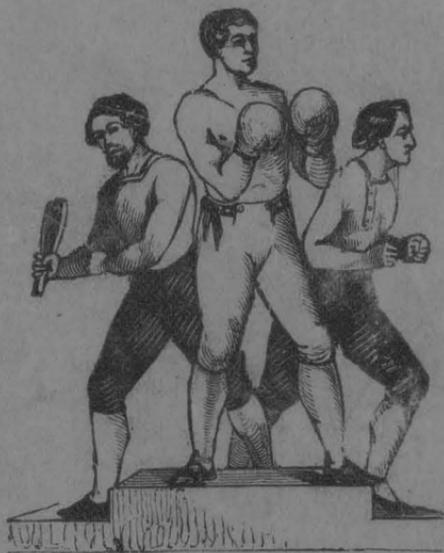


TREATISE
ON
PRACTICAL



TRAINING.

By

ED. JAMES.

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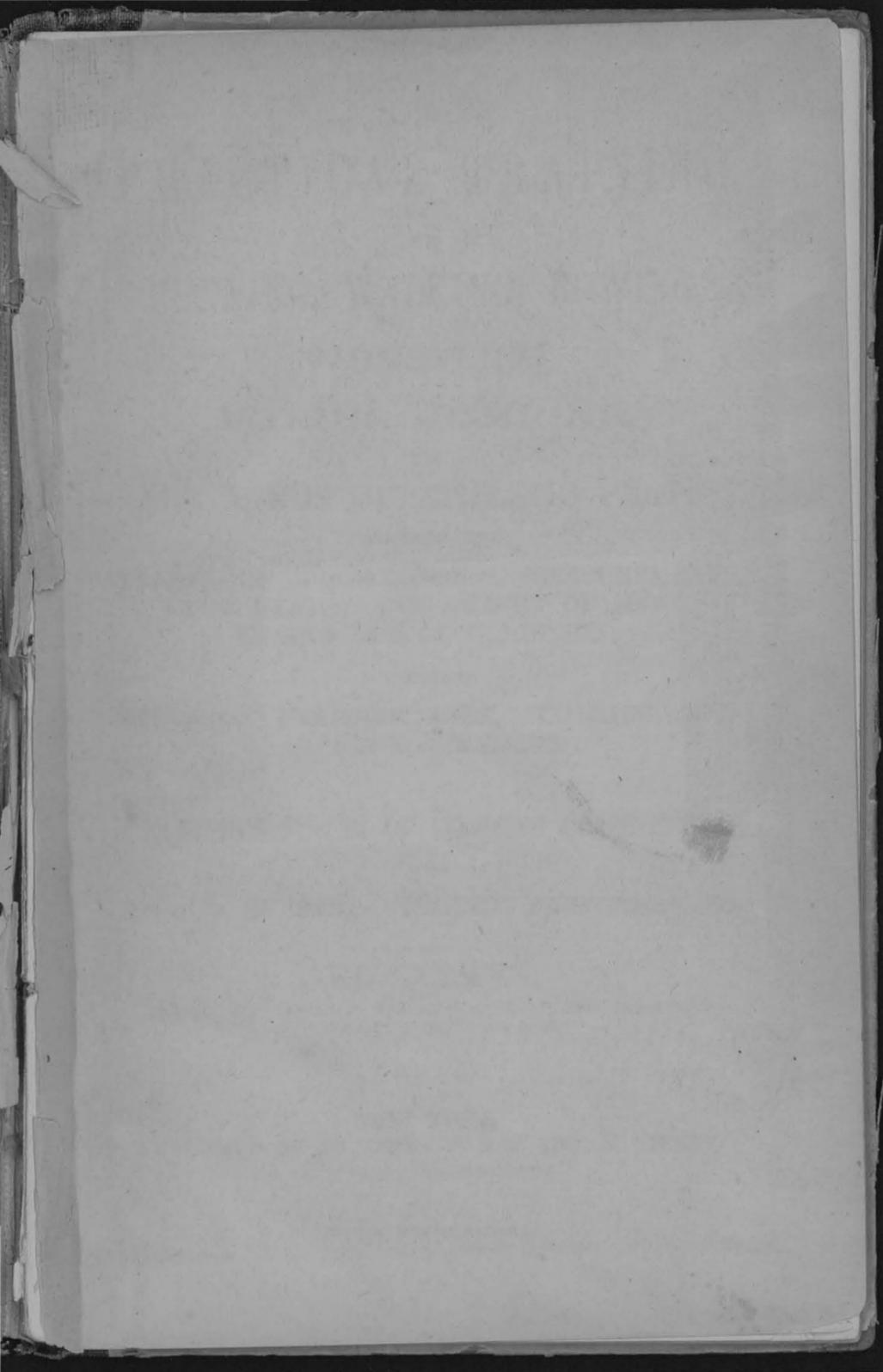
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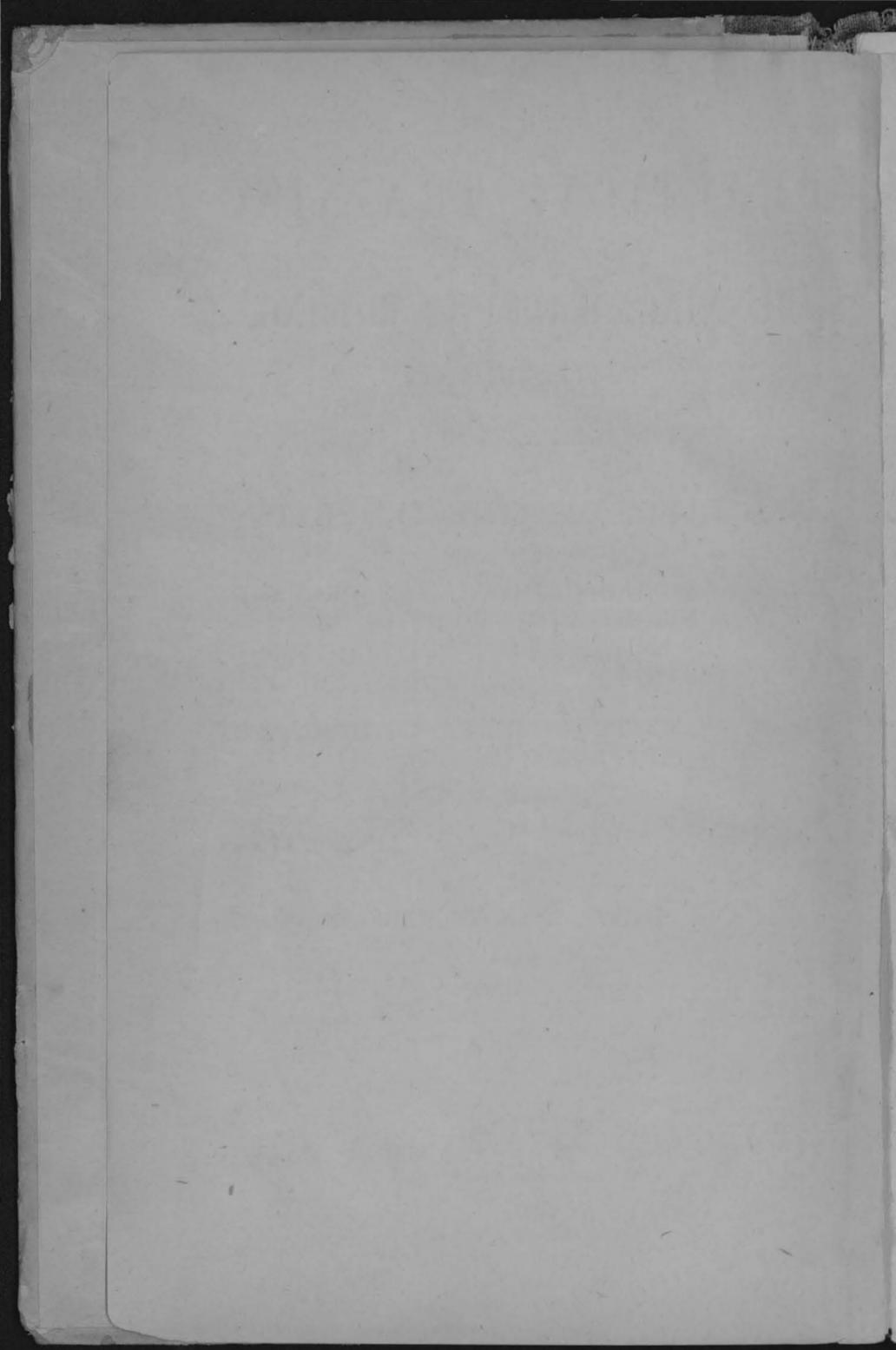
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PRACTICAL TRAINING

FOR

RUNNING, WALKING, ROWING,

WRESTLING,

BOXING, JUMPING,

AND

ALL KINDS OF ATHLETIC FEATS;

TOGETHER WITH

TABLES OF PROPORTIONAL MEASUREMENTS
FOR HEIGHT AND WEIGHT OF MEN
IN AND OUT OF CONDITION;

INCLUDING

HINTS ON EXERCISE, DIET, CLOTHING, AND
ADVICE TO TRAINERS;

ALSO,

BANTING'S SYSTEM OF REDUCING CORPULENCY,

AND

RECORD OF BEST ATHLETIC PERFORMANCES.

BY
ED. JAMES,

AUTHOR OF "MANUAL OF SPORTING RULES," "THE GAME COCK,"
"TERRIER DOGS," ETC., ETC.



NEW YORK:

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Third Edition.

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PREFACE.

NOTWITHSTANDING that so many books have been written on PHYSICAL CULTURE, there still remained a large field to be covered—hence the publication of the present volume. Great care having been taken in its compilation, we feel confident that the work will be in every sense of the word practical; so that those who desire may follow whatever their fancy prefers in athletic sports, in a creditable manner. In our opinion, the general usefulness of the book could in no way be improved upon; but, in order to be thoroughly posted in the laws governing athletic contests, the "MANUAL OF SPORTING RULES," as a companion to this work, will be found very beneficial. The table of Proportional Measurements, according to height and weight, will form a good guide for the athlete as to his special muscular development. Banting's System of Reducing Corpulency, though not exactly intended for training purposes, is not to be despised, containing, as it does, much interesting and reliable information, on the subject of diet especially. To complete the treatise, and in order to prove what can be done by man when in proper physical condition, we add a record of the best athletic performances.

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PRACTICAL TRAINING.

PRELIMINARY REMARKS.

[According to CHARLES WESTHALL, a physician, as well as one of
England's greatest pedestrians.]

PEDESTRIANISM, from its being the basis and principal agent in securing a thorough and perfect training to all who may have, from choice or necessity, to undergo a great amount of physical exertion, may be considered the chief feature in the preparation of men for all contests in which great strength, speed, and wind may be required. From this point of view the science of walking will be treated in the present work; for whether a man may have entered in an engagement to run, walk, jump, swim, row, or box, no training can be thoroughly accomplished until the athlete has undergone a certain amount of exercise on foot, and reduced his superfluous weight to such an extent that he can follow up his peculiar forte with fair chance of improvement, or at least so that he may not have to stop short from sheer want of wind or strength.

