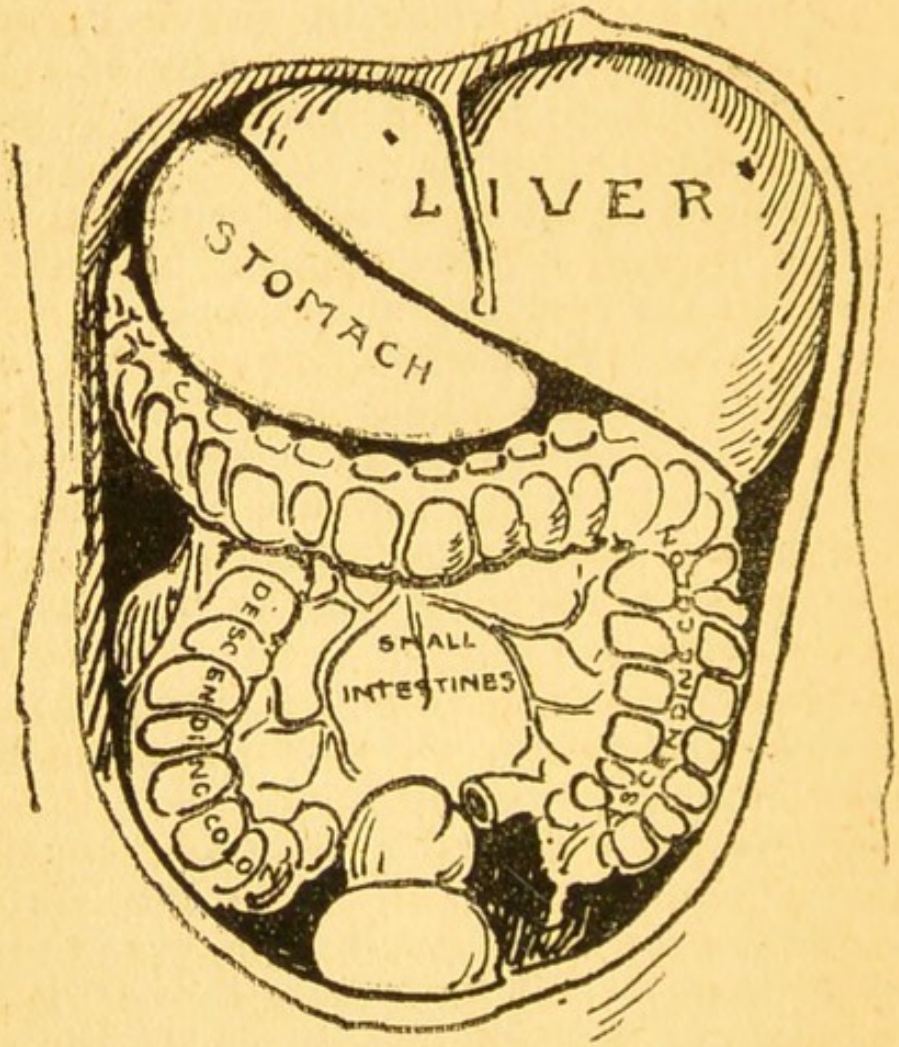


FIG. 22.—Lower organs of the body, which are often allowed to sink too low.

impurity we breathe out through the mouth and nose, the less impurity we shall have to get rid of through other channels.

But the ideal is to let each part of the body excrete, as fully as possible, whatever Nature has ordained that this part should excrete as its proper function.

CHAPTER XL.

USEFUL APPARATUS.

FOR the practice of breathing, an inclined plank will probably be extremely useful when you lie on it. It does not allow the excess of blood to flow to your head, and it enables you to get your shoulders further back, and so to bring your chest further forward. Besides this, it can be kept clean, and in this respect is better than the floor. It serves as a reminder to exercise. It gives practice in walking up-hill, without strain, since the up-hill walking is varied by the down-hill walking. There is no doubt that graduated up-hill walking tends to better digestion and better excretion, as well as to better breathing. Moreover, the angle can be made more or less severe, according to your strength.

