

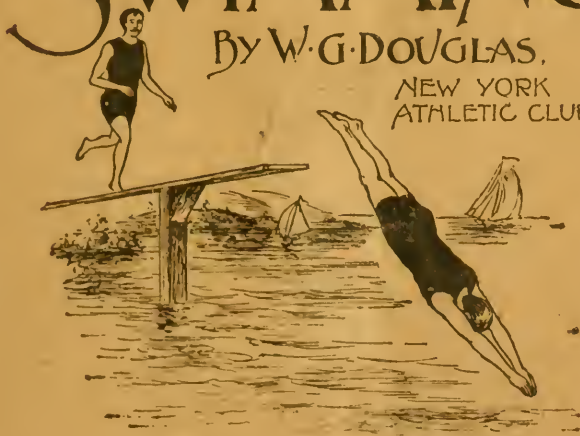
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# SWIMMING

By W. G. DOUGLAS,  
NEW YORK  
ATHLETIC CLUB.



*RUNNING HEADER*

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# SWIMMING.

—BY—



WALTER G. DOUGLAS,

New York Athletic Club.

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A BOOK DEVOTED TO THE ART OF SWIMMING. THE  
BREAST STROKE ON LAND AND WATER. THE  
OVER-HAND RACING STROKE. DIVING, PLUNG-  
ING, AND A CHAPTER ON TRAINING.

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# SWIMMING.

## INTRODUCTION.

This mode of locomotion is next to walking and running, the most primitive and simple, being practised by all savage nations, who are generally great adepts in the art. It is not, however, a natural power in man—the child of the savage requiring to be taught as much as the inhabitant of the civilized world. This is a very remarkable fact, and marks the difference between man and the brute creation in a point not to the advantage of the former. The dog and the horse, on falling into the water are able to swim; and though they are sometimes rather awkward at first, yet they are never in absolute danger of drowning. Man, on the other hand, without learning to swim, would almost invariably drown, in spite of all that has been written to the contrary on the subject. It is true that some people with capacious chests, and with a great development of fat, are able to support themselves in the water without the use of their hands or legs; but, in the vast majority of cases, the drowning man who trusts to his mere buoyancy will indeed “catch at a straw.” This being the case everyone should learn to swim; and even if ladies were taught, many

lives would be saved, not only of the gentler sex, but of their male protectors, who are often sacrificed in attempting to save their charges.

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## THE BREAST STROKE.

### Dry Land Teaching.

I think this plan very useful where water cannot immediately be obtained. Take an office stool and place a padded cushion on the top. Then take your pupil and balance him on it upon his stomach. Teach him first how to work his hands, and when they are all right, his feet, and when the hands and feet can do their several parts, make them both work together in proper time. Now let me help you. Straighten your patient out from finger-tips to toes, palms downwards. At the word "one," the hands are quickly turned outward while the arms are brought around square with the shoulders; at "two," the elbows are closed to the sides and the hands are brought between the chin and breast; mind they are carried over the breasts and not under them. At the word "three," the hands are sent to the front to the full length of the arms with energy and not in a purely passive way. The legs should be carried well up under the body and outward as much as possible at every stroke. Point the toes upward, towards the shins, before each kick. The object of turning the toes up is to get all the advantage possible from them, as it is in the stroke that the power is applied with the flat of the soles. The feet ought to be turned out till the toes are in line with the elbows just

before the kick. After a vigorous kick, point the toes downward and close the legs with a snap, again bringing the soles in use. As the heels meet the strain which was put upon the feet, to turn the toes down, is taken off, and must be put on again after the next kick is made.

When the hands and feet can each do their separate parts, get them working together as follows: as the hands and arms apply the power, the legs are being brought up for the kick—all at the word "one." The kick is made as the hands meet the chest, and the sweep with the soles continues the rythm as the hands are brought to the front in the recovery. By these movements, power is always being applied, either by hands or feet. While the arms are working the legs are recovering and visa-versa. A half a second ought to elapse before the hands are parted; this will give confidence to the pupil, and will keep him from swimming too fast when he begins water-work.

The dry-land system may be ridiculed; but if you, who have been taught, with pole and belt, and in the water, in many lessons or in few, will consider, let me ask, what was the care and object of your teacher? It was to shape your limbs properly, and then to get you to cut out the two semi-circles complete; when he had done so he knew that you could swim, and not before. If he had no name for the part he wished you to perform, it was because he did not study well his profession; he knew that an outer and an inner circle would make you swim, but he did not call it by that name, which is, in my opinion, the best name for the performance; for man can never form a nearer approach to two semi-circles than when he swims the breast stroke. Well, say a boy takes from five to fifty lessons before he can swim; why did he not swim in his fifth