Pedestrianism, which has before been stated to be more or less indispensable to the man undergoing preparation, from its healthful and beneficial effect upon the human frame, is of most vital importance in keeping the required equable balance which should exist in every constitution, whether robust or otherwise. Good training is as requisite to any man who wishes to excel, as it is to the thoroughbred race-horse. A man who is fleshy and obese might as well attempt to compete with a well-trained man as the race-horse that has been fed for a prize-show to again enter the lists with his highly-prepared and well-trained contemporaries. A man may be endowed with every req-

uisite in health, strength, muscle, length, courage, bone, and all other qualifications; but if untrained, these qualifications are of no value, as, in every instance, a man or horse, well-trained, of much inferior endowments, has always under the circumstances proved the victor. Good condition, which is the term used by trainers to indicate the perfect state of physical power to which the athlete has arrived, is one of the greatest safeguards to his health; as, in many instances, severe and long-continued exertion when unprepared has had an injurious and continuous effect on the constitution, and, in some few but fortunately almost isolated cases, produced almost instant death. These few words are not alone intended for the man who has to compete, but for a great portion of mankind, who go through the regular routine of life day after day, their business being sometimes performed with apathy, and the remainder of their time passed in excessive smoking, eating, drinking, sleeping, sitting, or any small pet vice to which they may be addicted. That such a man can undergo the same process of training as the professional who has an engagement to perform some arduous task against time or a fleet antagonist, we do not ask or expect—his occupation would not allow the same time; but the assertion that he would perform his allotted duties with more pleasure to himself and more satisfaction to all concerned if he were to submit to undergo a partial training, is a truth that ought to be tested by all who have any regard for continued good health. Were this system carried out to even a small extent, the physician would have cause to lament the decline of his practice, and the advertising quack become a nonentity. As a proof how necessary training is considered by the professional, it is only requisite to ask any *pedestrian* of note for his candid opinion to satisfy the most incredulous. The higher in the pedestrian grade the man may be to whom the question may be put the better, in consequence of his having gone through the whole performance, from novicehood upwards; and, in every instance, it will be found that more than one of his defeats will be attributed to want of condition (proper training) arising from neglect of work or other causes, such as carelessness in diet, want of practice, and, in some instances, from the neglect of the precepts attempted to be inculcated by his trainer. Most of the above mistakes have arisen from overweening confidence in his own powers, or from underrating his adversaries' abilities. However

willing and thoughtful he may have been, these *contretemps* have almost invariably been the fate of all our leading athletes, not only in the pedestrian circle, but in the ring, on the water, and in all sports in which a great lead has ever been taken by man. He will inform the querist that he will require from a month to two months for his preparation, and if he has been out of practice for some time, even more—thus showing to the dullest intellect the requisite time and attention needed; for if a man who has shone pre-eminent in the sphere he has chosen for his exertions, and has had the benefit of previous trainings, must again undergo the same ordeal as heretofore, a man totally untrained must at least require the same preparation, as well as a greater amount of practice, to fully develop his particular forte as a pedestrian. To sum up in a few words, training is a complete system of diet and exercise duly carried out and strenuously adhered to. From the mode of life which almost all lead, the health becomes impaired, and the only remedy will be discovered by him who follows the principle of training in some form or other, the more simple the better. That the same system of training will suit all constitutions, it would be absurd folly to advance; or that the same amount of work and strictness of diet is requisite for a man about to run a race of one hundred and twenty yards, as for a struggle of an hour's duration, would be equally preposterous. Nevertheless, the groundwork of training arises from the benefits derived from regular diet and steady exercise. Training will bring out all the hitherto latent powers of the athlete, raising the man who has previously been considered almost a nonentity into public notice, the one of mediocre calibre into the first rank, and thoroughly develop the excellencies, etc., of the first-class proficient to an extent that will not only surprise himself, but his associates and long-trying friends and backers.

TRAINING is the process of getting a man who has to perform any muscular feat from a state of obesity and almost total incapability into a perfect state of health, which is shown by the great increase of strength, activity, wind, and power to continue great exertion and pace to the extent of his endowments. It is this acquired power which enables the pedestrian to persevere in his arduous task, apparently in despite of nature, which, but for his thorough preparation, would have long before been utterly prostrate. So much is depending on, and so many results

accruing to the efficiency of the trainer, that a few words of friendly advice to that official will not be out of place; for although the veteran has learned the precepts given below by heart, yet there is always a beginning to all occupations. As a rule, a great pedestrian is not qualified at the outset of his career as a trainer to undertake the care of most men, in consequence of there being a leaven of the remembrance of the manner in which he went through his work, etc., which will in most instances render him less tolerant than is requisite to the man of mediocre talent. Another difficulty is to find one with sufficient education and forethought to be able to study the different constitutions of the men under his rule. The above are only a few of the objections; but all are of consequence, so much depending upon the treatment of the man independent of his daily routine of exercise and diet. The man who goes first into training is like an unbroken colt, and requires as much delicate treatment. The temper of the biped ought to be studied as carefully as that of the quadruped, so that his mind can be carefully prepared for his arduous situation, which is one of abstinence, and in some cases total deprivation, which always tries the patience and frequently the temper of the competitor, who in these cases should be encouraged by word and example, showing that the inconveniences he is undergoing are but the preliminary steps to the attainment of that health, strength, and elasticity of muscle which have caused so many before him to accomplish almost apparent impossibilities. Such a trainer is worth a hundred of those who have no judgment in the regulation of the work which a man may take without in any way making him anxious to shun his duty or to turn sullen. Let the trainer bear in mind and always remember that a fit of ill-temper is as injurious to the man in training as any other excess. In many instances, from a supposed well-founded cause of complaint, a continued civil war has arisen in the cabinet, which has not been quelled, perhaps, until the dissension has had a very serious effect in destroying the pedestrian's confidence in his trainer's capabilities and temper, as well as throwing back the trained man most materially in his advance towards condition. Nevertheless, the mentor should be firm in his manner, intelligible in his explanations, and by no means bigoted in his favorite notions respecting the use of any particular medicine or "nostrum" which he may think may be requisite to the welfare of his man. The

trainer, of course, is known or supposed to be of sterling integrity, and having the welfare of his man as his first aim; and on this in a great measure depends the monetary interests of the man and his backers. We are sorry to have to mention that such a man is requisite as a trainer, but consider it necessary to mention it, as, if the trainer is not honest, and has not his heart in the well-doing of his man, all the pains taken by the pedestrian would be nullified and rendered of no avail. The trainer must be vigilant night and day, never leave his man, and must act according to his preaching, and be as abstemious, or nearly so, as his man, whom it is his duty to encourage in improvement, to cheer when despondent, and to check if there are at any time symptoms of a break-out from the rules laid down—but at all times he must, by anecdote, etc., keep the mind of his man amused, so that he may not brood over the privations he is undergoing. Let the trainer not forget that cleanliness is one of the first rules to be attended to, and that the bath can hardly hurt his man in any season if only due precautions be observed, always bearing in mind that it is a preventive instead of a provocative to colds, catarrhs, and the long list of ills attendant upon a sudden chill. The duration of the bath is, of course, to be limited, and a brisk rubbing with coarse linen cloths until the surface is in a glow will always be found sufficient to insure perfect safety from danger. Of course, the amount of medicine required by any man will depend upon his constitution as well as the lowness of his nervous system, in some cases there being no occasion to administer even a purgative. But these are the times when the skill of the trainer is brought into requisition, and if he knows his business he will in these instances give his man stimulating and generous diet until he is enabled to undergo the necessary privations to get him into a proper state to be called upon to work to get into condition. In no instance ought he to allow his man to sweat during the days on which he has taken a purgative, as in many instances men have been thrown back in their preparation, or, as it is professionally termed, "trained off." The best test when all the superfluous flesh has been trained off by sweating, by long walks or runs, as the case may be, is taken from the fairness and brightness of the skin, which is a certain criterion of good health. The quickness with which perspiration is dried on rubbing with towels, sufficient leanness and hardness of the muscles, is

also the right test that reducing has been carried to the proper extent.

TRAINING FOR PEDESTRIANISM.

THERE being so many classes of individuals who may derive benefit from training, each of whom have different modes of living, and whose particular line of excellences are as different from each other as light from dark, it must be patent to all that the same system carried out to the letter would not have the same beneficial effect on all, the more especially in the dietary system, which, in almost every case, would require some change, as no two men have ever scarcely been found to thrive equally well on a stereotyped rule. The pedestrian alone comprises a class by itself, which is subdivided into as many different ramifications as there are other sports and professions that require severe training; therefore, as pedestrianism is the groundwork of all training and all excellence in athletic games, it is the intention to give the hints requisite for the man who is matched to get himself sufficiently well in bodily health and bodily power to undergo his practice with credit to himself and trainer, and justice to his backers. In all engagements for large amounts there is almost invariably a trainer engaged to attend to the man who is matched, who is supposed to thoroughly understand his business; therefore these few words are not intended for the guidance of those in the said position, but for those who may wish to contend for superiority, for honor, or small profit. The same amount of work and strict regimen is not requisite for the sharp burst of a hundred yards or so, that it is imperative on the trained man to undergo if in preparation for the more arduous struggle of a mile's duration; but, as stated before, the theory of the practice is the same. Westhall found that the more work he had taken at the commencement of his training, after having undergone the requisite medical attention, the easier and better his fast trials were accomplished when hard work was put on one side and daily practice took place against a watch. Yet he, in pedestrian language, could race up to a hundred and sixty yards, but not finish two hundred properly—could run three hundred yards and a quarter of a mile, but yet not be equally good at three hundred and fifty. The same was found to be the case at the different distances up to a mile, which is the farthest distance he

had practiced. The first and primary aim ought to be the endeavor to prepare the body by gentle purgative medicines, so as to cleanse the stomach, bowels, and tissues from all extraneous matter, which might interfere with his ability to undergo the extra exertion it is his lot to take before he is in a fit state to struggle through any arduous task with a good chance of success. The number of purgatives recommended by trainers are legion, but the simpler will always be found the best. A couple of anti-bilious pills at night, and salts and senna in the morning, has answered every purpose. It is reasonable, however, to suppose that anyone who has arrived at sufficient years to compete in a pedestrian contest has found out the proper remedies for his particular internal complaints. The internal portion of the man's frame, therefore, being in a healthy condition, the time has arrived when the athlete may commence his training in proper earnest; and if he be bulky, or of obese habit, he has no light task before him. If he has to train for a long-distance match, the preparation will be almost similar, whether for walking or running. The work to be done depends very much on the time of year. In the summer the man should rise at five in the morning, so that, after having taken his bath, either shower or otherwise, there will have been time for a slow walk of an hour's duration to have been taken before sitting down to breakfast—that is, if the weather be favorable; but if otherwise, a bout at the dumb-bells, or half an hour with a skipping-rope, swinging trapeze, or vaulting-bar, will be found not unfavorable as a good substitute. Many men can do without having any nourishment whatever before going for the morning's walk, but these are exceptions to the rule. Most men who take the hour's walk before breaking their fast feel faint and weak in their work after breakfast, at the commencement of their training, and the blame is laid on the matutinal walk; when, if a new-laid egg had been beaten in a good cup of tea, and taken previous to going out, no symptom of faintness would have been felt, although it is expected some fatigue would be felt from the unwonted exertion. The walk should be taken at such a pace that the skin does not become moist, but have a good healthy glow on the surface, and the man be at once ready for his breakfast at seven o'clock. The breakfast should consist of a good mutton chop or cutlet, from half a pound upwards, according to appetite, with dry bread at least two days old, or

dry toast, washed down with a cup or two of good tea (about half a pint in all), with but little and if possible no milk. Some give a glass of old ale with breakfast, but it is at this time of the day too early to introduce any such stimulant. After having rested for a sufficient time to have allowed the process of digestion to have taken place, the time will have arrived for the work to commence which is to reduce the mass of fat which at this time impedes every hurried action of the muscle and blood-vessel. This portion of the training requires great care and thought, for the weight of clothing and distance accomplished at speed must be commensurate with the strength of the pedestrian. At the commencement of the work a sharp walk of a couple of miles out, and a smart run home, is as much as will be advisable to risk. On the safe arrival at the training quarters, no time must be lost in getting rid of the wet clothes, when a thorough rubbing should be administered, after which he should lay between blankets, and rubbed from time to time until the skin is thoroughly dry. Most of the leading pedestrians of the day now, when they come in from their run, divest themselves of their reeking flannels, and jump under a cold shower-bath, on emerging from which they are thoroughly rubbed down, which at once destroys all feeling of fatigue or lassitude. In a few days the pedestrian will be able to increase his distance to nearly double the first few attempts at a greater pace, and with greater ease to himself. After again dressing, he must always be on the move, and as the feeling of fatigue passes away he will be anxiously waiting for the summons to dinner, which should come about one o'clock, and which should consist of a good plain joint of the best beef or mutton, with stale bread or toast, accompanied by a draught of good sound old ale, the quantity of which, however, must be regulated by the judgment of the trainer. It has been found of late years that extreme strictness in all cases should be put on one side, and a small portion of fresh vegetables allowed, such as fresh greens or potatoes; and, in some instances, good light puddings have been found necessary to be added to the bill of fare when the appetite, from severe work or other causes, has been rendered more delicate than usual.

The continued use of meat and bread, unless the man has a wonderful appetite and constitution, will once, if not more, in almost every man's training, pall upon his palate, when the trainer should at once try the effect of poultry

or game, if possible; but, at any rate, not give the trained man an opportunity of strengthening his partial dislike to his previous fare. In cases like these, the only wrong thing is to persevere in the previous diet; for if a man cannot tackle his food with a healthy appetite, how is it possible that he can take his proper share of work? The quantity of ale should not exceed a pint, unless there has been a greater amount of work accomplished in the morning than usual, when a small drink of old ale at noon would be far from wrong policy, and a good refresher to the imbiber. Wine in small quantities is sometimes beneficial, but should not be taken at all when malt liquors are the standard drink. If it is possible to do without wine, the better. The chief thing in diet is to find out what best agrees with the man, and which in most instances will be found to be what he has been most used to previously.

