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ATHLETICS

ATHLETICS

BY E. H. RYLE

EX-PRESIDENT CAMBRIDGE
UNIVERSITY ATHLETIC .

WITH
THIRTY-TWO ACTION PHOTOGRAPHS

LONDON
EVELEIGH NASH
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INTRODUCTION

THIS little book is intended to be a handbook for the novice rather than a storehouse filled with learned advice to the experienced athlete. Though it is expected that these pages will be read more by young men than schoolboys, it does not follow that the latter may not be able to find a few helpful suggestions in them. The author does not believe in courses of special training for growing lads, and therefore has not endeavoured to write especially from their point of view. But, in moderation, the methods of training, &c., laid down in this book are equally applicable to the boy of fifteen as to the matured athlete of twenty-five.

The author has endeavoured to collect as much advice and information as possible from athletes who are recognised as first class in the various branches of athletics in which they have

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specialised, and has been fortunate enough to secure complete articles from Mr. P. J. Baker, Mr. E. E. Leader, Mr. S. S. Abrahams, and Mr. C. H. Porter. Other well-known athletes who have kindly sent letters of advice are Mr. G. R. L. Anderson, Mr. K. Powell, Mr. W. A. Stewart, and Mr. W. E. B. Henderson, while the author is especially grateful to Dr. A. Abrahams, both for a special article and for allowing him to make use of several of his excellent photographs.

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CHAPTER I

MODERN ATHLETICS

ALTHOUGH it is becoming more and more of a platitude to affirm that Englishmen no longer stand where they did in the world of athletics, nevertheless it is an error to suppose that the athlete of to-day has deteriorated as a man. It is a mistake to infer that the last generation was capable of greater endurance than ourselves or that its athletic representatives were finer specimens of humanity. No, we have not deteriorated, but we have lost that pre-eminence in some branches of sport which but a few years ago was unquestioned and almost unchallenged.

It is "up to us" to-day—as our American friends put it—to find out what is the reason for this state of things, and, having found the cause,

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to make up our minds whether we will strive to regain our lost supremacy or be content to remain in a position of inferiority to the rivals whose ranks are being largely augmented with every year that passes.

In political affairs perhaps the most burning question of our day is connected with the threatened supremacy of our Navy.

For so many years it has been unrivalled in numbers and efficiency that the efforts of other nations to imitate and improve upon our model have been but carelessly noted; yet now the day has come when every patriotic Englishman anxiously asks the question whether our far-flung possessions, our lines of communication, and even our own shores, are really safe in the face of the concentrated and ever-growing sea power of an adjacent and powerful neighbour.

The simile may seem too extravagant, but it closely corresponds to our position in the world of international sport.

For many years the supremacy of our athletes was unchallenged. It was a rare thing, indeed, to hear that an Englishman had suffered defeat

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from a foreigner, or even a Colonial, in any recognised branch of sport.

But we lived in an atmosphere of false security, and feeling supreme, forgot or neglected to improve. Across the seas our young Colonies, starting at the point which we had reached, have gone ahead, while foreign countries, fired with more cosmopolitan ideas than heretofore, have copied and improved upon our methods while we have stood still.

In short, we at home have not perhaps actually retrograded, but we have remained stationary. The high standard of athletic prowess to which we had attained has been exceeded by the Colonial, the American, the Foreigner. The nation which, with the improved facilities for travelling and foreign intercourse, did most to popularise the love of sport for sport's sake on the continent at the close of the nineteenth century, is in danger of being deposed from its proud position by its own pupils.

At first the cult of sports and athletics was followed almost exclusively by the upper classes abroad, but gradually it has become both

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cosmopolitan and democratic. In fact, the highest point of athletic excellence has been attained to by the most cosmopolitan and democratic of nations—the United States of America.

Since the afternoon of September 21, 1895, when, at New York, a powerful team of English athletes, drawn from the great Universities and the London Athletic Club, lost every one of eleven events against a representative American team (which incidentally put up four world's records), Englishmen have repeatedly had it brought home to them that they are no longer invincible in field events or on the track. But it was not until the Olympic Games were held in London in 1908, and the great British public saw their cracks beaten before their eyes, not only by Americans, but by Colonials, Germans, Swedes and Frenchmen, that it slowly dawned upon them that something was radically wrong, and that Britain's representatives were only third-rate.

Since then, no doubt, efforts have been made, but what happened at the English Championship Sports last July? An American

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won the Sprint and the Furlong, a Canadian carried off the Quarter-Mile, a beautiful runner from Munich easily won the Half-Mile from another American and a Canadian, England's best men being beaten off ; an Englishman just managed to win the Mile, but the Four Mile race (long distances being our special forte, mark you !) was won by a splendid young athlete from Denmark. The Hurdle Race went to a Cambridge Blue, but many onlookers thought that a Frenchman broke the tape first—he certainly thought so himself, but that is neither here nor there ; a German carried off the Pole Jump, and an American Rhodes' scholar won the Hammer Throw. Rarely indeed did we see the English flag run up the signal mast to demonstrate a win for the native athlete.