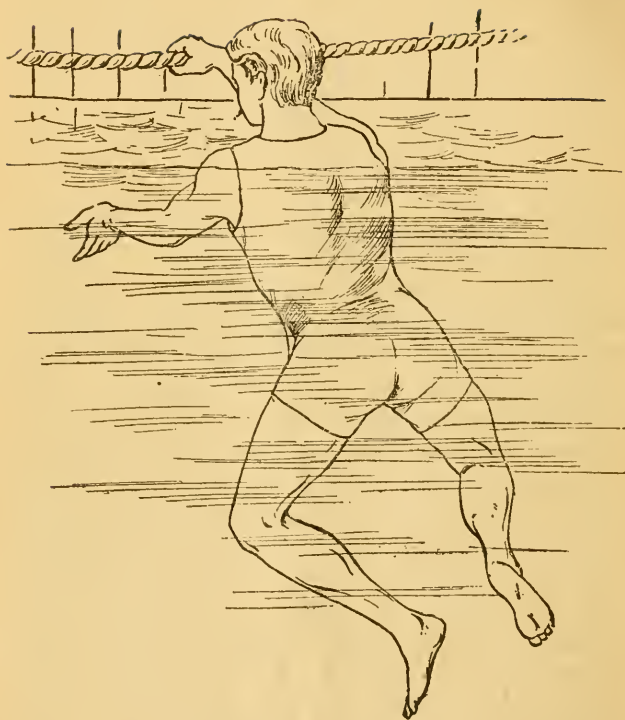


FIG. 1



lesson and yet did swim in his fiftieth? I say a boy can swim in one lesson; it is no less possible to swim in one lesson than in fifty; it only wants a clear explanation of how the hands and feet are to be held and how they are to be worked.

### **The Breast Stroke—In Water.**

It must not for one moment be imagined that proficiency in land-movements will enable a pupil to swim as soon as he enters the water, but it will be of immense assistance to him, as the various actions will be known and naturally attempted, until very soon these movements will become mechanical. He should commence with the leg movement by taking hold of the steps or bar of the bath, supposing it be a bath in which the pupil begins his lessons, with one hand level with the surface and place the other hand against the side or steps, some eighteen inches below the surface. In this manner the pupil readily controls his body. Stretch out the body horizontally to its fullest extent near the surface of the water, and keep the legs closed, toes turned outward, back hollowed and the head turned back.

These points having been carefully noted, the leg movement should be proceeded with as follows:

(1). Turn the toes outward to the right and left, respectively, with the heels nearly touching; draw up the feet gently towards the body somewhat above the level of the back, and as they near the body separate the feet a few inches. When drawn up, the soles of the feet should be at right angles to the surface of the water and just below the surface, while the knees



FIG. 2.

should be turned outward to the right and left, and not drawn up too much under the body (Figs. 1 and 3).

(2). To develop the next movement the legs must be smartly kicked in the outward direction to their widest extent without straining the thighs.

(3). As soon as the legs have been straightened, continue the stroke without interruption by closing the legs with vigor until they nearly touch each other in line with the body—here is where the toes are turned downward, slashing the water with the soles of the feet—preparatory to bringing them up into the first position.

As regards the arm movements, some divergence of opinion exist as to the correct position in which the hands should be held. In our view, it is essential that the hands should be kept flat with the palms downward during the recovery, as this assists in a great measure in sustaining the body on the surface and also prevents the friction which would naturally arise if the hands from the wrists should be dropped as to present the back of the hand to the line of progression. As far as the holding of the hands flat at the first position is concerned, it is immaterial at the start, but as soon as the body is in motion, the keeping of the hands flat adds directly to progression. It may seem but a slight matter, but it is these small details, carefully studied, which tend to accelerate the speed of swimmers.

In order to make our instruction perfectly clear we shall divide the arm movement into three actions, as in the leg stroke; the pupil is supposed to be straightened:

(1). Turn the palms of the hands slightly outwards and take a backward sweeping stroke, continuing the pressure until the hands and arms are brought nearly to a right angle with the



FIG. 3

body in line with the shoulder. (Fig. 6). Then gently close the arms to the chest. As soon as the pressure of the backward sweeping stroke ceases, the hands should be immediately flattened.

(2). Draw the elbows nearly to the side, at the same time bringing the forearm and hands up to the front of the chest with the palms of the hands next the chest and near the surface of the water. The fingers should be extended and closed. (Fig. 4).

(3). Push the hands forward directly in front of you until the arms are at their full extent, still keeping the hands about two or three inches from the surface, and pause slightly before repeating the first movement, giving the body a chance to appreciate the power applied by the legs.

### **The Over-Hand Side-Stroke.**

In this stroke, the one used by all the fast men in England, Australia, and this country, it is a matter of choice on which side the body is turned. J. H. Tyers, W. Evans and J. Nuttal swim on the right side while Kenny swims on the opposite side.