After a thorough rest of an hour's duration, the pedestrian should stroll about for an hour or two, and then, divesting himself of his ordinary attire, don his racing gear and shoes, and practice his distance, or, at any rate, some portion of the same, whether he is training either for running or walking. This portion of the day's work must be regulated by the judgment and advice of the trainer, who of course is the holder of the watch by which the athlete is timed, and is the only person capable of knowing how far towards success the trained man has progressed in his preparation. It is impossible for the pedestrian to judge by his own feelings how he is performing or has performed, in consequence of, perhaps, being stiff from his work, weak from reducing, or jaded from want of rest. The trainer should encourage his man when going through his trial successfully, but stop him when making bad time, if he is assured the tried man is using the proper exertion. The rule of always stopping him when the pedestrian has all his power out, and yet the watch shows the pace is not "up to the mark," should never be broken; for the man who so struggles, however game he may be, or however well in health, takes more of the steel out of himself than days of careful nursing will restore. If stopped in time, another trial may be attempted on the following day, or, at any rate, the next but one. In a trial for a sprint race, which of course must be run through to know the time, if the day is any way near at hand, suppose a week or ten days off, total rest should be taken the following day until the afternoon, when another trial should take place, when a differ-

ence in favor of the pedestrian will in most instances be found to have been accomplished. In Westhall's experience in sprint racing there has been invariably the above successful result. Of course, after the trial a good hand rubbing should be administered, and the work of the day be considered at an end. Tea-time will now have arrived, and the meal should consist of stale bread or toast and tea, as at breakfast, and, if the man has a good appetite, a new-laid egg or two may be added with advantage. In the summer a gentle walk will assist to pass away the time until bed-time, which should be at an early hour. Before getting into bed another good rubbing should be administered, and the man left to his repose, which will in most cases be of the most sound and refreshing character.

SLEEP.

OF this eight hours is an outside limit, and from six to seven will generally be found sufficient, retiring to rest not later than 11 P. M., and rising from about 6 A. M. to 7.30. A. M., according to circumstances. The bedroom window should always be kept open at top and bottom, slightly in winter and wide in summer. Foul air generated by the human breath is never more hurtful than in a bedroom. Too much clothing should not be placed over the chest whilst sleeping, as by so doing respiration is more labored, and the legs and extremities, not the trunk, require extra covering for purposes of warmth. A mattress should be always used to sleep on, never a feather bed. High pillows and bolsters are very injurious. The natural height to which the head should be raised in sleep is about the thickness of the upper portion of the arm, which constitutes the pillow as designed by nature.

CLOTHING.

FLANNEL should be worn next the skin throughout the year, but beyond this no restriction is necessary when in mufti. The best attire for running is a pair of thin merino or silk drawers, reaching to the knee and confined round the waist by a broad, elastic band. For the upper part of the body a thin merino or silk Jersey is the best. No covering for the head is usually worn, but, in a race of such long duration as a seven miles walking or ten miles running contest, it is advisable to wear a cap or straw hat if the

rays of the sun are very powerful. For running, thin shoes made of French calf, and fitting the foot like a kid glove when laced up, are worn. The sole should be thicker than the heel, and contain four or five spikes, the lacing being continued almost down to the toe. For walking races, the heel should be thicker than the sole, and containing a few sparrow-bill nails, none being required in the toes. Chamois leather socks, just covering the toes, but not reaching above the top of the shoe, are the best adapted for running. Ordinary merino socks, but not thick and heavy like worsted ones, and worn over the chamois leather coverings, are the best for walking, as they prevent the dust and grit raised from the path from getting between the shoe and the foot. Except for sweating purposes, heavy clothing should never be worn in practice, the gait and stride being much impeded thereby. A piece of cork of an elongated, egg shape should be grasped in each hand while walking or running.

TIME AND DURATION OF TRAINING FOR RUNNING.

THE foregoing are the foundation rules which constitute training, but of course they require modification according to circumstances, which must be left to the judgment of the pedestrian or the trainer, if he has that necessary auxiliary to getting into good condition. For instance, the man has had too much sweating and forced work, in consequence of which he is getting weak, and, in the professional term, "training off." This will easily be recognized by the muscles getting flaccid and sunken, with patches of red appearing in different portions of the body, and the man suffering from a continual and unquenchable thirst. These well-known symptoms tell the trainer that rest must be given to the pedestrian, as well as a relaxation from the strict rule of diet. A couple of days' release from hard work will in most cases prove successful in allaying the unwelcome symptoms, and far preferable to flying to purgatives for relief.

The space of time which will be required by a young and healthy man will be from six weeks to a couple of months; but longer than this, if possible, would be preferable—not that it would be really wanted to improve on the mere physical condition of the man, but to enable the pedestrian, when able, to go to any limit as regards exertion, and to

have *time* for practice at his particular length; for, however fit a man may be as regards the proper leanness, if unpractised he would have no chance of success. The principal rules of training, therefore, are regularity, moderate work, and abstinence; the other adjuncts are but the necessary embellishments to the other useful rules. When training for running a long distance—say from four to ten miles—the man should most decidedly practice daily; for the shorter length going the whole distance, and for the longer vary the distance, according to the state of health on the day, as well as whether the weather be fine or otherwise. For a short race of a hundred or two hundred yards, the pedestrian, after the body is in good health, does not require very much severe work, but the distance must be accomplished at top speed at least once daily, and about the same time of the day that the match will take place, if possible. The same rules, with comparatively more work, will apply up to 440 yards—a quarter of a mile—after which distance more work becomes necessary.

SPRINT RUNNING.

LET the novice, some five weeks or so before the day of his race, begin his practice by a steady run, three or four times a day, of a quarter of a mile or so; so gently at first as to produce no stiffness of the muscles when the temperature produced by the exercise has subsided, and the circulation has recovered its usual condition. When the novice has got his legs into moderate good fettle, so that they could stand a little sharp work, he might quicken up for about 50 yards in each of his quarter spins; and as he finds these spins can be accomplished without the slightest strain on any muscle, the long distances may be condensed into two a day, and two sprints of his distance at about a fifth longer time than he would take in the race. By this means the muscles get worked up by degrees to bear the necessary strain required.

As he finds his muscles become hard and flexible, he should lessen the length of his spins until they are of the same length as in the race. This point will be arrived at some nine days or so before the day, and in these nine days all his energies must be devoted to practicing starts and getting quickly into stride. As the day approaches, let him obtain the services of some sprint runner to use as a trial horse; and the best way of turning his trial horse to ac-

count is by making him start slowly some 10 yards in the rear, and, as he passes the novice, who is ready at the scratch, let him quicken up into racing pace for about 50 yards. By this means the novice is encouraged to get off quickly, and a surer line can be taken as to improvement in starting than if the trial and himself started on even terms. Again, the tendency of all young runners to watch their adversary at the start is counteracted, the opponent in this way being in advance, with a straight course only left open for the novice to the goal. So many sprinters, from standing in a wrong position at the scratch, or from taking a longer stride with one leg than the other, jostle or run across their opponent in the spin, thereby either losing their own chance of success or depriving others of it. A bad beginning makes a bad end, and nothing is so detrimental to a sprinter as a bad start. He may get shut out, he loses his stride, or perhaps get spiked by the man who has crossed him; and when he does get into proper swing, he is too far behind to be able to make up what was lost at the beginning. Avoid walking long distances; they rather tend to stiffen the muscles and make them slow. Never miss your race; if you can only get one spin daily, make the most of it. Always run in form—that is to say, as you would in the race, on your toes, with an easy, springing action of the thighs. In the race keep your eyes well on the tape, and never lessen your pace when in front, or let misgivings disturb you when behind; your opponent may have the pace of you and not be able to stay. It is better to be a good second than nowhere. Every race you engage in will increase your experience and give you confidence for the next time. Good time for 100 yards ranges from 11 seconds to 10½, according to the ground, &c. The top speed is seldom obtained until 40 yards are covered. A good sprinter will generally beat two others in 200 yards, each to run 100 yards with him on end. For sprinting, wind is not such a desideratum as elasticity of muscle. The shorter the distance, the greater care and practice should be made in starting; the longer you have to sprint, the greater will be the necessity for working up the muscles. In practice, run with as slight clothing on as possible; *buff* is to be preferred. The action of the air on the skin keeps up a healthy flow of blood to the surface, and will do more towards a beneficial reduction of weight than any amount of sweatings, baths, or other appliances of the old school.

QUARTER AND HALF MILE RUNNING.

A QUARTER of a mile is, perhaps, next to the 300 yards, the most patronized of any. Assuming our trainee to be in robust health, the muscles should be gradually accustomed to the exercise by slow spins of half a mile each, two or three times a day, taking about from 3min. to 2min. 25sec., according to the individual, to do it. When the distance is accomplished with comparative ease, practice style and pace for about 300 yards to 350 yards to within about a week of the race, when the whole distance may be run, two or three times at top speed for 400 yards, slower the last 40. Ease up the practice in the last three days, merely working up pace for 100 yards or so. The same method of training will suit the half mile runner, with the exception of his spins being longer, and more attention paid to an equal pace of going. The quarter requires more speed than the half mile; consequently that point must be attended to. A steady, machine-like style of going pays best for the half mile runner.

ONE MILE RUNNING AND UPWARDS.

In practicing for a mile race and upwards, a long, steady course of slow running must be gone through to get the limbs and the wind gradually accustomed to the work. As they improve, quicken your pace, and for mile running practice half a mile or so in about 2min. 20sec., until the wind becomes good; then lengthen the daily spins to three-quarters of a mile fast, and the last quarter slowly. Never do much work the last few days, but have a few fast spins of 300 yards or so, to keep the muscles in form. In longer distance training, the same steady practice must be followed, with this exception, that, instead of practicing pace, rather get the condition of wind and muscle up as high as practicable, and reserve your energies for the day of the race.

HURDLE RACING.

THE usual hurdle race distance is 120 yards, with 10 flights of hurdles 3ft. 6in. high and 10 yards apart. This gives a run of 15 yards at both ends. The quickest way of getting over them is by taking them in stride, or technically bucking them. If the ground is firm and level, this can be

done, and three strides will take the jumper from hurdle to hurdle, the fourth taking him over. Should the ground be uneven, slippery or heavy, great care is required in bucking them. Touching the top bar will inevitably be followed by a fall or a stumble sufficient to put the jumper out of the race. In bucking, the spring is taken from one leg, and the alight comes on the other; so that the jump, instead of being an actual interruption of the regular strides, as happens when the spring and the alight come on the same leg, is merely an exaggerated stride. The advantage of bucking is apparent to anyone who has tried both systems under favorable circumstances, and who is strong enough to bear the strain which the high hurdles require. The lower the hurdles are, the greater is the superiority of bucking over jumping. To acquire the art of taking the hurdles in stride, practice over jumps about 2ft. 6in. high, at the proper distance apart, until the style is learnt.

HINTS IN, BEFORE, AND AFTER THE RACE.

In sprinting, a good start is of such importance that we would suggest a careful practice in it. It is a curious fact that a novice will invariably start with one foot a yard or so behind the other, either with the body bent down low, or with the body erect, and swinging the arms as if they were the means of propulsion about to be trusted to. In the former case, he runs one yard more than his distance, in the latter he exhausts and unsteadies himself. Start with both feet within six inches of one another, the weight of the body resting on that foot which is farthest from the scratch, and the toe on the side nearest the goal, just touching the ground, and ready to take the first step over the mark; the body must be kept well up, so that the first spring is taken steadily and in a straight line. As this method is the quickest for getting off the mark, it will apply to every description of pedestrianism.

Before any contest, when you are stripped, take a trot to get the limbs into order and keep them warm; the muscles will be less likely to get strained if well heated beforehand. In running with a chicken-hearted man, race at him, and, if you feel done, fancy that he feels worse. Run as straight to the goal as possible; it is the nearest way home, and therefore the quickest. The arms should be kept well up, and moved in the direction of the course, and not swung across the body. Any scrambling in the race is fatal to a

good walker; the motion of his legs should be mechanical. In walking races, if a stitch bothers you, keep well on, and try and forget it; it will never last long if you are in good condition. In a race with heats, after a heat lie down on your back, and keep the legs raised up, in order that the blood forced into the extremities by the exercise may be assisted by its own gravity to return to the trunk. Rest is the best cure for a strain, and is much assisted by cold water application. In a strain of the internal organs, their complexity renders repair a more difficult operation, as they do not allow of repose; recourse should therefore be had to a physician.

Running on the toes on a path is to be recommended, as enabling a longer stride to be taken, and giving an easier motion to the body, and less jar at each step. In heavy ground, however, it is of little use, as the sinking of the toe in the soil interferes with the spring, and necessitates a larger surface of the foot to get a purchase for the next stride.

Never in practice run with many clothes on; if the weather is cold, clothe in proportion. The action of the air on the skin increases its healthy vigor. A piece of cork is often held in each hand to grasp while running. In a long distance race, wringing the mouth out with warm tea with a little brandy in it, and munching a crust, will often take away any dryness of throat. Never commence fast sprinting in practice unless the muscles are thoroughly warm. Strains would seldom happen if this was attended to. Fruit fresh picked is not to be discarded. A small quantity, when ripe, will often give tone to the stomach and cool the blood. Of dried fruits, figs are supposed to be the most serviceable.