And yet we must not be too despondent. The Oxford and Cambridge teams, under able tuition and after careful training, managed to secure a victory over Harvard and Yale, after a series of brilliant struggles. There is still hope for the old country, but only if her growing manhood is properly trained.

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And now what is the reason for the apparent stagnation of athletics in England ? The answer to such a question is not hard to find.

Until the close of the nineteenth century, amateur athletics were treated as a *game*, pure and simple. Old-established records usually stood for years, and were only broken by men of phenomenal development or endowed with natural gifts of endurance and activity.

During the last twenty years, however, many new ideas have come into existence, and one of them, the plan of submitting picked men for special events to a course of scientific training, has already done much to revolutionise the old conceptions of what was the limit of an athlete's powers. In America the conventional and casual methods of training, still extant in England, were quickly swept away.

They realised over there that if it was worth while to take up athletic pursuits, it was worth while going in for them thoroughly, and that no records were unbreakable if the right men were trained in the right way for the event or race for which their natural powers were most suited.

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The professional trainer, whose word was law to those placed under his charge, came into existence. It was realised that only by competition could men be induced to give of their best, and in consequence inter-State, inter-City, inter-University, and inter-college sports were instituted all over the country, with the result that the standard of proficiency in athletics is higher in the U.S.A. than in any other part of the world, while the public as a whole take more practical interest in their athletes and demonstrate their interest by supplying ample funds.

As an instance of this practical interest in sport I might point out that the New York Athletic Club possesses a gigantic central clubhouse standing in its own grounds in the city, admirably equipped in every way, and which cost nearly two million dollars to erect. There is also a "country house" belonging to the same club outside the town, replete with every comfort.

Let the English reader compare the inadequate dressing-room under the grand stand at Stamford Bridge, which is the sole club-house that the

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London Athletic Club possesses, or is ever likely to possess with these edifices !

There is no getting away from the fact that the American athlete has become little better than a machine tuned up with care beforehand by an attendant in anticipation of the special day or days on which it is desirable for it to display its highest working powers in competition with similar delicately adjusted engines.

No doubt this development is for many reasons to be deplored. Many of us regret that sports are no longer held for sport's sake, but in this, as in everything else, we must move with the times, unless we want to see the representatives of England outclassed in all athletic meetings of an international character, both by Americans and by the Continental runners who are imitating with faithful exactitude the training methods of our cousins across the Atlantic.

Already some attempt is being made to arrest the damaging results to England's prestige as a nation of sportsmen which her lack of success in field and track events in the past few years is tending to create in the minds of her Colonists

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and the foreigner. The bonds which unite Great Britain to some of her older and more independent Colonies are not of the strongest and we are certainly running the risk of weakening them if they see that even the athletes of the Old Country can no longer hold their own with the German and the Swede. We can stand it with comparative equanimity when the Rugby footballers of New Zealand or South Africa tour the countryside almost invincible; they are after all our blood relations, though defeat is hard to bear even at their hands. But when Englishmen can no longer win a third of the total number of events in the English Championship Sports it is time to wake up and make a new start.

The aim of the Athletes' Advisory Committee which was formed at the end of 1911 is to endeavour to arouse greater interest for athletics in general throughout the country, especially with regard to "field events" (*i.e.*, long-, high- and pole-jumping, weight-putting, hammer- and discus-throwing, and hurdling).

Literature dealing with the aims and sugges-

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tions put forward by this committee can now be obtained from the secretary of every club. By an increase in the number of inter-club competitions, entailing the training and getting together of teams, a practice which would assist in instilling a patriotic team feeling instead of the individualism at present so universal, it is hoped to rouse more enthusiasm for athletics throughout the country. The committee hope to get into touch with a number of experienced old runners who would be capable of acting as advisers and amateur trainers to promising athletes in the districts in which they happen to live or in which they may have an interest or occupation.

The advice of these athletes is especially solicited in the training of men in those "field events" mentioned above, a department in which English athletes are usually hopelessly outclassed by well-trained foreign athletes. It has been noticed by capable observers at every international athletic contest that English jumpers and weight-putters, though often admirably adapted by nature for these contests, are often shamefully beaten by men of other

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nationalities of inferior physique and muscular development, but whose methods and training have enabled them to overcome the primary disabilities imposed on them by nature.

For example, a well-known professional trainer in Sweden has already taught a dozen men to clear twelve feet at the pole jump, while we in England, who have probably far more and better raw material for the coach and trainer, could not scrape together half a dozen who could clear ten feet.

Good amateur coaching then is what is wanted as much as anything in England, and all experienced athletes who will give a little time and trouble to instructing and advising the young idea deserve the thanks of their country.

Another point which I think deserves to be emphasised is the present-day need for "specialisation."

As soon as we come to the better class of athletic sports it is obvious to the investigator that the day of the runner who is "pretty good at any distance from the hundred yards to half a mile" has gone for ever. (Of course, I am not

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speaking of small village and local sports.) The successes of the "all-round men" are now, and will be in the future, few and far between, and even then will probably only be gained in handicap races. No longer will the natural runner be able to sweep the board without troubling to train for any special race. To-day it is absolutely necessary for the athlete to specialise if he wishes to work his way into the front rank.