Swimming with the left side toward the surface does not impede the action of the heart and the organs of digestion are kept free from pressure. For the purpose of clear description it will be best to imagine the swimmer is in the water lying on the right side. At the start, the lower arm should be pulled downwards towards the hips, in a plain perpendicular to the surface, as in (Fig. 7), the fingers being kept closed and the hand flat, so as to present a large surface to the water. When this stroke is finished, the hand should be turned quickly, palm upwards, so that together with the lower part of the arm



FIG. 4.

it cuts the water sideways, the arm being almost bent double. Then, as it is shot forward, the hand is gradually turned from palm downwards, until, when it arrives at its position in front of the head, and almost at the surface, it is ready for the next stroke. The recovery ought to be effected much more quickly than the "pull," as in the former the water practically only offers resistance to the upper part of the arm; but during the down stroke the whole arm and hand have to be dragged through it.

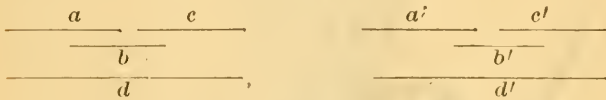
The upper or left-arm stroke is started when the downward stroke of the under or right arm is finished. It begins about half a foot in front of the face. The arm is slightly bent to work clear of the chest, the palm and thumb pointing downwards. The pull in most cases is taken with the arm bent a little as it enters the water, but in others, the hand is brought under the chest, and then, with the arm bent at right angles, swept back close to the body, the arm gradually straightening as it leaves the water. This stroke should not be made too long, either at the beginning or at the finish, as the effect of the power applied is greater when the hand is opposite the shoulder. At the end of the pull, that is, when the hand is opposite the waist, it should be brought smartly out of the water, and carried quickly forward through the air to recommence its work. In the recovery the fingers are kept near but not touching the surface of the water. As the upper arm enters the water the leg should begin to open for the leg stroke. (Fig. 8.) They should be in the position for beginning the kick when the hand is about six inches from the knee, and the kick should be completed and the legs straightened just as the under arm is half through its work—just as the right hand is pointing



FIG. 5.



toward the bottom. With this movement, called the "Alternate Movement," the left hand appears to slap the left knee just as the kick is started, but in reality never comes closer than three inches. With the aid of a few dashes this "alternate movement," so vital to even or regular swimming, can be readily understood.



Let *a* represent the distance the left arm carries the body through the water; let *b* represent the distance the legs propel the body; *c* the distance the right arm carries the body; and *d* the total distance covered by one complete stroke with the alternate movement. *a'*, *b'*, *c'*, and *d'*, represent respectively the same distances when the body is propelled by any other than the alternate movement. *a*, *b*, *c*, *a'*, *b'*, *c'*, can all be considered equal. Now as *b* acts when there is no recovery through the water, and as *b'* has to overcome the retarding power of *c'*, when *c'* is recovering, the distance traversed by the body under the action of *b* must be greater than when under the action of *b'*; again, as *a* and *a'*, and *c* and *c'*, the two arms respectively, always have the same amount of work, it materially follows that the sum of *a*, *b*, and *c* must be greater than the sum *a'*, *b'*, and *c'*, or that the alternate movement will propel the body further than any other movement with the same power.

The leg movement is described as follows: from the straightened position, the legs are drawn up close to each other and near the body; they are opened and brought together again



FIG. 6.

simultaneously, the left or upper leg being kicked out forward as in running, the knee straightened and the power applied with the back of the calf and sole of the foot. The right or lower leg is bent almost double, until the heel nearly touches the thigh, the tendon Achilles acting as a cut-water, and the foot swinging as on a hinge, so that there is really very little resistance. The sweep is then made simultaneously with the upper leg, the power in this case coming from the entire front of the leg from the toe to the knee. In the effective part of the stroke the left foot is straightened with a stamp at the same time that the right leg meets it with a vicious kick. As the legs come together, the wash from the upper meets the swirl from the lower, and helps considerably to send the body forward.

In trying to perfect himself in this stroke, the beginner will find that the position of the head requires great attention. He must be able to breathe correctly and at the proper time. About forty-five strokes are taken to the minute for a hundred yard swim, and at each stroke a breath is taken as the upper arm is in the recovery. The exhalation must be going on all the remaining time, the waste air being forced out the nostrils.

### **The "Trudgeon" Stroke.**

Many forms of this stroke are adopted by sprint swimmers and water polo players. It is a very fatiguing method of progression, and rarely used for distances over 100 yards; but for short races it is constantly preferred in this country to the over-hand stroke just described.