TRAINING PRACTICE, FAIR WALKING, ETC.

WALKING is the most useful and at the same time most abused branch of athletic sports; not so much from the fault of the pedestrians as from the inability or want of courage of the judge or referee to stop the man who, in his eagerness for fame or determination to gain money anyhow, may trespass upon fair walking, and run. Walking is a succession of steps, not leaps, and with one foot always on the ground. The term "fair toe and heel" was meant to infer that, as the foot of the back leg left the ground, and before the toes had been lifted, the heel of the fore-

most-foot should be on the ground. Even this apparently simple rule is broken almost daily, in consequence of the pedestrian performing with a bent and loose knee, in which case the swing of his whole frame when going at any pace will invariably bring both feet off the ground at the same time; and although he is going heel and toe, he is not taking the required succession of steps, but is infringing the great and principal one, of one foot being continually on the ground. The same fault will be brought on by the pedestrian leaning forward with his body, and thereby leaning his weight on the front foot, which, when any great pace is intended, or the performer begins to be fatigued, first merges into a very short stride, and then into a most undignified trot. There is no finer sight among the long catalogue of athletic sports, more exhilarating and amusing to the true sportsman, than to see a walking-match carried out to the strict letter of the meaning, each moving with the grandest action of which the human frame is capable, at a pace which the feeble frame and mind is totally unable to comprehend, and must be witnessed to be believed. To be a good and fair walker, according to the recognized rule among the modern school, the attitude should be upright, or nearly so, with the shoulders well back, and the arms, when in motion, held well up in a bent position, and at every stride swing with the movement of the legs, well across the chest, which should be well thrown out. The loins should be slack, to give plenty of freedom to the hips, and the leg perfectly straight, thrown out from the hip boldly, directly in front of the body, and allowed to reach the ground with the heel being decidedly the first portion of the foot to meet it. The movement of the arms, as above directed, will keep the balance of the body, and bring the other leg from the ground, when, the same conduct being pursued, the tyro will have accomplished the principal and most difficult portion of his rudiments. This will in a very short time become natural to him, and the difficulty will be the infringement of the correct manner. The novice having learned how to walk, and being matched, requires training, which must be under the same rules as have been laid down previously, with the difference, however, that his sweats must be taken at his best walking-pace, the trot by all means being totally barred. A continued perseverance in the practice of this rule will enable the pedestrian to persevere, notwithstanding all the shin-aches, stitches, and other pains attendant on the proper

training for a walking-match, and which every man must undergo before he can be considered worthy of being looked upon as a fast and fair walker. The tyro must not be discouraged with his first feeble and uncertain attempts if they should not come up to his crude anticipations, but bear in mind that, although the accomplished pedestrian goes through his apportioned task with great apparent ease, he has gone through the rudiments, and that nothing but great practice has enabled him to perform the apparent impossibilities which are successfully overcome almost daily. Therefore the young walker must take for his motto "Perseverance," and set up to the same by continued practice. The man training for a match should walk some portion of his distance, if weather permits, daily, in his walking-dress, which should consist of a light elastic shirt, short drawers, and light Oxford ties. On starting, he must go off at his *very* best pace, and continue it for at least three hundred yards or a quarter of a mile, by which time he will have begun to blow very freely, and then, getting into a good, long, regular stride, his principal aim must be to keep his legs well in advance of his body.

The rule of getting away fast in trials should be invariably carried out; it prepares the man for a sharp tussle with his opponent for the lead, and will hinder him being taken off his legs in the match. When tired he can also ease his exertions; but if he is in the habit of going off at a steady gait, in the generality of instances he is virtually defeated in a match before he has commenced racing. Moreover, he must, when undergoing distress from the pace he has been doing, never by any chance cease his resolute and ding-dong action; for distress, if once given way to by easing, will of course leave the sufferer, but at the same time all speed has also departed, and not for a short space of time either, but sufficiently long for the gamer man, who would not succumb to the inevitable result of continued severe exertion, to obtain such an advantage as would be irrecoverable, as well as to conquer the aches and pains which invariably leave the well-trained pedestrian when the circulation and respiration become equalized—"second wind" it is better known by. After this happy and enviable stage of affairs has been reached the work becomes mechanical, and the pedestrian from time to time is enabled to put on spurts and dashes that would astonish himself at any other time when not up to thorough concert pitch. The recovery from

these electrifying dashes is almost instantaneous, and the pedestrian keeps on his satisfactory career until sheer fatigue gradually diminishes his speed, although none of the previous aches and pains are present. The trainer must not forget the previously-mentioned rule of stopping the man when good time is not the result of his best and hardest exertions, as that bad time proves unerringly that something must be amiss which requires looking to thoroughly. As well might the engineer of a locomotive, on finding out that some of the internal works of his engine were out of gear, put on all his steam, and then wonder at the machinery being out of order at a future time of trial.

One word more. Let the man continually bear in mind that "it is the pace that kills," and that slow walking never made a fast race or fast man; let him practice at his best pace, which will daily improve. The commencement of fast work will most likely bring on pain of the shins, which will be sore after the exertion has been discontinued, as well as other portions of the frame being in the same predicament. Hand-rubbing with a stimulating embrocation (of which the recipe is appended) before a good fire will in most instances be all that is required; but if obstinate, a hot bath will insure the removal of all the obstinate twitches, etc. The shoes for match-walking should be of the lightest description commensurate with strength for the distance required. They should be of sufficient width and length to give the muscles and tendons of the foot full play, without being in the slightest degree cramped. They should be laced up the front, and care taken that the lace is sound and new. So much importance is attached to this, that stout wax-ends are now invariably in use. Some advocate the use of boots; but, although stated to be useful if there is any weakness of the ankle—a pedestrian with weak ankles!—is there no cold water?—the heat generated by them would certainly counterbalance the supposed benefit; and there is the difference in the weight, which would tell at the finish of a long match.

HIGH JUMPING.

BEGIN by gentle runs of about three hundred yards, with a few low jumps, say ten, about three feet high. Practice over these jumps for a few days until the stiffness of the muscles wears off, and then gradually raise them to four feet or four feet six inches. If this height cannot be cleared

easily, place the jumps at the most suitable height. Care must be taken to do them quickly and neatly. The run between may be slow, but the jumps should always be taken with a quick spring, landing on both feet every time. If this *modus operandi* is paid attention to, the muscles will soon become accustomed to the sharp contraction required, and the legs will, by keeping them well together over low jumps and alighting on both feet, lose their tendency to straddle when a higher jump than usual is attempted.

Some, when in practice for high jumps, strengthen their muscles by standing on one leg and lowering the body down until the hams touch the heels, and then raising themselves up gradually again. This action, however much it may be beneficial to the sinews, cannot but give them a tendency to be slow, which should be avoided as much as possible. A heavy coat, with a weight in both pockets, is of some service to those athletes stripped and ready to compete, as a great sense of lightness and elasticity is imparted to the frame on its removal. The heavy coat should never be worn except in the few minutes preceding the trial, as by constant use the good effects wear off. Always have a soft place to alight upon, as it not only eases the jar of the jump, but gives a jumper more confidence when he feels secure from the chances of a twist of the ankles on touching the ground. Hard turf, with very fine ashes rolled in until the surface is quite level, makes the best fair taking-off place both for high and broad jumping.

BROAD JUMPING.

BEGIN with a few jumps about twelve feet or so, taking your run for them slowly, starting about twenty yards off and quickening in the last few strides. The great object to be guarded against is taking off too far from the mark, or getting out of step in the run; this can only be obviated by practicing at a certain distance until the necessary swing of the last few strides is acquired. The run to the jump cannot be too fast; in the air the legs should be raised as in going over a high jump, and thrown as far forward on landing as can be done with both heels close together. No fear need be entertained of falling back on alighting if the run is sufficiently fast and the landing place level and soft; the impetus derived from the run gives the heaviest part of the jumper, the trunk, sufficient momentum to carry itself forward when the progress of the feet and legs is arrested.

The landing place should be soft to the depth of eight inches, and sufficiently binding to show the marks of the heels clearly on alighting; clay and mould mixed make the best landing ground. A soft place to jump on will prevent any jar to the knees, and will give the jumper more confidence. The concussion caused by landing on hard ground may sometimes cause a serious accident.

HAMMER THROWING.

THE muscles of the loins and back are the ones principally brought into play in hammer throwing, and by their development they become extremely serviceable in assisting the spine to bear the upper portions of the body. The practice of this kind of exercise must, therefore, be beneficial to those whose lungs and heart are too delicate to stand any of those sports, such as rowing, running, etc., which so particularly tax their working powers. Commence practicing with a hammer about 7lb., until the art of swinging while running is acquired; to learn this the run should be taken at first only six or seven yards from the scratch; before the run swing the hammer well, like a pendulum, in the direction of the mark two or three times, until it has acquired a good momentum, and then start, taking, at the first few attempts, one turn only in the run; afterwards, as the practice becomes easier, two turns can be made, and the runs lengthened in proportion. Some athletes, however, take three or four turns, but, as a rule, two will be found sufficient. Between the turns, run as far towards the scratch as possible, taking long, even strides to acquire a good impetus, and keeping up the centrifugal force of the hammer by swinging it well round low, and in a plane at right angles to the body. The arms should be kept quite straight the whole time, merely acting as if they were a prolongation of the handle. The work is done by the muscles of the back and loins, and in delivering the hammer at the scratch the athlete should, above all things, bear in mind that he does not lift it as if lifting to leg. The "devil" must be put into the swing as the hammer descends in the last half of the turn, so that the force has culminated by the time the hammer is crossing the line parallel to the scratch, where it must be let go, the body at the same moment being thrown back to counteract the impetus of the swing. The hammer should describe a curve at its highest point of not more than 11 or 12 feet from the

ground. Avoid pulling at the handle in the run, and increase the pace and swing at each successive turn. The farthest throw of the 11lb. hammer, 3 feet handle, on record, is 176 feet. The 22lb. hammer has been thrown over 94 feet.

PUTTING THE STONE.

BALANCE the body on the right leg, the left side turned towards the scratch, the right foot being placed as near the seven-foot mark as possible, and the right hand balancing the weight, with the knuckles close to the shoulder; raise the weight up to the full stretch of the arm two or three times, till the muscles get into play, still keeping the weight of the body thrown on to the right leg, the left foot touching the ground slightly; when the balance of the body is obtained, hop three feet towards the mark, and then spring up sharply to the scratch line, throwing the weight away at the same moment, and bringing the right leg down, with the toe touching the scratch line and the right side of the body to the mark. By this means the follow of the body after the weight is prevented, and, by bringing the right leg forward at the moment of throwing, the whole force of the thighs are brought into play, and the muscles of the loins assist in the sudden turn of the body from left to right. The weight must be held on the lowest joints of the fingers and the palm of the hand, the wrist being kept as stiff as possible, and all tendency to throw it as a ball avoided. A heave is not so effective as a quick jump, with the muscles concentrated at the same moment. The quicker the hop and the throw are made, the further the distance put, provided that the balance is not lost. Any delay between the first hop and the final spring is fatal. In delivering the weight, let it be put upwards—that is to say, aim to hit an object about fourteen feet above the spot where the weight will pitch. The further the weight has to be put, the higher must be the elevation. No exercise is a greater proof of strength than this. Very little skill is required; and when once the way of putting is learnt, it seldom happens that a strong man gets beaten by the knack of a weaker antagonist.

The ankle is the part most likely to suffer, from the fact of having to spring with the whole of the body, and the addition of the weight. To practice, a cricket ball may be used instead of a heavy weight, and the spring made as be-

fore, with the delivery of the ball. After a little practice, a heavier weight may be tried until the one required can be put properly. The best "puts" on record are for the 22lb. weight over 36 feet, and for the 16lb. over 41 feet.

TRAINING FOR ROWING, ETC.

THE present work is not intended for the guidance of professional oarsmen, or those who may row for large stakes, and who, when matched, leave their usual occupations and devote their energies to the better observance of the stricter rules of training. Such men invariably have a mentor worthy of following, and whose knowledge of right and wrong will lead them to success or otherwise, as the fates may dispose. The amateur, however, must be treated more gently and with more attention than the sturdier and hardier professional, or those who may have made the river and adjuncts their capital in their struggle through the world for a subsistence. The amateur, when he has an engagement before him, should take into consideration the time he has allowed him to train, and the mode of proceeding will depend in a great measure on the condition and previous habits of the man engaged. If a man is fleshy and of a full habit of body, a dose or two of mild purgative medicine should be taken, and slow walking exercise only taken on the day the doses have been administered. After the medicine has done its duty, if the amateur is very fleshy, a Turkish bath or two may be taken with advantage, the usual precautions against cold being used. The subject, after one or two of these sweats, is prepared for more arduous work, which may be taken at a fair pace in the form of good sharp runs and fast walks, which, like all other trainings, will become easier of accomplishment at each repetition.