He must make a real business of his training and make up his mind that, within certain limits, he will restrict his activities to one or two particular distances and races.

Of course, there are exceptions to every rule, and some men may prove themselves to be equally first-class as stayers and sprinters, and it has often been proved that a man by taking up long-distance or cross-country running has improved his powers for a middle distance, like the half-mile, out of all knowledge. But this is exceptional, and the man whose capabilities are exceptional will not want to read this book. Still it may be of interest to recall the fact that

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in bygone days W. G. George was able to beat all comers at any distance from 1000 yards to ten miles. Even to-day (1912) I am fairly certain that H. Braun, of Munich (Half-Mile Amateur Champion, 1911), could, under the best circumstances, equal record for any distance from 350 yards to a mile and a half, while the performances of Melvin Shepperd, of the U.S.A., over similar distances, and Shrubbs, over longer distances, are well-known.

It may not be out of place to illustrate, at this point, what I mean by the necessity of specialisation in the present day, by instancing the probable career of a particular type of athlete of whom we are often reminded in the sporting papers.

I refer to the "schoolboy prodigy," reports of whose deeds crop up almost annually.

We learn that "So-and-so" has won every race in his school sports, from the sprint to the steeplechase; has broken various school records, and is bound to make his mark in the sphere of university or club athletics when he leaves school.

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Experience has warned me not to be too sanguine about the future of such heroes, and I would advise any boy who has done well at school not to hope to do equally well, all at once, in new and probably higher class company. What often happens to the youthful phenomenon when he goes to the University is as follows.

Without any special training he enters for half a dozen events in the Freshmen's Sports. Perhaps he may win one event outright, but sometimes he has to be content with a place in one or two events, while he fails to do even as well in the other events he entered for. In pique he then probably forsakes the track altogether and solaces himself with the more sociable pursuits of football or hockey. But it is at this crucial moment that he makes his mistake. Until he has arrived at the age of eighteen years, it is my firm conviction that the youthful athlete should go in for every game in as thorough a manner as he may wish *without* specialising. Let him enter for and compete in all races at every distance so as to acquire knowledge of the extent of his powers and to accumulate that

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experience which will enable him to decide for himself at what distance or event he is likely to be most proficient in later years.

Then, on leaving school, with muscles well developed and sound in wind and limb, he may very well turn his attention to the one or two distances or events at which he may hope to become first-class with due care and with the help of the advice and coaching he may reasonably expect to receive.

In my opinion, over-specialisation in youth is not repaid by super-excellence in later life, and it is not to be encouraged, at any rate, in English public schools. Let the boy enjoy his games to the full, and he will find that the health and strength stored up by leading the ordinary boy's life of to-day are quite sufficient to enable him to become a first-class athlete in any branch of athletics he may care to specialise in between the ages of eighteen and twenty-seven. It could be proved by investigation that many a man who has made a great name for himself as a runner or jumper had never competed seriously in such events till after he had left school.'

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It has often been my experience to meet with young fellows about nineteen years old who have put forward this objection to taking up athletics as their chief recreation, that it is so dull, monotonous and selfish, compared with football and hockey, in which interest for one's team and greater sociability are greater attractions than the glory of the individual on the track.

In many ways this is true, and it is a reproach to English athletics that there is so little club patriotism and inter-club competition. At the Universities it is the hope of gaining the "Blue" and a place in the team which is the greatest inducement to many men to persevere with the dull routine of training during the winter months at Fenner's and Iffley Road. Mainly to do away with this reproach, at Oxford and Cambridge inter-collegiate matches have been instituted on the "knock-out" system, and have successfully stimulated the interest in athletics. To my mind it is most unfortunate that there is such a lack of competition between the English athletic clubs. There is, at present, little or no inducement for their members to

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obtain a place in first or second teams ; the interest of team building and the social intercourse thereby entailed is almost totally lacking, and the general public, who will always more readily pay to see a real sporting match than ordinary club sports, is taking less and less interest in such displays with each succeeding year.

It is time that the leading athletic clubs, in their own interests, came to some sort of arrangement by which the enthusiasm both of their partisans and their members might be stimulated by a reasonable scheme of competition.

This point needs emphasising when it is brought to mind how enormously football clubs under both codes, cricket, rowing, hockey and lacrosse clubs have multiplied in the last few years, and how easy it is for any man by joining one or other of them to obtain all the exercise and recreation he may require without the bother of training which the runner needs. It is obvious that the man who goes in for track athletics must be more determined and thorough in his habits and training than the man who

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takes up hockey or football, and he deserves all the more praise if he sticks to it.

By way of compensation he may be thankful that he is not dependent for his exercises on the whim of ten other men or the captain of his club. The track is always there, and he has the satisfaction of knowing that running and field events, instead of rendering him unsuited for other games, will probably enable him to be a better performer at them, and certainly will prolong the number of years in which he may count himself an active athlete and postpone the veteran stage and the growth of adipose tissue.