Why the United States swimmers seem partial to this stroke I do not know, when Tyers, Nuttal and Kenny all use the over-

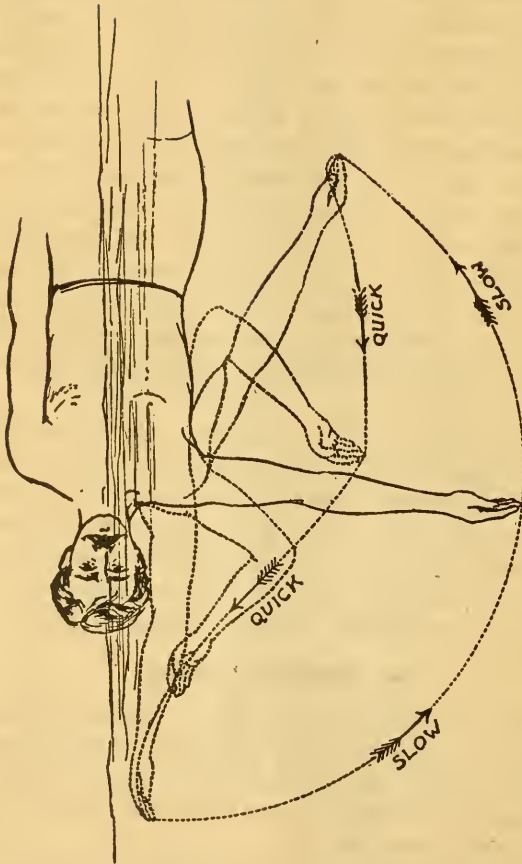


FIG. 7.

hand side-stroke for their spurts as well as longer races. It was first brought into notice in England, by J. Trudgeon, who acquired his knowledge in the rivers of South America. Many of the swimmers who copied Trudgeon afterwards found that it was less laborious and equally as fast to use a double over-arm stroke, as instead of the chest being raised clear out of the water, they were able to keep the body more horizontal and thus use the power which would otherwise be required to raise the chest from water for propulsion. The leg kick is the same as in the ordinary over-hand stroke. When the kick is taken, the body is on its side, and as the recovery of the legs is being made, one arm is making a positive stroke while the other is being brought into position out of the water and the body turns on the breast. Meanwhile, the upper hand has gone forward ; as it is being pulled through the water and the leg kick taken, it turns on to the side again. When swimming with the polo ball, the body is kept on the breast all the time as in the original style.

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### SWIMMING ON THE BACK.

The great importance of back swimming has been little recognized by swimmers. Very great attention is paid to the faster methods of progression, championships and ordinary races for every conceivable distance having been promoted ; back swimming, however, the knowledge of which is of primary importance in saving life, has been utterly neglected. Fast side-stroke swimming is of small value in saving life unless other methods of progression are known to the swimmer, and it has not unfrequently happened that the purely speed swimmer has

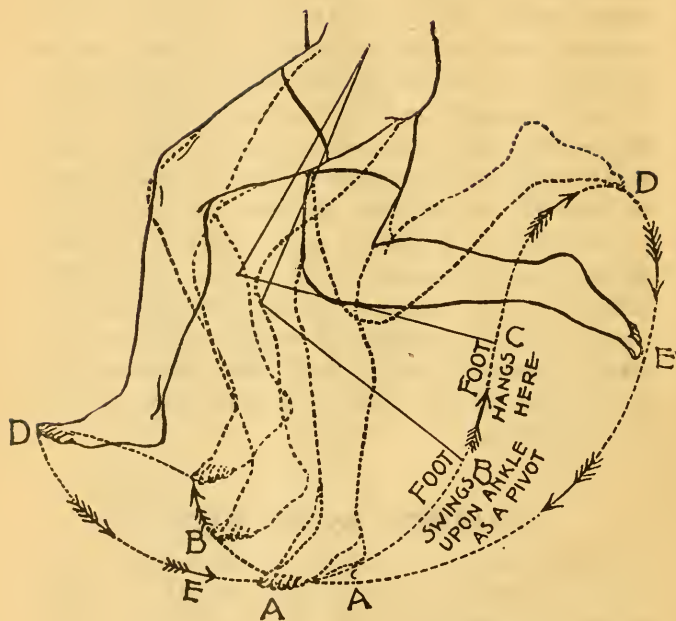


FIG. 8.

had either to release his hold of a drowning person or else to call for help himself.

Back swimming can be easily acquired by any person able to swim on the breast, for the movements are almost identical.

The best method of learning back swimming is to stand in water which reaches up to the waist, then spread the arms out on a level with the shoulder, fall gently backwards on to the water, and as the legs leave the bottom, take a slight spring so as to impart impetus to the body. In the first stroke the arms should be brought round almost to the side, the hands being kept in such a position that the thumbs are nearest the surface, and at the same time the leg-stroke should be carried out in exactly the same manner as in breast-stroke swimming. In bringing the arms back to first position, the hands should be turned palm downwards, so as to offer less resistance. The more perfect form of method is to make a sculling motion with the arms, the hands being brought towards the sides of the body during the effective portion of the leg-kick, and pushed outward when the legs are being ready for the next kick. The tip of each hand describe a sort of double loop.