Then there is the expander for the chest, almost the only kind of apparatus that Fitzsimmons recommends for training. I myself, as a rule, prefer now a kind that keeps the hand open—I am against the perpetual grip; surely people already grip with their hands sufficiently when they are talking and walking. What they rather need is extension and expansion and freedom.

Another good apparatus is the light Indian club. I have a special kind with the handle like that of a racket. I find it good for exercises in breathing as well as for exercises to improve athletics. It helps to make the shoulders flexible, to strengthen the muscles of the trunk, to bring the trunk-organs and the diaphragm into better position; and it gives interest to movements which might otherwise be dull.

Then there is the skipping-rope. A special kind, called the Girbola, is supplied by a company in Gloucester. It is adjustable to various heights, and has a piece of indiarubber to lessen noise. There are two ways of skipping. You can skip with the arms extended, or with the arms bent and the elbows closer to the sides. Both ways are good. Moreover, you can send the hands first up and back or first down and back. All the ways should be tried in turn.

A more obvious breathing-apparatus is the spirometer, which, however, involves a certain amount of strain and tension in the breathing-out. I prefer an apparatus which, unfortunately, cannot be got in England, and is not sold in America without a "Course" of lessons; its price seems to me prohibitive. But a clay-pipe with which we may blow soap-bubbles is almost as good. You can test your control of breathing, and your power of breathing out, and therefore, to some extent, your power of breathing in, by the size of the bubble.

It would be easy to make a long list of useful apparatus, but I must confine myself here to the mention of only one more: the apparatus for window-ventilation. This, as I have said before, may be either gauze or thin wire, or a piece of wood to keep the lower sash open, so that there may be always an indirect current of air between the sashes.

CHAPTER XLI.

A FEW USEFUL TESTS.

I HAVE mentioned the advantage of putting the hands on the parts which are being specially exercised: for instance, on the abdomen, on the ribs in front or behind, and on the top part of the chest. By this means you can to some extent test whether you are breathing fully or not. Behnke suggests the test with the candle. You light a candle and put it in front of you, and you find out, by the amount it flickers, how gradually you can let your breath out. By degrees you can bring the candle nearer and nearer to your mouth as you acquire more and more and more self-control.

Other tests are the height of the person (see the note in a previous chapter), the weight of the person, the amount of food he needs or takes, the size of his chest, the expansive power of his chest. But better than these is the test of the bubble-blowing or the breathing-apparatus; it is a test not of size, but of *capacity*.

A still simpler test is what is known as "the wind" during the run and other forms of exercise; boxing is a severe criterion. Can you run for a good spell without breathlessness? For my own part I find that my "wind" changes from time to time, being far less satisfactory for violent exercise after I have been eating too heavily or too rapidly.

If you like you can test the number of breaths in a minute. This is a good plan. Probably after a year of practice you will find that you can take far fewer breaths, and those fuller and deeper than before.

Then you can easily test the rhythm. There is a special instrument for this; it is called the pneumograph. But you can test the rhythm without apparatus; you can feel it for yourself.

The emotional and moral test is no less important. How comfortable and energetic do you feel? What amount of self-control have you? How easy is it for you to master and direct yourself? If you breathe rightly it should be quite easy. If it is not easy, then look to your breathing, among other causes. There are many who can remove the temptation to anger, by full and rhythmical breathing followed by the relaxed breathing.

The general feeling of satisfaction, together with the feeling of power and ambition—if these are increased by your exercises, you may be fairly sure that your exercises are doing you good. How often one hears that a doctor has told a patient that he or she is quite well—has absolutely nothing the matter. Surely this is usually an absurd diagnosis and opinion if the patient *feels* depressed and slack and morbid. A test of the capacity and rhythm of the breathing should certainly be added to the usual medical tests. And hints as to more thorough and rhythmical—and occasionally relaxed—breathing, should certainly be added to the usual medical advice.

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AN EXTRA CHAPTER.

I do not think my readers will consider it out of place if I utilise a page or two in telling them something about my Health Course.