Many a football coach has deplored the fact that the forwards or three-quarters under his charge will not give a little time to sprinting and running on the track. It is quite possible that many men may have lost a "Blue" or an International "Cap" for despising or disregarding this simple but beneficial bit of advice.

CHAPTER II

THE SCIENTIFIC SIDE OF ATHLETICS

Contributed by A. ABRAHAM,
M.B., M.R.C.S.

THAT a runner *nascitur non fit* is a platitude which admits of no argument, but it is not generally realised how its profound truth may be overlooked. It strikes the keynote of what I feel to be the essential in the consideration of the scientific side of running, the overwhelming truth that a boy is born an athlete or a duffer, a sprinter or a stayer, and that art will at best produce comparatively little effect.

Such a sweeping assertion does not, of course, affect the contention that training will make a good runner out of apparently poor material; it is meant to apply primarily to the *crème de la crème*—world and Olympic champions—and it induces at once the pessimistic reflection that even the most astute empiric or the most gifted

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scientist is unable to put his finger upon the mysterious 'essence' which enables one man to run faster or for a longer time than another. It is not a mere question of muscles, it is not a question of lung-development, but it is something deeper, more mysterious, somewhere in the innermost recesses of the nervous system beyond the reach of measuring tape, of weighing-machine, of stethoscope, and even of microscope, of the most accurate and delicate scientific instrument, so far as I am aware. I have frequently spent a most instructive afternoon at a big sports meeting closely observing men as they go to their marks for the hundred yards. I watch those competitors with real pretensions to speed, those on marks from scratch to $4\frac{1}{2}$ yards—fifteen or twenty, perhaps, in a large field of one hundred and twenty. I see every type of man—ages eighteen up to thirty-five (yes, even thirty-five !); height, 5 ft. to 6 ft. 5 in.; weight, eight stone to fourteen; length of stride, six feet to eight and a half—and I am always impressed by the conclusion that I fail to narrow down some anatomical feature common to all. It is just

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the same, though to a somewhat lesser degree, in distance runners, hurdlers and jumpers.

It is really much the same if our scope is specialised and we take not ordinary "first-class" men (a "first-class handicap" would come within the limits mentioned above), but the champions themselves. Contrast a Ramsdell with a Walker, a Crabbe with a Cornwallis ! And yet it is from the champions that we shall derive *some* information—trivial it may be—but at least something.

The ideal sprinter, and with this description I would couple Robert Kerr (Amateur Champion, 100 and 220 yards, 1908), has this distinctive attribute—he is "beautifully built." Nowhere is there conspicuous development, but at the same time he is wanting in no respect. He has, of course, that elusive something, the spark, so to speak, to fire his petrol, but he has the powerful engine, too. We see the ideal sprinter when we see a man with the right muscles in the right amount and the capability of using them. Figure to yourself what a wonderful thing it is to propel yourself unaided over the ground, at

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the rate of over ten yards per second (over twenty miles an hour), the enormous force to overcome inertia and attain this speed without the delay of a greater fraction of a second than is unavoidable, and to maintain this speed for ten seconds, or only a little less !

Now, although as I have indicated, champion sprinters may depart markedly from this ideal type, yet it serves as an excellent criterion wherewith to select and to educate sprinters. Let me suppose that a young man with a fair turn of speed presents himself for improvement. We look him all over and observe that his chest and shoulder development is below Kerr's standard—his abdominal and lower limb musculature may be satisfactory. Very well, nothing seems easier than to put him on a course of exercises which will develop his deficient muscles—and nothing is more likely to yield to disappointment. Merely to have big muscles does not mean that they are efficient: the champion sprinter has a good shoulder development because he runs naturally in the most efficient way and uses his shoulders properly: it is

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fundamentally an example of the survival of the fittest. Study Robert Kerr and run as he does, with the same arm action, and the development may come and improve with each minute of activity. But no mistake is more prone to evil—and it is a mistake which is frequently perpetrated—than the expectation that the accumulation of big lumps of muscle by artificial means will lead to the capability of using them naturally.

The best example I have ever encountered is that of Hans Braun, the present* half-mile champion. He has a most conspicuous muscle on the outer side of his knee-joint—the biceps flexor cruris. Although his general muscular system throughout is splendid, yet it is this one muscle which is so exceptional. It is one of the group of hamstring muscles on the back of the thigh, of paramount importance in running, and the possession of that muscle is of great value to Braun, whom I regard as the greatest runner in the world at the present day. Braun has never had an hour's "training" in his life ;

* 1911

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he is one of Nature's aristocrats, and she has trained and coached him. We must learn to run as Braun does and develop the same musculature, not attempt the absurd reverse process—possible or not—of developing the muscle artificially and expecting it to have the same function.