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### DIVING, PLUNGING, AND FLOATING.

The best method of learning to dive is to stand on the side of a bath or bank, then stoop down until the body is nearly double, stretch out the arms in front of the head, sink the head between them, and gradually tumble over into the water. The great difficulty is to make the first plunge. Once this is accomplished, proficiency will soon come with practice. Most beginners are nervous, and afraid to enter head first. Their



SWIMMING ON THE BACK.



trials are often amusing. They will start for a dive, but change it into a jump; or they will keep their head back and arms up thus coming down on the water in grand style, with plenty of noise and splash. A very good plan with a beginner who is learning to dive, is to get two other swimmers to hold a towel stretched in front of him. This gives him an idea as to the throwing up of the legs, and as he goes over if the legs are not thrown up, the confederates should raise the towel so as to force the learner to make a clean dive. At his next attempt, he will probably get his legs up properly. A spring diving-board is generally used for running headers. A run of from twenty to thirty feet is made; when the end of the diving-board is neared, a jump is taken, and the body shoots up into the air. Then the experience gained in low diving is brought into service, the body is straightened and declined towards the water. When properly done, this style of diving is very graceful. It creates no splash, and the body enters the water "cleanly."

The plunger should stand erect on his starting base with the toes slightly overlapping the edge of the bath and the ball of the foot resting firmly upon the diving base. The knees should be kept together. Then the arms should be swung slowly backward and forward and a few short respirations taken, the heels being raised from the ground at each forward swing of the arms. The inhalation should be short and the expiration long. As soon as the lungs are well cleared, a spring forward is made, and a deep inspiration is taken. As the feet leave the diving base, the hands are thrown above the head in line with the body, which in the spring forward should be directed so as to enter the water as far as possible from the starting point. The actual angle to be observed can only be arrived at by continual

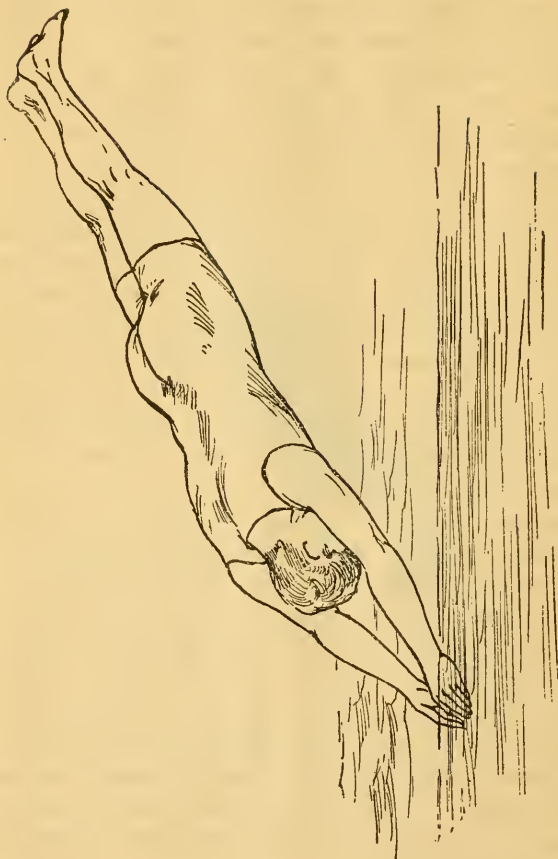


RUNNING HEADER.

practice, but at no time should the body be more than two feet or two feet six inches below the surface of the water. When the body has once entered the water, the palms of the hands should be flat, the fingers kept perfectly straight, and thumbs locked. The feet should be turned well back, with the soles as nearly as possible facing upwards. At the same time the body must be kept rigid in as straight a line as possible, and perfectly motionless. If these directions be observed, the body will move from twenty to thirty feet under the water, then gradually rise to the surface and float onwards in a straight line; the plunge terminating when the swimmer finds the air in the lungs exhausted, and is thereby compelled to raise his face. When the body is rising to the surface after the dive, care should be taken that the head and arms do not come too far out but remain on the surface; otherwise the impetus gained by the dive will be greatly lessened, and the distance of the plunge curtailed.

In order to "hang on," or otherwise expend to the greatest advantage the progressive power which has been gained from the dive, it is essentially important that the management of the breath should be made the subject of careful study, as it is the principal difficulty with which the plunger has to contend. There is, of course, a great strain on the respiratory organs when a long plunge is being taken, and it will therefore be evident that immediately before the dive, the lungs should be fully inflated with pure air, so as to allow the plunger to enter the water under conditions which will enable him to make the longest stay, with his mouth and nostrils below the surface, without undue strain.