The above work, with rowing exercise, will infallibly bring the practitioner, if continued for any time, into a proper condition to contend with confidence and success in any rowing contest.

He must rise at five in the summer, and after his bath (cold), and having been well rubbed down, a good sharp walk of about a mile out and a rattling spin taken by running home, when another good rub will be rendered imper-

ative. Should the run not be taken, a row of a couple of miles at three parts speed must be accomplished. When thoroughly cooled down, breakfast should be taken, which should consist of good wholesome meat (either broiled mutton-chops or steak, with no seasoning), stale bread or toast, and tea. When dinner can be taken at mid-day, say about one P. M., it is better, and should consist, like the breakfast, of good wholesome roast meat, with no vegetable except a mealy potato, stale bread, and not more than a pint of really good sound ale (old, if palatable to the drinker, the best); some prefer sherry, but, although agreeing with a few, the ale, as a rule, is more strengthening and wholesome. The row should be taken before tea, which should then be of the same viands and liquids as the breakfast. The above rules, of course, are open to alteration, according to circumstances, and the diet varied successfully by the introduction of fowls, either roast or boiled—the latter preferred—and when there is any indication of training off, a small portion of green-meat, in the shape of sound cabbage or any fresh vegetable in season. The last food before retiring to rest should be either about half-a-pint of thin gruel or a glass of ale with dry toast. The other portion of the day's training must be left to circumstances; but it must never be lost sight of that sharp work, regularity and cleanliness are the chief if not the only rules to be followed to produce thorough good condition. The use of the bath should never by any chance be missed. Nothing is more injurious to the wind, etc., than hard rowing on a full stomach, the ill effects of which, although scarcely felt at the time, have at a more remote time, in many instances, proved to be the germ of serious disorders.

During the long winter season, and at other times when the weather will not admit of taking exercise on the water, the rowing machine may be used with advantage, containing, as it does, all the valuable features of the modern style of rowing. To oarsmen it is a prime necessity; it gives every motion as perfectly as if on water; it teaches to feather the oars correctly; it gives the dip of the oar; it has the sliding seat; it can be regulated for heavy or light, short or long, stroke; it is so constructed that boat clubs can drill in crews, by placing in line the number of the machines required, the oars being adjustable, so that each alternate oar can be removed, and longer ones take their place, so that it can be used with single or double oars.

TRAINING IN REGARD TO PUGILISM AND WRESTLING.

THE work necessary to reduce or otherwise bring the pugilist into something like condition will be, of course, nearly if not precisely similar to the training required for a pedestrian or other match. The physicing will require great attention; all drastic and griping medicines are to be avoided, if possible, and cases will occur from time to time where no medicine ought to be given whatever. The man in one of these instances will be in a low state, and require feeding and training up. In another, the body will be in so open and relaxed a state that the prescribing and giving the usual dose would be followed to a certainty by the patient training right off, and falling into a low and prostrate condition. In the general state of health, however, which characterizes the pugilist when matched to fight (with a full habit of body, flushed countenance, and a pulse full and slow), the usual dose, salts, etc., may be introduced with advantage, but the quantities and frequent use left to the usual habit of the man, or to the judgment of the trainer. The physicing and preparation for the hard work should occupy the first week; and the number of sweats taken during the second week should be regulated by the state of inside and the loose flesh on the body. A sharp run will soon show the state of the inside by the state of "the bellows," whether the wind is short or not, and the manner in which the loose flesh shakes when sparring is a pretty fair criterion of there being a good quantity of outside superfluity to get away. He ought to be rubbed down after his runs and fast walks, and dry clothes put on in a warm, dry room. The loss of weight should be gradual. If, on the contrary, the loss be too rapid, and continue daily, the reducing system must cease, and feeding up take the place of sweating for a few days until the system is restored. The meals, of course, must be taken regularly, and consist of the same kind of animal food as recommended previously, and the beverage most suited to the constitution of the man taken in small quantities—the kind and quantity, of course, being left to the judgment of the trainer. Wine is principally given when the man has to be trained up, and then good old port wine will be found to be of the most service. The pugilists of the present day strengthen the arms, loins, and shoulders by hitting out at a striking-bag suspended from a beam, and a large bladder

hung in like manner; by exercise with pulleys, the ropes passing over wheels and having weights attached; plenty of practice with the gloves, diversified with the use of a skipping-rope, and finally, but by no means of minor importance, by continual sharp practice with dumb-bells of about seven pounds weight or under. Good condition in the pugilist will be shown by the healthy state of the skin, which will be clear, with a ruddy tinge underneath, as well as soft, with the muscles underneath swelling and feeling firm to the touch at every movement of the limb or portion under manipulation. The eye will be clear and bright, and a look of confidence and ease of mind characterize the expression and looks of the athlete. As regards the pickle for the hands and face, the nostrums for the first are legion, and one as good as another; but we believe that nothing is better than the simple juice of a lemon for the latter, and which will be found to answer every intended purpose.

The trainer ought to be chosen with regard to his conversational powers, as well as for his knowledge of what is requisite for the physical health of his pupil, that he may amuse and instruct him to the fullest extent of his power. The trainer should inform him, if possible, of all the peculiarities of the antagonist, his mode of attack and method of defense, the weak points of his temper, or any physical deficiency under which he might labor, as well as the manner in which he may have won or lost any previous battle. And, as in many cases the first or second telling may not have the effect of raising the curiosity of his man, the patience of the trainer should not give way under the repetition before the slow and obtuse curiosity is roused to such an extent that the pugilist commences the interrogation in his turn, and becomes anxious in his inquiries for information, which will almost invariably be the case when he finds out the importance that the trainer's continued repetitions have invested the apparent trifles with.

PRINCIPLE MUSCLES USED BY THE ATHLETE.

In high jumping, the front muscles of the thigh are principally used. They are attached at one end to the top part of the thigh bone, at the other to the knee cap, which passes over the knee, and is fixed to the top part of the shin bone. In the act of jumping, these muscles contract violently, and straighten the leg with a jerk, the quick-

ness of which mainly contributes to the height of the jump.

In long jumping, the muscles of the back part of the thigh are used; these are attached to the back part of the shin bone at one end, and to the lower part of the pelvis at the other, and by contracting draw the leg backwards on the trunk. This action is also assisted by the *gluteus maximus*, which is fixed at one end of the top part of the thigh, at the other to the lowest part of the vertebral column.

In long distance running, the front and back muscles of the thigh are used in equal proportions; the former in raising the body at every stride, the latter in propelling it forward. But in the case of running on the toes, the calf of the leg will be the weak part; so much so that no amount of practice will enable some, especially heavy men, to run any distance on their toes.

In short distance running, the front muscles of the thigh which lie nearest to the trunk, bring the leg forward in the rapid repetition of the strides. These are a different set from those that straighten the leg, and are used in long distance running; they are attached at one end to the lower and front part of the pelvis, and at the other end to the top part of the thigh bone. The back muscles of the thigh are the same that are used in long distance running for propelling the body forwards. A narrow pelvis is a great assistance in this, as indeed in all running; for on the narrowness of the pelvis facility in repeating the strides principally depends.

In throwing the hammer, more depends on the swing than on the strength of any particular muscle, though the strain comes more particularly on the small of the back—that is, on the muscles which raise and keep the back erect, and are attached to all the vertebra of the spine.

In putting the stone, the muscles called particularly into action are the front part of the deltoid, which is attached to the top part of the arm, and at the other end to the collar bone, and brings the arm upwards and forwards; the top part of the pectoral muscle, which also runs from the top of the arm to the collar bone, and brings the arm forwards; the triceps, which is fixed at one end of the shoulder and shoulder blade, and at the other end of the forearm, below the elbow, and extends the arm at the elbow joint. The feet are also assisted by a simultaneous spring with the legs, and a rapid turn of the body.

In walking, the muscles of the whole body are brought into action more than in any of the other exercises we have alluded to. The arms and back assist the legs greatly in changing the balance of the body, and in bringing the hips forward at each stride. The calf of the leg has much work to do, even as much as running on the toes. The muscle, however, that suffers most is that which rises on the outside of the shin bone, near the knee, and runs down the leg, crossing the shin near the ankle, to be inserted near the inside of the sole of the foot. This muscle raises the foot, and draws it back towards the leg at the end of the stride, and also points the heel at the commencement; so that in fast walking it has no rest, and consequently becomes very painful. The front and back muscles of the thigh also come in for a large share of work.

The following measurements are an average of the dimensions of some of the best runners, and may be taken as a fair guide of what the proportion of the limbs should be respectively:

Height....	5ft. 6in.	5ft. 8in.	5ft. 10in.	6ft.
Weight....	116lbs.....	133lbs.....	149lbs.....	168lbs.
Chest.....	35in.....	37in.....	39in.....	40in.
Waist.....	27in.....	28in.....	29in.....	31in.
Hips.....	34in.....	35½in.....	37in.....	38in.
Thigh.....	20in.....	21in.....	22in.....	23in.
Calf.....	13½in.....	14in.....	14½in.....	15in.

The dimensions of the chest may appear small at first sight, but it must be remembered that the runner has no muscles of the shoulder blades to increase his measurement. A well-made runner has not that top-heavy appearance that characterizes the gymnast who does much arm work.

TEMPERAMENT.

The Sanguine Temperament belongs to that class with bright, ruddy complexion, light hair, and full circulation. Their disposition is energetic and spirited, but their power of resisting disease or of bearing protracted exercise is not great, and their ardent character is rather the result of nervous excitability than of vital force. Their power lies in dash rather than in endurance.

The Bilious Temperament is of an opposite description. The circulation is sluggish, the disposition persevering and obstinate; the constitution as a rule is tough, and is capable of severe tasks, under which the sanguine would

succumb. These men are good subjects for training, but they require good food and much exercise.

The Lymphatic are of a pale complexion, with delicate skins and full habit of body. There is a torpor about their mental as well as muscular actions. When subject to disease they become peevish and are difficult to treat. When united to a nervous disposition, they are perhaps the worst class of men for training, though we sometimes find much latent energy in them. To a certain extent, nervousness is overcome by habit; but the nutrition of the nerve power ought to be the main point in the advancement of health. The nerves are the controllers of the actions; they regulate the contraction of muscles in the activity of the body. The work done by the muscles depends on the proper adjustment of the mechanism, their guidance and activity on the energy of the nerves. The important work that the nerves fulfill is evident, when we consider that the brain itself needs one fifth of the whole supply of the blood in the body. It must suffer, therefore, if the supply of air to the blood is bad. How easily is accounted for the dull aching of the temples of the athlete accustomed to pure air in a badly ventilated theatre or room. If deficient oxidation of the blood is the cause of derangement to the nervous system, blood of bad quality must be equally hurtful to the muscular. The sensibilities of the internal organs are the disposition of each person to such a degree as to be influenced by the slightest sensation of pain, joy, grief, or any feeling of the mind. The reaction affects the muscular system; all the functions of body are carried on by a system of self and mutual help, so intimately united together as to be dependent for proficiency on one another.

GROWTH AND DECAY.

THE food after mastication by the teeth, and solution by the action of the saliva, gastric and other juices, is taken up by a system of vessels, and, mingling with the venous blood, is carried to the heart, whence it is sent to the lungs to be aerated, and back again by another set of vessels to the heart, to be finally pumped through the arteries to all parts of the body, carrying materials for the repair of the tissue, and production of heat. In the very minute terminations of the capillary arteries in those structures, where the molecular change of the body goes on, the current of the blood is very slow, to enable the warmth and susten-

ance of the body to be kept up by the chemical actions of destruction and reproduction of tissue. The oxygen in the arterial blood obtained from the lungs is carried throughout the system and assists these actions, therefore perfect respiration and pure air are the great promoters of change of tissue. This shows the necessity of the blood being in a sufficiently liquid state to hold gases and nutritive matter in solution for the purposes of oxydizing tissue and of forming flesh. The amount of water in the blood determines to a great extent the health of the body, the blood being the organ of the vital processes of change. The severe restrictions on liquid imposed on those in training, who by arduous exercise waste much tissue and need much repair, are, therefore, physiologically wrong. The action of the air on the skin stimulates the secretion, and exercise, indirectly raising the heat of the body, induces perspiration, which is nature's remedy to keep the temperature of the body constant. Evaporation and secretion require water. On a daily average, 2lb. of water is thrown off by the skin in moderate exercise. Water forms 70 per cent. of the whole body, and for the digestive fluids the proportion of water to solid is as 12 to 1. Liquidity is necessary, also, for the actual processes of decay and repair, by causing the passage of fluids of different densities through the various animal membranes from the oxydation of venous blood in the moist air of the lung cells to the repair of tissue by the smallest capillary in the extremities.