“But will indoor artificial non-running exercise be of no use to us at all?” may be asked. Well, I will not deny a certain amount of good. Let us suppose you imitate the action of running, as by skipping, or by W. G. George's famous “hundred up,” I do not think that anything but good can result. Further, the abdominal muscles are of far greater importance to a runner than is generally supposed, and ordinary abdominal exercises will strengthen these muscles in a way which will not depart far from their action in running. Almost any forcible flexion and extension of the thighs upon the abdomen will suffice; my own favourite is the simple one of lying flat on the back and bringing the legs straight up as far as possible, *inspiring* the while, then returning

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them to their first position, but not permitting the heels to reach the ground, expiring the while.

For runners at all distances, the arch of the foot must be well developed. It is, therefore, of the greatest importance to avoid standing up for any prolonged period, and it is useful to preserve the arch by some very simple exercises. The first is by rising on tip-toe slowly and then returning slowly to rest ; a second consists in twisting the foot so as to support the body on the outer edge of the foot. A third consists in sitting down, resting one knee loosely on the other and rotating the ankle-joint, repeating the procedure with the other limb. All three should be performed night and morning—a couple of minutes at each will suffice.

The hamstrings, the muscles at the back of the leg, are *the* running muscles, but each stride consists in a complicated mechanism in which arms, shoulders, abdomen, and the whole of the lower limb muscles are participating. And to develop and keep in trim all the running muscles you must *run*.

It is not perhaps out of place to insist once

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more upon the nervous side of running—the fundamental, after all. “Training” consists in training the nervous system to send out its impulses to the muscles, and for this reason training with others, involving some degree of competition, is of great importance. Everybody knows how in a race a man can be encouraged to do “better than his best.” The nervous system will be greatly benefited by small doses of this method of training. I use the term “small dose” in distinction from the large dose afforded by competition in an important race. It is a popular tradition among athletes that one race is worth three days’ training.

I ought now to make some reference to the athlete whose development is not perfect. He can only do his best in the circumstances. If he has speed but has not the necessary development of the upper part of the body he will be well advised to lengthen his distance to the longest which he can stay. I have known several five-furlong runners who were very indifferent at the hundred. Most young athletes make the mistake of supposing they must be clearly either

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sprinters or stayers. Nobody can tell them their best distance without a very prolonged and extended observation. It is quite a familiar feature for the best runner in a school to win at every distance from a hundred yards to a mile. He will, no doubt, have a particular leaning towards one distance—this will be the one at which he specialises in more advanced sport—and yet after all he may have a very imperfect and inaccurate idea of his capabilities. I well remember the phenomenal Freshmen's Sports at Cambridge in 1902. Then R. P. Crabbe won the mile and was second in the half; A. R. Welsh won the three miles and was second in the mile; A. S. D. Smith won the half and was second in the three miles. Yet Crabbe, Welsh and Smith displayed their best form and subsequently gained Full Blues in the half, mile and three miles respectively, *i.e.*, the distances in which each got second at their Freshmen's Sports!

Without encroaching to any extent upon the treatise on training which appears elsewhere, I feel that a few points are yet within my province.

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Wind is partly breathing capacity, mainly heart. Up to a certain point regular graduated training by accustoming the vital processes of the body to work with maximum efficiency and in harmony will develop staying power—that is, wind. But good and bad winds are natural inheritances, and with the best intentions you cannot make a stayer out of unfavourable material.

Similarly that curious phenomenon “second wind” is not given to all. It probably means that more perfect compensation sets in more thoroughly and enables the exercise to continue without distress.

Stitch is a difficult problem to meet. On the one hand its cause may be simple and obvious—the runner is out of condition. On the other hand, some runners are notoriously susceptible, even under the best conditions, and they are in consequence unreliable. In a few cases, when an absurdly heavy meal has been taken near a race, trouble is only to be anticipated, but I have seen stitch in a runner whose last meal, three hours before exercise, consisted of toast and hot water.

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In bad cases stitch is due to engorgement with blood of the abdominal organs: that is why stitch hardly ever occurs in rowing—the blood is squeezed out of these viscera. Very little can be done to obviate it; nothing at all, so far as I know, short of stopping, to relieve it. In cross-country running cold is liable to bring it on, and the handicap of heavier clothing than is customary, with the addition of mittens for the hands and wrists and an extra covering over the abdomen (not enough, of course, to obstruct respiration), is likely to be well repaid.

Why does a man go *stale*? Fortunately with runners the evil of over-training, though always present, is not so threatening as with oarsmen, because a runner is an isolated individual to be treated on his own merits and demerits; an oarsman is merely a fragment of a crew trained as a whole and irrespectively of idiosyncrasies. To avoid over-eating and to practise sensibly seems easy to prescribe, but difficult to fulfil. Care in the diet prevents staleness, and athletes must realise that strength and energy come not from what they eat but from what they do, and

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that food is useful only when it is assimilated and not merely eaten to “take care of itself.”

Every athlete can find out what suits his digestion. Let him be dictated by that alone—even vegetarianism may be the best for certain athletes—and by no fanciful restrictions of meat and drink, of things “good and bad for training,” “good and bad for the wind.”