In order to effect a good plunge, many of those who take part



*THE PLUNGE.*

in competitions "hang on" an inordinate time, until the respiratory centre becomes affected, and the head painful. Two or three instances have come under my own personal observation of plungers sinking, face downward, in a state of insensibility; but such cases are rare, as the face being close to the surface, can be quickly raised when the feeling of strain becomes noticeable. It will, however, be recognized that in deep water the danger is one that should not be overlooked, and when such competitions are in progress both the plungers and officials should be on the alert for possible accidents.

### Floating.

To a swimmer who really loves the art as a pastime, there is nothing so enjoyable as being able to float in open sea water. When the breakers are running high the body is at one moment poised on the top of a wave, while the eyes rapidly scan the valley of water beneath and the incoming wave beyond; the next moment the body is sunk in the valley with a high mountain on either side, and the blue sky above.

The essential in floating is plenty of self confidence. If a man be possessed of this, it will not take him very long to master the art. It is the nervous and impatient who experience so much difficulty. Non-success, even after continued practice, should not be allowed to act as a detriment, but all the precept in Christendom is often unavailable with the swimmer "who could float if his legs would not sink."

When beginning the attempt to learn, the mouth should be kept closed, as, when the body comes to a horizontal position on the surface, the water will in all probability ripple over the face before the arms are placed accurately beyond the head,



LEARNING TO FLOAT.

and, if the mouth be open, the swimmer forgets all about the need for balancing himself, gasps at the inrush of water, lets his legs sink, and then has to begin again. One of the best methods is to stand on the bottom of the bath, stretch the arms out perpendicularly over the head, and gradually incline the body backward until the shoulders are under water, all this time keeping the legs rigid and the body and arms as far as possible in the same straight line with the legs. The lungs should then be well filled, and a straight push off from the bottom taken. Every movement must be made slowly and carefully; there must be no jerking, or failure will inevitably result. As the legs rise to the surface they should be extended, and, with the arms kept perfectly rigid. The palms of the hands should face upward; the arms themselves should be widened apart if necessary, so as to cover a greater surface of the water, the head should be kept well back. If the body sink for a moment, the limbs should be kept rigid, and the breath held. The mouth and nose, toes and chest, will then rise above the surface, and the swimmer will realize that he is floating. The body will sink slightly at each expiration, will rise at each inspiration.

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## TRAINING.

So great has been the progress made by the teachers of physical education during the last decade, that boys and girls now usually pass from school well grounded in the principles of elementary exercise. But the temptation to relax physical work when one is healthy in body and mind is one which cannot be easily overcome. There are many successful athletes

who boast that they never train, but are equal to meeting all the trained men of their time. That time is, however, short, and surely, if but slowly, the day of reckoning comes, and the trained division win from them the pride of place. Neither a swimmer nor any other athlete can afford to play with his constitution. If it be strong, it is certainly advisable to make it stronger if possible, rather than to weaken it in the slightest degree; whilst if it be weak, sound exercise may result in incalculable advantage in later years.

If a swimmer desires to succeed in his art, regular and healthy habits must be the rule and not the exception. Continued indulgence in late hours, smoking and the use of stimulants, only accelerate the development of any weak points in the constitution, and the opposite effect may be anticipated with almost a certainty if such indulgences be avoided. I do not in any way intend to infer by this that a swimmer should make the best part of his life one monotonous round of practice, without change or enjoyment of any kind. The general tone of body has to be kept up, and to aid this change of scene and rational enjoyment are beneficial, but the enjoyment must not be allowed to more than counterbalance the good effects produced from previous exercise.

The training of the majority of swimmers consists simply of a few ordinary practice swims before a race, but here and there are to be found those who religiously train through the season, and generally with marked improvement to their capabilities. The difficulty is to define where training should begin and where it should cease, and this has to be left entirely to the discretion of the individual immediately concerned, but a few general hints for improving speed and stamina will be useful.



A vital requirement for a would-be fast swimmer is staying power. That has to be developed before any first class swimming can be done. By first class swimming I do not mean the dashing over a short twenty-five yards or so in a given time, but a long continued effort, such as a swimmer would have to make to save his own life or that of another. Once staying power has been developed speed will assuredly follow, and by judicious training a man may make himself a good all-round swimmer over distances varying from one hundred yards to a mile. The habits must, as I have said, first of all be regular and healthy, and the living plain though good. There is no advantage to be gained by studying any list of digestible and indigestible foods. Every man should suit his own tastes, but if possible eschew spiced viands and rich comestibles. If the digestion is not very good, there are plenty of simple remedies which, if taken in time, are of far more use than all the quack medicines ever invented, and more likely to be efficacious. Drugs should be avoided like poison, unless prescribed by a medical man. The great thing in all training is to prevent derangement of the stomach, and to correct it as soon as it makes its appearance.