Want of liquid causes a stagnation of the circulation, an inflammatory state of the body, and excites the nervous system to an extraordinary degree. Owing to this want, under the usual system of training regimen, the body is frequently in a state of fever about the second week, until either the trainee gives up the preparation, or his constitution has temporarily accommodated itself to the change at the expense of his vital energy.

The nourishment of the body by the food taken is important in its regard to health, and its variety. The primary object of food is to form blood, and according to the condition in which the body receives it, greater or less nutriment, at the same expense of vital activity, can be obtained. The assistance of nature, by proper cooking and careful selection of articles, is in our own hands. Our vegetables should be well cooked, and the animal food ought to be done so as to retain the juices of the meat. Let it be rather under than overdone. Brown meat is

more nutritious than white. If the digestion is good, the athlete need not be particular as to description of food. Rich sauces are not to be recommended, or even heavy puddings, but jellies and light ones are most acceptable. A healthy, robust man, in hard work, may eat nearly anything in moderation. The food should be well masticated, to enable the saliva to dissolve the starchy matter in it, and also to prevent a sudden loading of the stomach. The blood during digestion is principally employed about the stomach. Exercise or mental work, therefore, directly after a meal, will retard the operation of digestion by taking away the blood to the limbs or brain.

Great mental activity requires much repose. In the winter more sleep is required than in the summer, from the fact that the activity of the system, in keeping up its warmth, etc., though of shorter duration, is greater. Sleep after food is often required by nervous persons of weak digestion, but the athlete is better without it, an amusing book, light study, etc., taking its place. A mattress gives the soundest sleep. The quantity of clothing should be sufficient to keep up a gentle exhalation from the skin. The wasting of the body to reduce weight is frequently carried to a ridiculous extent. It has been proved that the body in daily work loses about 1-24th of its weight, and that life ceases when the waste has reduced it to 3-5ths of its original weight. In the nerves, however, the loss is hardly perceptible; while the fat suffers in double the proportion of the muscles, 90 and 45 per cent. respectively.

This may well explain the nervous excitability of the body when kept beyond its regular time for food, or when supplied with food of deficient quality. The arrangement of the internal mechanism must go on, respiration continues, circulation and heat result, at the expense of the machine itself. By regularity in meals the stomach accommodates itself to the changes of action and repose, and the system harmonizes with it.

MEATS, ETC., TO BE AVOIDED.

VEAL, pork, and salt beef or bacon should be avoided; also goose, duck, and wildfowl generally; as well as butter, cucumbers, sweets, and all seasonings, except salt with a little black pepper. Venery should not be indulged in under any circumstances while training.

NATURAL SWEATING.

Put on extra clothing over those parts more particularly which are loaded with fat. Thus, if the legs are very fat, two or three pair of trowsers should be drawn on; if the abdomen is full, then a double apron of flannel should be suspended from the neck under the trowsers; and if the arms and neck are loaded, two or three thick undershirts may be worn, and a woolen shawl wrapped round the neck. When thus clothed, a brisk walk or a slow run of two or three miles brings on a profuse perspiration, which may be kept up for an hour or so by being covered with blankets, or by lying in front of a good fire; the clothes should be then stripped off, beginning with the upper part of the body, and sponging each with hot salt water, before drying it with a coarse towel, after which horse-hair gloves should be used freely. The dressing may be as usual, taking care to expose each limb as short a time as possible.

ARTIFICIAL SWEATING.

TAKE a Turkish bath, or the whole body should be stripped and immediately wrapped in a sheet wrung out of cold water, but not so as to get rid of all the water; then, rolling the patient in a thick blanket, inclosing the arms, like a mummy, he is placed beneath a feather bed, covering all up to the chin. In a quarter of an hour or so reaction comes on, and a most profuse perspiration breaks out over the whole body. When the sweating has continued from an hour to an hour and a half, everything should be taken off, and cold water poured over the whole body by means of a shower bath; then rub dry and clothe.

SWEATING LIQUORS.

A SCRUPLE of Dover's powder at night, or half a pint of whey made with white wine, and with thirty drops each of antimonial wine, and sweet spirits of nitre added. Care should be taken to rub the whole body with horse-hair gloves night and morning.

TREATMENT OF THE FEET, HANDS, SINEWS, ETC.

THE chief cause of tender feet rests with the socks and shoes or boots in which the pedestrian may commence his

work. By no means attempt work in new boots, or in those, however well seasoned, that are not of sufficient length and width in the tread and across the toes. The thickness, so as they are of a sound double sole and perfectly water-tight at the lower part, does not so much matter; but a few days' use will soon prove to the training man that a rather stout pair will keep his feet sounder and be of more comfort to him, in a long journey, than the lighter kind. Different men, however, are of various opinions; but Westhall, during a long experience, found that a pair of boots laced up the front and reaching a trifle above the ankle and of medium stoutness, answered every purpose required by anyone who is satisfied with doing well. A very thick pair, of course, may be kept in reserve for very wet and muddy weather, when slow work only will be advisable to be taken. Should the pedestrian, however, be obstinate, and take fast work in the heavy boots, he will in most cases be punished by sore shins, which will prove a source of such trouble that the lighter sort of boots will be in requisition for the future. The socks should be of an easy fit and of fine warm lambs'-wool. The chief care about the socks, however, is taking the precaution that a pair of socks should never be worn a second time until thoroughly aired, and if possible a supply should be so provided that they may be rinsed out in cold water, and then dried before again being worn.

The above precautions will prove of the greatest value to those who have feet given to sweating, and in some instances have proved an effectual cure for the inconvenience. The toenails should be attended to regularly, and the shape of the foot will be the best criterion for their treatment. To prevent the hands from swelling, a short stick or switch, carried in the hand will be efficacious while walking about. Strains are of frequent occurrence, and chiefly arise from the man making some sudden effort when the tendons or the fascia (the thin covering) of the muscles are stiff and sore from previous hard work. The tendon Achilles—from the heel to the calf of the leg—is the principal seat of the most dangerous of the strains of the tendons, and is incurable except by rest, and that of some duration. Should there be any swelling and hardening of the injured portion of the tendon, *do not* attempt any methods of self-treatment, but seek *medical* advice. All strains are assisted in their cure by bandaging, but they should not be applied until hot fomentations for some

time have been applied, and finished up by the application of the embrocation, with plenty of friction, before a fire.

SOFT CORNS.—Pick off with the nails as much as possible; next day apply caustic, rubbing it in; afterward keep a piece of carded cotton between the toes night and day.

HARD CORNS.—Pare off the hard cuticle; then apply tincture of iodine with a brush or caustic.

HARDENING THE FLESH.—Lemon juice is one of the simplest and best for rubbing on the hand. Horseradish grated and mixed with vinegar is also good. Whiskey poured in the shoe is frequently used.

BUNIONS.—Apply two or three leeches every day for a week; when the bites are well, brush with tincture of iodine every other day. An application of "Papier Fayard" is sometimes very beneficial.

BOILS.—Apply linseed poultice, or open it with a knife. If on the "seat of honor," apply a plaster spread on leather, and composed of equal parts of mercurial and opiate plaster. Do not use the knife. To those subject to boils use the following as a preventative: take nitrate of silver, from fifteen to twenty grains to the ounce, made into a wash, and paint the surface every night. This turns the skin black, but do not mind that.

STRAINS.—The following is the receipt of Westhall's stimulating embrocation: Spirits of wine, $\frac{1}{4}$ pint; spirits of turpentine, $\frac{1}{4}$ pint; white vinegar, $\frac{1}{4}$ pint. Mix thoroughly, warm by the fire, beat up a fresh egg, and mix gradually with the spirits, etc.; shake the bottle well.

SPRAINS.—For sprained ankle, make a flannel bag about a foot long by six inches wide, which fill with bran and plunge into boiling water until thoroughly saturated; then squeeze almost dry, and apply it as hot as the patient can bear on the weak part. There should be a couple of bags, so that when one application gets cool fresh heat may be immediately applied.

CHAPPED HANDS, ETC.—Smear over the parts chapped with glycerine, by means of a brush or feather, night and morning.

BLISTERS.—Prick with a fine needle before they burst, inserting the needle obliquely, and the water presses out, repeating whenever the blister fills again. If the blister is broken, apply collodion with a brush; if too painful, use finely carded medicated cotton in a thin layer, under a kid glove, or powdered gum-arabic, taking care to keep the

hands from water for twenty-four hours. For feet blisters, spread a piece of kid with soap-plaster, applying over the skin; also bathe in strong salt water mixed with powdered alum and vinegar. If large, run a stocking-needle threaded with white worsted through; then cut the end off, leaving the worsted in the blister until the water runs out. Do not leave off washing the feet in salt water, etc., as this will act as a preventative.

EXERCISE, SUN BATHS, ETC.

THE increasing interest in the matter of healthy exercise is shown by the number of athletic clubs and gymnasiums throughout the country, especially so in our colleges of learning and public institutions. Most of these have every gymnastic appliance, as also professors to give instruction; but where such do not exist a complete outfit at a very moderate expense can be obtained, all ready for use. The rowing machine has been previously described. The health lift, as a gentle exercise, is rapidly becoming an institution of necessity to persons of sedentary habits, and brings into action, when properly used, as many muscles of the human frame as any other exercise, and yet consumes but a few moments of time daily, which of itself is an important item to brain-workers and industrious humanity generally. It is so adjustable as to be alike suited for the weakest, strongest, shortest and tallest persons of either sex. Indian clubs, dumb-bells, trapeze bar and rings and striking bag may all be readily obtained, and, simpler still for in-door exercise, Goodyear's Patent Parlor Gymnasium, which can be used by ladies and children without any fear of strain or the slightest jar to the system. Dr. Dio Lewis, in his work on New Gymnastics, gives a series of movements and illustrations without the aid of any auxiliaries, so that there can be no possible excuse for neglecting exercise. Sun and air baths, involving no expense, can always be had. By these we mean exposing the body naked a certain portion of the day to their effects. It was the custom of John Quincy Adams to walk up and down his bedroom nude, and with open windows as a preventative of colds. This he practiced both winter and summer, with the desired effect, living to be over eighty. With a view still more to the assistance and preservation of nature, General Pleasanton has written

an elaborate work, claiming wonderful effects in nervous diseases from the sun's rays as reflected through blue glass panes, and his theory is extensively practiced with very encouraging results. Dr. Samuel R. Elliott of this city, an athlete as well as a very skillful physician and scientist, has found that in some cases the blue glass alone produces too strong an effect, and believes that alternate blue and white strips, two or three inches wide, engender the proper form and quantity of electricity; and we therefore suggest that his plan be adopted. The patient should sit for an hour or more daily in such position that, whatever part of the body is affected, may be acted upon by the rays thus received. Where advice can be had it is better to obtain it, as all persons cannot even take electricity in the same manner, quantity or proportion. The glass should not be colored on the surface alone, but through and through, of a deep mazarine hue.

BATHS—HOT, COLD, ETC.

THE use of water cannot be too much applied to any athlete as regards outward application, but of course cold is the most beneficial if the constitution of the recipient be of sufficient vigor; and there are but very few indeed who are so delicate as to require tepid or warm water; but even the latter are better than the absence, even partially, of the bath. Cold baths may be taken anywhere and anywhere, provided the whole of the body is immersed or thoroughly sponged over, but the most decided benefit will be derived from the plunge bath. However, equally successful results may be gained by the use of a large bath well filled with water, the body being well sluiced with the water from a large sponge. The shower is also of great benefit, but in some conditions of body the sudden shock has rendered the nervous system so irritable that it has undone all the good intended by the reaction. Where there is not the convenience of a bath of any kind, a towel dipped in water and the body thoroughly and briskly rubbed will insure a thorough cleansing of the pores of the skin, and of course a proportionate share of vigor given to the frame. In the present system of training, the pedestrian puts on his sweaters and does the work set him by his trainer, and then, when he is in a state of perfect perspiration, he

throws off his wet and reeking flannels, and takes his shower with the greatest unconcern, knowing that the friction which is afterwards applied will restore the proper heat of the body after the sudden shock of the shower has closed the pores of the skin for the time and relieved him of all his previous fatigue. The rubbing restores the circulation of the small blood-vessels of the skin, and so strong and fresh do the pedestrians feel after this treatment that, when dressed, they all declare they feel no remains of their previous fatigue. Nothing but good has accrued from the treatment, and those who have undergone a trial of the sweat and shower swear by the method.