CHAPTER III

TRAINING

THE subject of training for athletes in every branch of sport is one on which a great deal too much has been written from the wrong standpoint. The number of books containing directions for the development and training of the body is enormous, and most of them err on the side of too great elaboration. It really is too late in the day to devote whole chapters on what the athlete should eat and what he should drink, what hours he should keep and where-withal he should be clothed. The man whose instinct is so much at fault that he does not know what is good for him in the matter of eating, drinking and sleeping by the time he is eighteen or nineteen years of age—that is, when these things begin to matter—will never be a successful athlete.

A regular system and moderation in all things

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form the bases of all methods of training and physical culture. In the following pages I shall not even endeavour to lay down any hard and fast rules. No two men are alike mentally or bodily, in their habits or peculiarities, and it is therefore impossible and absurd that any definite set of training rules and regulations can possibly be sufficient or suitable for a large number of differently constituted athletes. My aim here will be to endeavour to suggest a few practical hints on the training of the body for athletics, suitable to all types of athletes.

For eight years I have been quite closely in touch with current athletics, and was intimate with many runners of repute, and any advice which I may succeed in imparting will be derived from personal experience on the track and from observation of these men's methods. Most of the advice will seem childish and obviously simple to the experienced runner, but I am certain that it is owing to the neglect by beginners of the obvious and most simple precautions and rules that the good hopes of so large a percentage of young athletes are never realised.

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To start at the beginning. It is most unwise for a man to run in races or compete in strenuous athletics of any kind if he has a constitutional infirmity of any kind. For example, the slightest tendency to a weak heart should never be trifled with. I would advise every one who is slightly affected with such a malady to give up *violent* athletics of every description. If such weaknesses are taken in hand when a man is young, they may disappear without leaving any serious consequences by the time he has attained to his full strength.

Never shirk going to visit a doctor at the beginning of a hard season's work. It is always worth while, as it is better to be warned of any symptomatic weakness, which may develop with startling rapidity if neglected.

Though many readers may think this advice totally unnecessary, I would draw special attention to the care of the feet. After all they are more useful to the runner than the hands, and should be looked after with quite as much assiduity as to their cleanliness and general well being. Many a man has had a whole season's

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running spoilt owing to something being wrong with a foot, originating usually from a very small beginning. A neglected blister or scratch on the foot may eventually incapacitate a man for weeks unless he keeps the feet clean and the affected part carefully bandaged.

It is an astonishing thing to me that so many athletes are careless about the cleanliness of their feet. Some of them seem to take it as a matter of course that they should always be in a condition almost bordering on the filthy.

It is not an easy matter to get a pair of running or jumping shoes which really fit well. They may seem to do so when you try them on, but when they are in use on track or field they very soon lose their shape. The varying strains on the leather and the thinness of the material which yet has to support the spikes, soon damage the shoe.

It is advisable to get the running shoes made by specialists in this kind of footgear, and not by an ordinary shoemaker. There are several good men in the business who are well known at the headquarters or changing rooms of most

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athletic clubs, or who advertise under the athletic news columns of the sporting papers during the running season.

It is from the badly fitting shoe and the carelessly adjusted spike that most of the injuries to the feet of the runner arise. A blister may be formed in a few minutes which quite possibly may so inconvenience the runner that he has to give up all track work at the crucial moment of his training. My advice is to keep a careful watch on any part of the foot which may seem sore after running. If a blister should have appeared it is advisable to prick it with a needle as soon as it is well formed, and after carefully squeezing out the fluid collected, to leave the outer layer of skin intact and keep the place dry and clean by dusting it with some such absorbent as boracic powder.

Should the affected spot become raw, great care should be taken to keep it clean, and it is a good thing to tie a clean piece of disinfectant lint over the spot to prevent the pernicious dye off the sock being absorbed into the system. The writer once suffered from blood-poisoning

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in a mild form for two weeks, caused by the dye from a sock being absorbed into a small and almost unnoticed blister.

Always wash the feet carefully after running on a track, as the sharp edged grits from it very easily penetrate through the skin and set up local irritation.

The wash-leather socks or toe caps which many runners wear assist to keep the feet clean and also protect them from being chafed by an ill-fitting shoe, but these socks are themselves liable to wrinkle up and to cause irritation to the skin by means of hard creases, unless they are frequently smoothed out.

While referring in this connection to the need of cleanliness it may not be out of place to advise athletes to be chary of making free use of any stray "flesh gloves" or "rubbers" which may be lying about in the changing rooms which they usually frequent or happen to visit when competing at local meetings.

In passing I may say that the accommodation and dressing-rooms afforded to would-be competitors at many meetings is detestable, and

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so long as the local Sports Committees prefer to expend their funds in giving prizes of considerable cash value, instead of spending a little more in providing more commodious and sanitary changing rooms—or even tents, as is usually the case—for competitors, the class of athlete attracted to take part in their sports is bound to deteriorate.

The writer has frequently competed and been present at athletic meetings when first prizes of the cash value of seven or more pounds have been the rule rather than the exception, but the runner has had to change as best he could along with scores of others in a small tent barely twice the size of an ordinary room, on straw not over-clean and usually damp, while the washing arrangements consisted of a few buckets of water with which the competitors swilled themselves to the discomfort of their neighbours and the detriment of their clothes.