Long-distance walking is the best form of exercise for a swimmer, as the muscles are thereby strengthened and staying power developed. If the swimmer be engaged in business, the journey to and fro—if the hours be not too long—should be made on foot, the man in training of course rising early enough to allow of his having breakfast a decent time before starting. At every available opportunity a distance walk into the country should be taken. It is wonderful what a recuperative effect an

ordinary country walk has upon a man jaded by business worries, and to a swimmer it forms a pleasant relief.

Although a moderate amount of rest is necessary, it is inadvisable, as soon as the swimming season ends, at once to cease active work and lie, as it were, dormant until the advent of Spring brings back thoughts of the swimming-bath, the river, or the sea. Exercise in one form or other should be taken, and then a fortnight or so before the opening of the season dumb-bells, Indian clubs, walking and gymnastics taken up more vigorously than before. By this method the swimmer will be getting himself into good condition long before many of his future opponents will have even thought of training, and in the first two or three months he will reap the benefit. The exercise must be varied, so that the monotony of the work does not become galling. During the racing season, the exercises already indicated, should be systematically undertaken and not at once dropped, because they are of invaluable assistance to a swimmer in training.

The amount of practice that a swimmer should take in the water must be regulated by his habits and social position. If engaged during the day, the only time for practice is in the morning or evening; and I incline to the opinion that the principal work should be done at the latter time. Some men can stand early morning swims as well, but many get stale if they practice both morning and evening.

When beginning to practice in the water, the first week or two should be devoted to long, steady swims, with an occasional burst, so that the powers of endurance may be advanced while the speed already gained is not lost. Practice may be taken every day by some swimmers, but with others this will prove

too often. Here, again, the frequency of the swims must be left to the discretion of the individual. If he finds that he is getting stale, the number of water practices should be lessened, and some other form of exercise substituted. Too great stress cannot be placed on the need there is for a swimmer at the outset of the season to take long, steady swims.

In the early stages of training it is of importance for a man to be properly looked after, not allowed to stand or play about without doing a fair amount of swimming, and again after undressing and before dressing to be properly rubbed down. A good rub down with a towel and hands, puts new life into a swimmer. His muscles become ready for action, the friction increases the circulation near the skin, and invigorates the system. All the muscles of the legs, the arms, back and chest should receive attention, until the body glows all over. A cold bath in the morning, or even a sponge down, with a good toweling after, is a capital incentive to work, and one which persons other than swimmers might adopt to their own advantage.

Whilst in training, or, indeed, if a man be often in the water, the hair should be kept short. With long hair there is a greater liability to catch cold, as the drying process is not so quickly and effectually performed; and in addition long hair is a nuisance when one has to dress rapidly.

It is exceptionally hard to wean an athlete from his pipe when once he has become addicted to its use; but the swimmer should steadfastly set his face against smoking whilst in training. If the temptation be too great to be resisted altogether, the habit must be gradually overcome; but if the pipe be thrown aside for two or three days, the craving for it will soon cease. Smoking tends to shorten the wind, and this in itself ought to

to be sufficient incentive to an athlete to manfully resist the desire for indulgence and give up the habit whilst in training.

At this early stage of training, the methods of racing in open water should be carefully studied. In a race, the swimmer should go as straight as a die for the winning-post, and in all practice an effort should be made to cultivate quick and rapid judgement of distance, so as to be able to get sight-lines to steer by. With a little care at the start, the swimmer will soon be able to steer a straight course. It is important that a man should be able to do this, because if he wander all over a course during the progress of a race, he not only jeopardizes his own chances, but those of other competitors whose paths he traverses. The best method, before starting for a swim in open water, is to look up the side of a course on which the face will be glancing during the swim, and pick out some prominent object as a guide. If a return journey to the starting-point has to be made, a guide should be selected on the opposite side before plunging in.

In bath swimming, the ability to turn well is of exceptional advantage, particularly in a short race; and very often the mere possession of this ability is sufficient to allow a swimmer to beat another who, in a straight-away race, would have the best of it by several yards. Not only must the turn be made smartly, but the "push off" must be vigorous. The best method of practising turning is to swim across the bath slowly and so judge the stroke, then, when close to the side, the under arm can be pushed outward instead of downward. The other arm should at the same time be swung forward, and the knees drawn up. The body will then turn completely round, the over arm touching the side as the turn is made. Then both

feet should be placed against the side, the hands shot rapidly forward, and a vigorous "push off" taken. These movements should be performed so quickly that there is no halt between them, and with a little practice, the turn may be performed neatly and mechanically. An inhalation should be taken when the under arm is being pulled outward, as the head sinks below the water during the turn. There are other ways of turning, but this method will be found the best for racing purposes.