The Turkish bath is only fit to reduce an infirm and obese man to something like weight to begin work, and can only be looked upon as a luxury, and not an adjunct to training, besides being far from healthy. The hot bath is of course required when a man is stiff and tired all over from cold or overfatigue, when they will modify the symptoms; but, as they are so simple and so easily obtainable, they require no further comment. A vapor bath is of considerable use in assisting a healthy and fat man to reduce his weight; but after sweating he must be rubbed with a wet cloth, or have a shower; he should then put on a set or two of flannels, and do at least an hour of severe work, during which time the reducing process will be going on in perfection. On arriving home the wet towel should be applied, or a sponging with cold water; after a good rub, and fresh clothing being donned, it will be found there has been a good morning's work accomplished.

The vapor bath can be made in a very home-spun and simple manner, but equally efficacious with those attached to baths of large name, etc. A washing or any other flat tub, a third filled with very hot water, in which is placed a stool, will do for the ground-work of the vapor. Take your seat on the stool, the feet of course outside the tub, and be well covered with blankets round the neck, and round the tub, leaving an opening which can be closed at leisure. Having heated two or three large bricks to a red heat, put one into the water, and when cooled another, until the bath has been prolonged a sufficient time. This is a primitive but a very useful bath to put into use to relieve a bad cold, or for any other service required at a short notice.

THIRST, MEDICINE, ETC.

THE chief punishment when a man is in the course of training requisite to reduce his bulk is thirst, which is in most cases of rather a severe character. The same amount of pluck which enables the man to go through his work and adhere to other rules must be here called into requisition. The best plan is to gargle the mouth, but not swallow any; but the application of cold water will be found to afford the greatest relief—washing the hands, wrists, and face freely will give relief; a little pebble kept in the mouth is a very good thing, but faithfully avoid all nostrums such as cream of tartar, tartaric acid, etc., when suffering from thirst, as they only gratify the palate without relieving the craving for liquid immediately the acid taste has passed, when the before troublesome feeling becomes much augmented. Should relief, however, become imperative, a small portion of powdered nitre will be followed by an immediate flow of saliva, which will give instant but unfortunately only partial ease. There, however, is no increase of the symptoms from the application of the remedy, which will assist the action of the kidneys, and allay the accompanying fever of the system. The chief cure is to wait until the next meal-time, when the previous abstinence from stolen enjoyment will be rewarded by an approving conscience in having resisted a severe temptation. The thirst will leave a man when he leaves off sweating.

WEIGHT AS PROPORTIONAL TO HEIGHT.

HEIGHT.	WEIGHT.	HEIGHT.	WEIGHT.
5ft. 1in. should be	120 pounds.	5ft. 7in. should be	148 pounds.
5ft. 2in.	126 "	5ft. 8in.	155 "
5ft. 3in.	133 "	5ft. 9in.	162 "
5ft. 4in.	136 "	5ft. 10in.	169 "
5ft. 5in.	142 "	5ft. 11in.	174 "
5ft. 6in.	145 "	6ft. —	178 "

The above table was formed by Dr. Hutchingson, and was taken from a mean average of 2,648 healthy men. By this scale life insurances are regulated in England. The Doctor's calculations were made upon the volume of air passing in and out of the lungs, and this was his guide as to how far the various organs of the body were in health, and the lungs in particular.

WEIGHT WHEN IN CONDITION FOR ATHLETIC FEATS.

HEIGHT.	WEIGHT.	HEIGHT.	WEIGHT.
5ft. 1in.	From 106 to 111 pounds.	5ft. 7in.	From 133 to 140 pounds.
5ft. 2in.	112 " 115 "	5ft. 8in.	140 " 147 "
5ft. 3in.	117 " 118 "	5ft. 9in.	148 " 154 "
5ft. 4in.	119 " 125 "	5ft. 10in.	155 " 163 "
5ft. 5in.	125 " 129 "	5ft. 11in.	165 " 174 "
5ft. 6in.	128 " 134 "	6ft. —	175 " 186 "

The proper measurement according to the height and weight:

MEASUREMENTS.

Height	5 feet.	Chest (uninflated)	32½ inches.
Weight	103 pounds.	Wrist	5½ "
Neck	12 inches.	Ankle	7¾ "

ALLOWANCES.

The following allowances should be made where the dimensions are found to be greater than shown in the preceding table:

For every inch in height	1¾ pounds.
For every inch around neck	¼ "
For every inch around chest	1 "
For every ½ inch around wrist	½ "
For every ¾ inch around ankle	1 "

BANTING ON CORPULENCY.

THE system of reducing corpulency as adopted by William Banting, an old retired merchant of London, England, in 1863-4, by the advice and direction of Doctor William Harvey, of Soho square, in that city, though not by any means admissable or advisable for training purposes, we give the substance for the benefit of any one who feels interested. At the time Mr. Banting commenced his reducing system he was sixty-six years of age, weighed 202 pounds, standing only 5ft. 5in. in height, and, having spent seven years in consultation with the greatest medical lights of England for relief of his affliction, but in vain. He had followed an active business life of fifty years, and attributed his obesity not to neglect of necessary bodily activity nor from excessive eating, drinking, or self-indulgence of any

kind, except that he partook of simple aliments of bread, milk, butter, beer, sugar, and potatoes more freely than his aged nature required, and hence he believes the generation of the parasite, detrimental to comfort, if not really to health. He tried both rowing before breakfast for two hours and other bodily exercises; also sea air and bathing in various localities; took gallons of physic and liqure potassae, rode much on horseback, and tried the waters and climate of various springs in England, as well as Turkish and vapor baths, shampooing, etc. Banting could not stoop to tie his shoe, had to walk backwards down stairs to save the jar of increased weight upon the ankle and knee-joints, puffed and blowed at every exertion, particularly going up stairs, suffered from an umbilical rupture, had to wear a truss as well as knee bandages, his sight failed and hearing became impaired, he had indigestion, heartburn, palpitation of the heart, and could not attend to the little offices which humanity required without considerable pain and difficulty, which only the corpulent man can understand.

Upon consulting Dr. Harvey, previously alluded to, he was told that all his ailments were caused principally by corpulence, and prescribed a certain diet, no medicine beyond a morning cordial as a corrective, with immense effect and advantage both to his hearing and the decrease of his corpulence. The items from which he was advised to abstain as much as possible were bread, butter, milk, sugar, parsnips, beet root, turnips, carrots, champagne, port, beer and potatoes, on account of their containing starch or saccharine matter, tending to create fat; smoking was not prohibited. This is the diet prescribed by Doctor Harvey: for breakfast, four or five ounces of beef, mutton, kidneys, broiled fish, bacon, or cold meat of any kind except pork, owing to its fattening character; or veal, on account of its indigestible quality; a large cup of tea (without milk or sugar), a little biscuit, or one ounce of dry toast; for dinner, five or six ounces of any fish except salmon, herrings and eels (owing to their oily nature); any meat except pork or veal; any vegetable except potato, parsnips, beet root, turnips or carrots; one ounce of dry toast, fruit out of a pudding, any kind of poultry or game, and two or three glasses of good claret, sherry, or madeira; for tea, two or three ounces of fruit, a rusk or two, and a cup of tea without milk or sugar; for supper, three or four ounces of meat, or fish, similar to dinner, with a glass or two of claret—night-cap, if required, a tumbler of grog (gin,

whiskey, or brandy, without sugar) or a glass or two of claret or sherry. Eggs, if not hard boiled, are unexceptionable; also cheese, if sparingly used, and plain boiled rice.

On rising in the morning, between six and seven, Banting took a tablespoonful of a special corrective cordial, not aperient, and partook of solids and liquids as follows: about five or six ounces solid and eight of liquid for breakfast; eight ounces of solid and eight ounces of liquid for dinner; three ounces of solid and eight of liquid for tea; four ounces of solid and six ounces of liquid for supper and the grog afterwards. He took his meals as follows: breakfast between eight and nine; dinner between one and two; tea between five and six; supper at nine. His former dietary table was bread and milk for breakfast, or a pint of tea with plenty of milk and sugar, and buttered toast; meat, beer, much bread, and pastry for dinner; the tea similar to that of breakfast, and generally a fruit tart or bread and milk for supper.

THE REDUCING SCALE.

UNDER the new dietary, Banting lost flesh according to the following scale:

On 7th September	it was	200	pounds,	having	lost	2	pounds.
" 27th September	"	197	"	"	"	3	more.
" 19th October	"	193	"	"	"	4	"
" 9th November	"	190	"	"	"	3	"
" 3d December	"	187	"	"	"	3	"
" 24th December	"	184	"	"	"	3	"
" 14th January	"	182	"	"	"	2	"
" 4th February	"	180	"	"	"	2	"
" 25th February	"	178	"	"	"	2	"
" 18th March	"	176	"	"	"	2	"
" 8th April	"	173	"	"	"	3	"
" 29th April	"	170	"	"	"	3	"
" 20th May	"	164	"	"	"	3	"
" 10th June	"	164	"	"	"	3	"
" 1st July	"	161	"	"	"	3	"
" 22d July	"	159	"	"	"	2	"
" 12th August	"	157	"	"	"	2	"
" 26th August	"	156	"	"	"	1	"
" 12th September	"	156	"	"	"	0	"

Total loss of weight..... 46 pounds.

His girth during that time was reduced round the waist $12\frac{1}{4}$ inches; these desiderata were attained by the most easy and comfortable means, with but little medicine, and

almost entirely by a system of diet. At the end of one year Banting asserts that he was restored in health, both bodily and mentally, had more muscular vigor, ate and drank with a good appetite, and slept well; all symptoms of acidity, indigestion and heartburn vanished; he left off using boot-hooks and other such aids, which were before indispensable; he lost all feeling of occasional faintness; left off knee-bandages, which he had worn for twenty years, and gave up a truss almost entirely.

Corpulence, says Banting, though giving no actual pain, must naturally press with undue violence upon the bodily viscera, driving one part upon another, and stopping the free action of all.

Saccharine matter is the great moving cause of fatty corpulence, producing increased weight and a large amount of flatulence; stoutry matter is not so troublesome as saccharine, which largely increased acidity as well as fat. Pure genuine bread may be the staff of life, as it is termed; it is so, particularly in youth, but it is decidedly more wholesome in advanced life when it is thoroughly toasted. Any starchy or saccharine matter tends to the disease of corpulence in advanced life, whether it be swallowed in that form or generated in the stomach; that all things tending to these elements should be avoided, of course always under sound medical authority. Vegetables, and ripe or stewed fruit, are generally ample aperients. The dietary system only attacks the superfluous deposit of fat, and purges the blood, rendering it more pure and healthy, strengthens the muscles and bodily viscera, and sweetens life, if it does not prolong it.

RECORD OF BEST PERFORMANCES

UP TO JANUARY, 1877.

CONDENSED FROM NEW YORK CLIPPER ALMANAC.

ROWING.

- 2 miles—13min. 21½sec., single-scutt, turn, James Riley—Aug. 9, 1876.
 3 miles—15min. 37¼sec., four oars, straight, Argonauta R. A.—Sept. 8, 1875.
 3 miles—16min. 32 4-5sec., six-oars, straight, Amherst University crew—best college time—July 24, 1872.

- 3 miles—17min. 40½sec., six-oars, turn, Ward Bros. and Jared Raymond—July 22, 1868.
 3 miles—17min. 58sec., four-oars, turn, Halifax (N. S.) Fisherman crew—Sept. 4, 1876.
 3 miles—20min. 28sec., pair-oar, turn, Geo. Faulkner, P. Reagan—Sept. 5, 1876.
 3 miles—21min. 9½sec., single-scul, turn, Edward Hanlon—Sept. 6, 1876.
 4 miles—24min. 40sec., four-oars, turn, Ward Brothers—Sept. 11, 1871.
 4 miles—28min. 30sec., single-scul, turn, Wallace Ross—Oct. 19, 1876.
 4¾ miles (about)—23min. 4sec., single-scul, straight, Geo. Tarryer—Oct. 19, 1876.
 5 miles—30min. 44¾sec., four-oars, turn, Biglin Bros. and Denny Leary—Sept. 10, 1860.
 5 miles—32min. 1sec., pair-oar, turn, John and Barney Biglin—May 20, 1872.
 5 miles—35min. 10sec., single-scul, turn, for champion belt, Joshua Ward—Oct. 11, 1859.
 6 miles—39min. 20 3-5sec., four-oars, turn, Paris crew—Aug. 23, 1871.

PEDESTRIANISM.—RUNNING.