Valuable as is the knowledge of correct methods of breathing and of using one's muscles quickly, neither of these attributes will make a man absolutely physically fit. It is now many years since I first took up the subject of Physical Culture; I say "Physical Culture," but I do not mean the term to be taken as it is usually understood.

It is undeniable that the average man or woman in using the phrase Physical Culture has in mind the acquisition of muscles. This is, however, an entirely false view to take, although the building up of huge and unwieldly bodily frames has been the object of almost all Physical Culture systems originated in the past.

My ideal of bodily culture is perfect health. Very few of us have any use for huge muscles, but we all without exception wish for perfect physical and mental health. It was with this object in view that I planned the Eustace Miles Individual Health Course for men and women.

You will notice that I make a point of *individual*; it has been my experience that no two people are exactly alike in temperament or in bodily requirements, and it is absurd to suppose that any one set of exercises can meet the requirements of everybody. Advice must be individual. A Health Course which has been planned on the ready-made principle is of no use to you or anybody else; it must be adapted to your special needs. I do not treat my pupils as if they were all turned out of one mould, but I take into consideration their individuality and personal idiosyncracies, that is the difference between my course and others. The greatest problem that the modern town dweller has to consider is how to keep fit, and when I say fit I mean more than how to preserve average health. There is no reason why everyone, whether they have time and facilities for outdoor exercises or not, should not possess a sound heart, strong lungs, clear eyes,

and steady nerves, a functional system that does its work without the aid of drugs.

It is impossible within the limits of the space at my disposal to really go into the question deeply with you, but I would ask you to make a point of reading my advertisement on the following page and of writing to me for a copy of my Booklet. In it I go into the question fully, and I know that you will not only be interested in the information that it gives, but will find it of practical utility. Letters addressed to me at 205, Wenham House, Bloomsbury Street, W.C., will have my personal attention.

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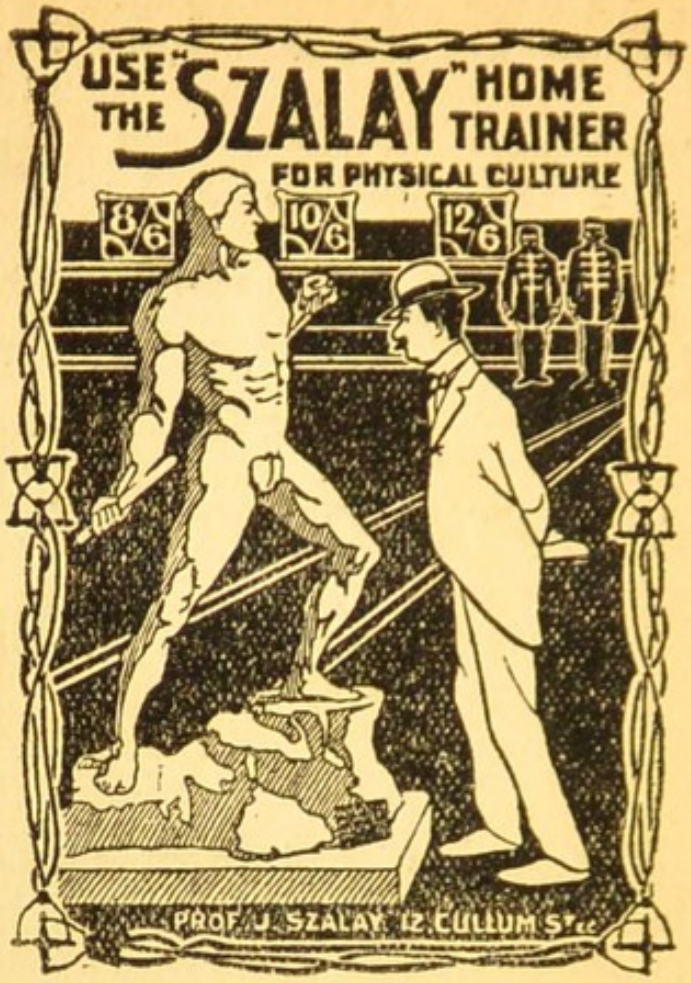

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