A swimmer, having passed through the elementary work of developing his staying power, perfecting his style of swimming, as well as learning to turn and "push off" well and neatly, so as not to encroach upon the water-space allotted to another competitor, should then devote his attention to speed. Improvement in speed can only come by constant practice, and it is senseless to throw up training because within a certain period no marked decrease in the time taken to cover a particular distance is noticeable. In fact, the trials may occasionally be slower than those previously made, but this should not in any way discourage the aspirant, as there are many causes, such as a man being out of condition, making a bad start or turn, which might contribute to this,

The training for speed by amateurs should not be overdone. If a swimmer does his work in the evening, he should take care not to tire himself during the day. His first spins should be about thirty yards at top speed, a rub down, and then another sprint of fifty yards. This is quite sufficient water practice, and after a careful toweling a brisk walk should be taken. This training will perfectly suit a man entered for a hundred yards race. Occasionally the full distance should be swam against

the watch, and now and then two hundred yards covered at an ordinary pace ; but the main work should be confined to distances somewhat shorter than that for which the swimmer is training. When entered for races at distances of above one hundred and under five hundred yards, the training has to be slightly altered. Longer swims are necessary on account of the need for greater staying power. About three-quarters of the distance should be covered at racing pace. For courses over five hundred yards the work is much more severe. The speed should not be too great at first, but it must be gradually increased until considerable more than half the distance can be covered rapidly. Once or twice a fortnight a swim of double the journey entered for, should be made at a uniform rate of movement, and once a week the full distance traversed at top speed against the watch. Even when training for longer races the short fifty yard swims should not be neglected, for the possession of a turn of speed at the finish of a close longdistance race is very valuable. In conclusion let me add a few bits of advice which the aspirant for swimming honors might do well to remember and profit by.

—Be ready for the pistol and do not make too deep a dive.

—Keep a straight course throughout the entire distance and remember a yard lost in a mile race means more than a second gained for the opponent.

—Be careful about your breathing. It is hardly pleasant to find the lungs half filled with water by mistake.

—Two short, quick Trudgeon stroke at the finish of a close race may turn the verdict in your favor.

—Never swim in a long race unless accompanied by a boat. The risks are too great.

—A liberal coating of vaseline on the stomach will help keep away the action of cold water.

## SWIMMING RULES OF THE A. A. U.

SECTION 1. Officials shall consist of one Referee, three Judges at the finish, three Time Keepers, one Starter, one Clerk of the Course, with assistants, if necessary.

SEC. 2. Duties and powers of these officials shall be the same as is prescribed for them in the foregoing Rules.

SEC. 3. In the 100 yards Swimming Race each competitor shall stand with one or both feet on the starting line, and, when the signal is given, shall plunge. Stepping back, either before or after the signal will not be allowed.

SEC. 4. The start for longer races shall be the same as the 100 yards, except that the competitors may start in the water (tread-water start) from an imaginary line.

SEC. 5. Each competitor shall keep a straight course, parallel with the course of the other competitors, from his starting station to the opposite point in the finish line. Competitors will be started ten feet apart, and each one is entitled to a straight lane of water, ten feet wide, from start to finish. Any contestant who, when out of his own water, shall touch another competitor, is liable to disqualification from that event—subject to the discretion of the Referee.

SEC. 6. Each competitor shall have finished the race when any part of his person reaches the finish line.

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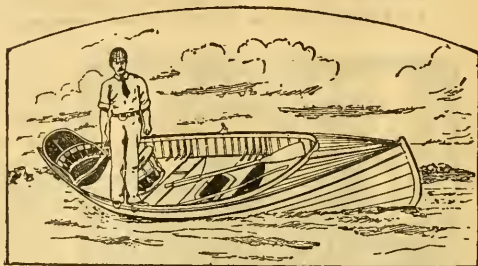
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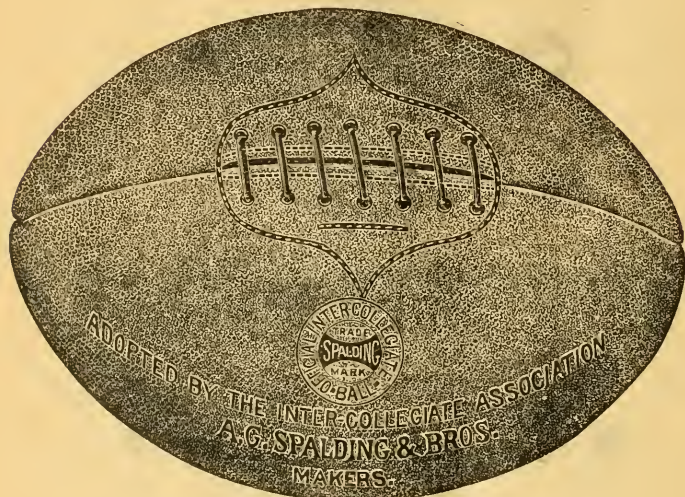
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