- 100 yards—9½sec., George Seward—Sept. 30, 1844.
 150 yards—15sec., C. Westhall—Feb. 4, 1851; and George Forbes—Dec. 20, 1869.
 200 yards—19½sec., G. Seward—March 22, 1847.
 300 yards—31½sec., J. Nuttall—April 27, 1863; and D. Wight—Aug. 5, 1876.
 440 yards—48½sec., R. Buttery—Oct. 4, 1873.
 600 yards—1min. 13sec., James Nuttall—Feb. 20, 1864.
 880 yards—1min. 53½sec., Frank Hewitt—Sept., 1871.
 1,320 yards—3min. 7sec., W. Richards—June 30, 1866.
 1 mile—4min. 17½sec., W. Richards and W. Lang, level ground, dead heat—Aug 19, 1865; in 4min. 2sec., part down hill, W. Lang; in 4min., four starts, C. Westhall.
 2 miles—9min. 11½sec., W. Lang—Aug. 1, 1863.
 3 miles—14min. 36sec., J. White—May 11, 1863.
 5 miles—24min. 40sec., J. White, as above.
 6 miles—29min. 50sec., J. White, as above.
 10 miles—51min. 45sec., John Levett—Oct. 11, 1852.
 12 miles, less 100 yards—1h. 2min. 2½sec., W. Lang—April 3, 1863.
 20 miles—1h. 58min. 18sec., R. Manks—Dec. 16, 1851.
 50 miles—6h. 17min., G. Martin—Sept. 22, 1863.

WALKING.

- 1 mile—6min. 23sec., Wm. Perkins—June 1, 1875.
 2 miles—13min. 30sec., W. Perkins, as above.
 3 miles—20min. 27sec., W. Perkins, as above.
 4 miles—28min. 59sec., W. Perkins, as above.
 5 miles—36min. 32sec., W. Perkins, as above.
 6 miles—44min. 24sec., W. Perkins, as above.
 7 miles—51min. 51sec., W. Perkins, as above.
 8 miles—58min. 28sec., W. Perkins, Brighton, Eng., July 29, 1876.
 9 miles—1h. 9min. 41sec., G. Davison, London—Dec. 6, 1869.
 10 miles—1h. 17min. 33sec., G. Davison, as above.

- 20 miles—2h. 42min. 48sec., G. Davison, as above.
 21 miles—2h. 53min. 34sec., G. Davison, as above.
 25 miles—3h. 42min. 16sec., J. Smith—Nov. 10, 1851.
 40 miles—6h. 33min. 1sec., G. Ide—Oct. 16, 1876.
 50 miles—8h. 19min. 55sec., G. Ide, as above.
 60 miles—10h. 46min. 2sec., Daniel O'Leary—Oct. 16, 1875.
 100 miles—18h. 51min. 35sec., W. Vaughan—May 9, 1876.
 120 miles, 1,560 yards—in 24h., P. Crossland—Sept. 12, 1876.
 1,000 miles in 1,000 consecutive hours—one single mile in each single hour, Captain Barclay—June 1 to July 12, inclusive, 1809.
 15 miles 508 yards walked in 2 hours—George Davison—Dec. 6, 1869.

PRIZE RING.

- Longest Battle on Record—6h. 15m., James Kelly and Jonathan Smith—Australia, Nov., 1855.
 Longest Battle in England—6h. 3m., Mike Madden and Bill Hayes—July 17, 1849.
 Longest Battle in America—4h. 20m., J. Fitzparick and James O'Neil, Berwick, Maine—Dec. 4, 1860.

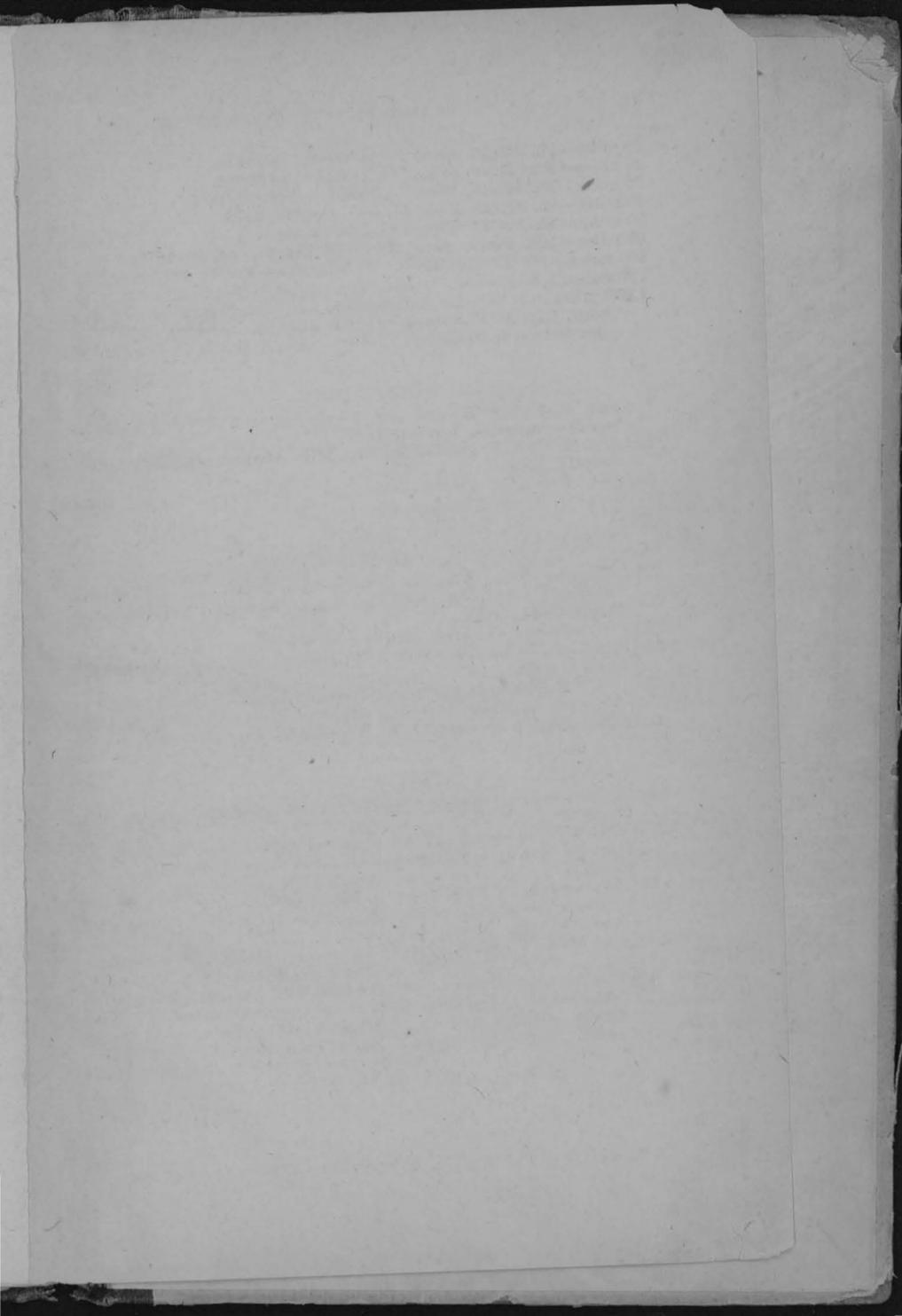
JUMPING.

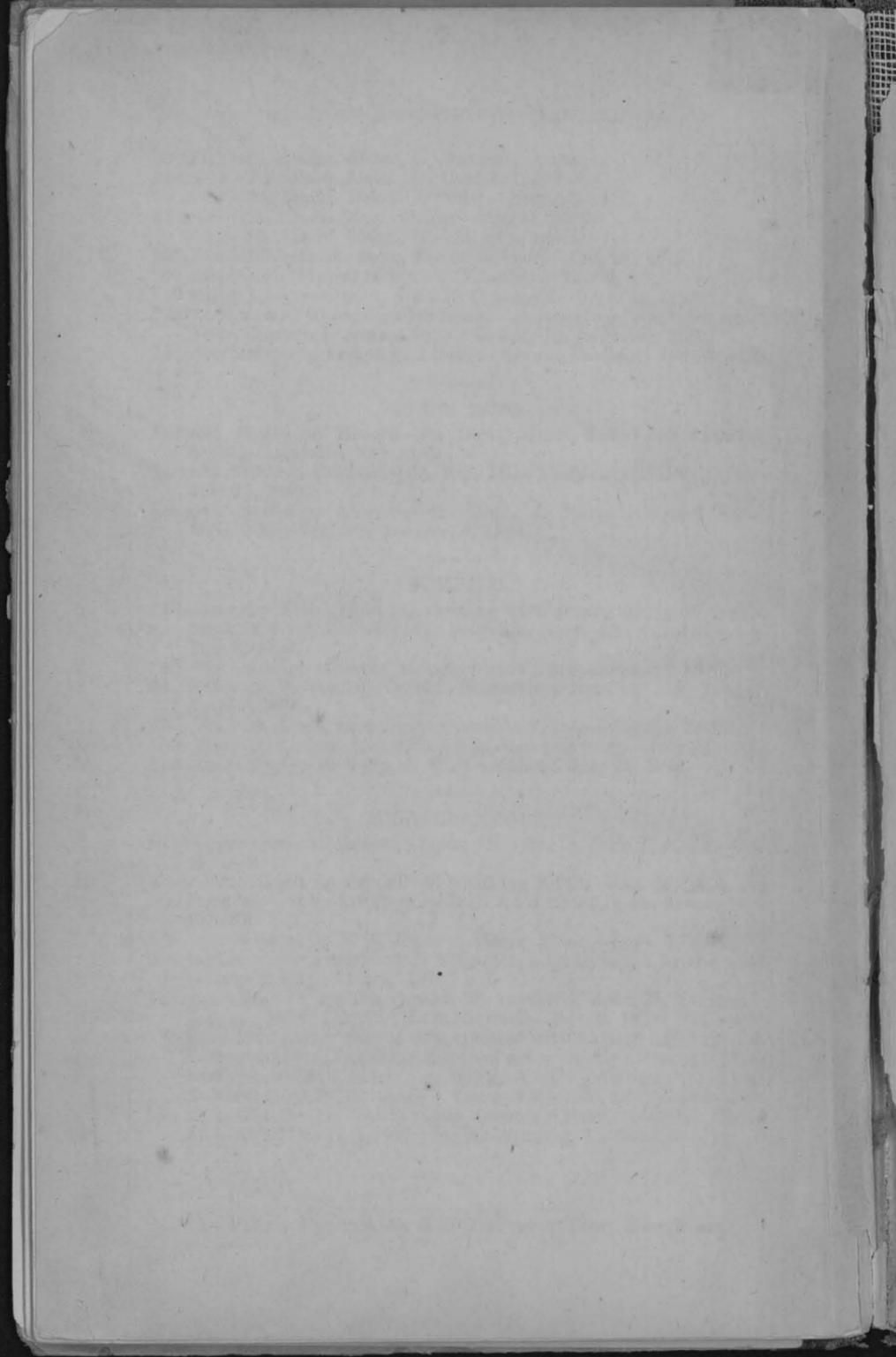
- 29ft., 7in., by John Howard, running wide jump, taking off from a block of wood, 1ft. wide, 2ft. long, 3in. thick, and elevated 4in.—May 8, 1854.
 13ft. 7in.—Joseph Greaves, standing-wide jump—Sept. 18, 1875.
 6ft. 2½in.—M. J. Brooks (Oxford University), running high jump—April 7, 1876.
 47ft. 7in.—R. Knox, running hop, step and jump—August, 1870.
 40ft. 2in.—D. Anderson, standing hop, step and jump—July 24, 1865.
 11ft. 1in.—High pole jump, J. E. Woodburn—July 21, 1876.

MISCELLANEOUS.

- Regulation base-ball thrown 133yds. 1ft. 7½in. by John Hatfield—Oct. 15, 1872.
 R. A. Pennell put up a dumbbell weighing 201½lb—Jan. 31, 1874.
 Mr. Pennock put up a 10lb dumb-bell 8,431 times in 4h. 34m.—Dec. 13, 1870.
 1,000 yards swam by E. T. Jones in 15min. 30sec—Sept. 7, 1874.
 Mr. Forbes threw a cricket-ball 132 yards, slightly aided by the wind—Oxford, Eng., March, 1876.

- LIFTING.**—Hand: 1,250lb, health-lift machine, John M. Cannon—Jan. 16, 1875; 1,210lb, R. A. Pennell—Nov. 8. 1873. The athletes hereinafter named are credited with having lifted the following weights; but these feats are not properly attested. With harness: W. B. Curtis, New York, 3,300lb; Ambrose A. Butts, Auburn, O., 2,737¾lb; John J. Lucas, Belleville, Ill., 2,700lb—Oct. 26, 1875; Dr. G. W. Winship, Boston, Mass., 2,600lb. Hand lift—W. B. Curtis, 1,230lb; G. W. Winship, 1,200lb.





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TLES, HAND BALL, RACKETS, FLY CAST-
ING, SWIMMING, FOOT BALL, PIN
POOL, FIFTEEN BALL POOL,
SCOTTISH GAMES, TEN
PINS, SKATING, CURL-
ING, POLO, Etc.

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