• But this is irrelevant. Flesh-gloves are all very well, and the use of clean ones is strongly to be recommended. But it must be conceded that they mop up impurities of every kind like

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blotting paper, and it is obvious that the man who wishes to benefit by their use should have his own private pair, which he can have cleaned as often as he chooses.

When one has seen the "public" gloves of the dressing-room freely used on the limbs of runners and cyclists of all descriptions, many of whom regard it as an important necessity to anoint themselves first with the most evil-smelling oils and embrocations, while others obviously have considered that the luxury of a bath is deleterious to the health while in training, the force of my advice should be plain to all.

Though at first glance it may seem out of place here, I would strongly recommend athletes to pay attention to the care of their teeth while in training. Any local malady or incipient trouble in this connection is quickly brought out by the jarring of the nervous system which is bound to accompany track running, and by the nerve tension which is always present in training for any special event. The condition of a man's nervous system has a much greater effect on his racing powers, endurance, and general health

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than is usually supposed. Given two men whose physique and attainments are equal, the condition of the nervous system of each will probably determine which of the two is the better racer.

Bad teeth often cause or are accompanied by bad digestion, and any combination of these two ailments pull down the health of a man in training as much as typhoid. My advice then to the runner is to pay a visit to his dentist if possible at the beginning of every running season, and never to put off going to him for treatment or advice if he has anything in the nature of a toothache during training.

With regard to the advisability of entirely giving up the habit of smoking during the period of training, athletes seem to be very divided in opinion. I am not personally a believer in total abstention from tobacco. As with other matters, a policy of moderation is probably the most beneficial and profitable, and may be extended to the practice of drinking alcoholic liquors. The man who only smokes an occasional cigarette, and the man who rarely touches

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alcohol in any form, may just as well do without them altogether without noticing the deprivation. But to my mind to those who have always made a custom of it, a smoke of any kind after meals and at night will do more good to the digestion and nerves than total abstention from a habit to which a man's whole being has become accustomed. The mere fact of suddenly discontinuing a daily habit has been known to upset a man's digestive system and cause general discomfort of mind and body. But what ought to be discontinued is the vice of smoking and drinking between meals, or on an empty stomach. This is unjustifiable at any time, and especially so during training.

Men in training should drink very sparingly with, and not a great deal after, their meals. I personally used to find that I felt much better internally if I only drank just enough to quench my thirst and to wash my food down at the mid-day meal before running in the afternoon. But when the violent exercise for the day or the actual race is over no man should stint himself in the matter of drinking as a matter of policy.

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Liquid is as needful to the body as solid food, though large quantities of either denomination should only be taken at a reasonable time after, and never before, violent exercise. Personally I think a drink of two or three cups of hot tea a quarter of an hour after a race is one of the best things in the world.

Just before a race it is a good thing, especially if the runner is afflicted with nervousness, to rinse the mouth with cold water without actually drinking any. This will freshen him up, and take away that parched and "dry-as-dust" feeling which so often attacks the "nervy" man just before his event comes off.

Most trainers have their favourite beverages which they recommend to the runners in training who are under their charge. At Cambridge, old Jack White (once well known as "the Gates-head clipper," and a famous four-miler) used invariably to advise runners to take what he called "a glass of burmuny" at their meals. Probably a pint of red wine—which I believe is what he meant to imply—is an excellent thing to drink at dinner, if you can afford it, and

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certainly the Cambridge men in training quarters at Hunstanton both followed and benefited by his advice.

On the whole I think good draught ale is the best "staple" drink while in training, unless a man has a distaste for it. My advice is to abstain from all bottled drinks and all spirits, though a mouthful of brandy after a stiff heat, and before the final of a race, is sometimes beneficial. I consider such beverages as lemonade, &c., both insipid and lowering.

When a man is really stale and feeling run down and good for nothing, he should give up all running for a day or two, and (if he can afford it) dose himself with a bottle of champagne.

With regard to what he should eat, I would not suggest that a man ought in any way to restrict his diet beyond the limit which his common sense dictates. Many men neglect common-sense methods for some fad or other, and it is certain that for most men common sense is a surer guide than the advice of any faddist. It very soon becomes painfully obvious what

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things do not agree with the digestive organs of a runner, and when by experience he has learned what such things are, they will of course be passed by at meal times.

Many men add an unnecessary 'worry to those which are always attendant while they are in training, by making out a long list of what foods are good and what are evil. The things which are obviously indigestible should not be eaten, at any rate in large quantities, *e.g.*, very new bread, pastry of all descriptions, heavy suet puddings, underdone butcher's meat, and of course all rich sauces or gravies. The usual indigestible concomitants of a heavy tea—buttered buns and crumpets—ought to be eschewed. Fruit in moderation is always good, but not when it is in the least overripe.

The runner should endeavour to get into the habit of making a good breakfast, a light lunch, a light tea after exercise, and take the chief meal of the day between seven and eight in the evening. He ought to be in bed by 10.30, and breakfast at eight or soon after. I believe that half a pint of hot water swallowed

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while dressing is often beneficial to the general system.

A tendency towards sluggishness and loss of vivacity is apt to affect those who stay more than eight and a half hours in bed unless they have been really overtired the previous day.

Some people recommend the athlete to take exercise of a more or less violent character before breakfast. Personally I do not believe that anything longer or more strenuous than a brisk walk of half a mile is really beneficial. A short stroll may sharpen up the appetite; anything more strenuous or extended cannot be good for the vitality of the body, which is at its lowest early in the morning, and which requires feeding up before the hard work of the day begins. In any case those who do not fall in with my theory and prefer to take violent exercise before breakfast would be wiser not to do so on a completely empty stomach, but should take at least a glass of milk and a biscuit while dressing.

The city man who has to spend much of the daytime in an office, should always endeavour

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to walk a part of the way at least, to and from his work, morning and evening.

For those in ignorance of training rules and for novices I subjoin the usual menu of the training meals taken by the undergraduate at the University, though of course I do not imply that every one in training should restrict themselves to such fare. I merely give the details as a rough guide to those who have but a hazy idea of what strict training food usually consists.

BREAKFAST

Porridge (for those who like it, but not in large quantities. This should be knocked off in the week before a big race).

Eggs, kidneys, or liver and bacon or chop and steak.

Plenty of toast, jam, or marmalade.

Tea and coffee are both preferable to cocoa, though some runners strongly recommend the latter. Experience will show that it is not wise to make eggs a staple article of diet, as they are apt to cause biliousness.

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LUNCH

Cold roast beef or mutton with plenty of fresh vegetables, but little potato.

Stewed fruits of all kinds and milk puddings. Heavy 'stodgy sweets should be avoided like the plague.

Biscuits or toast and butter.

Ale or plain water.

DINNER

Clear soup of any kind.

Fish.

Roast meat, fowl or game, and vegetables.

Stewed fruit and puddings.

Ale or red wine in moderation.

These menus afford a sound basis for training meals, and there is plenty of room for variations. Of course the above does not interest fruitarians, or nut-and-cheese-diet people, but may act as a guide to the ordinary individual.

It has often struck me that many men at the beginning of the athletic season rush into

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strict training far too precipitately. Many of them have taken little exercise for perhaps five months previously, and have allowed their muscles to get flabby and their lungs to have a long holiday from hard work. As soon as they begin track work they find that stiffness and soreness attack them in every joint and muscle to such an extent that they have to knock off altogether after the first two days' training before they can move with any freedom.

To avoid this a man should spend quite a fortnight in taking a good fast daily walk, gradually increasing the distance and pace till he feels that he has worked off a little of the evil effects of a long period of idleness. On his first three or four visits to the track he should do little but trot round, throwing his shoulders back and breathing deeply and through the nose as much as possible. Let him remember that he must get his lungs and stomach muscles into good working order before he can think of training satisfactorily the muscles of his legs. The motive power must be obtained before the driving wheels can get to work.

CHAPTER IV

TRAINING—*continued*

PHYSICAL EXERCISE

PEOPLE are beginning to realise that since the standard of athletic performances has been raised through international competition and more methodical training habits, it is becoming more important than ever to get fit quickly at the beginning of a season.

For this reason all athletes who are really keen and anxious to improve on their best performances should not allow themselves to “run to seed,” as it were, in the “close season,” and allow their muscles to become so soft and relaxed as to necessitate a long period of slow and tedious training at the opening of each athletic year. It will be found that a gentle course of physical exercises will go far to rectify this.

If a man has determination enough to give up ten minutes before his bath in the morning,

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and perhaps five minutes in the evening during the slack months—and even during the running months as well if he cannot get time for much training on the track—he will do himself an enormous amount of good.

Any of the exercises recommended by Sandow and other professors of physical culture, which tend to strengthen the muscles of the chest, stomach, back, thighs and calves of the legs may be employed beneficially. It should be remembered that suppleness and springiness are to be aimed at rather than any abnormal development of any one set of muscles, whether of the legs or trunk. Observation of many famous athletes proves that all their muscles are usually long and rippling, hardly visible under the skin when in repose, and never knotted or bunched like those of the village blacksmith. This even holds good with weight and hammer throwers, who should combine quickness and suppleness with strength of muscle.

I would especially recommend the familiar exercises for chest expansion with light dumbbells or with the Sandow developer, and

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more especially the stretching and bending exercises.

In order to strengthen the muscles of the stomach, lie flat down on the back, with arms stretched out on each side of and behind the head, on the floor. Raise the body slowly into a sitting posture, keeping the legs motionless, and not allowing the outstretched arms to come forward in advance of the head. Then allow the body to sink back slowly into the original recumbent position, without raising the feet, and keeping the arms stretched out in the same line as the neck. Light dumbbells held in the hands make this exercise more strenuous, but it should not be carried to excess.

As a variation lie down flat on the back and bring the legs straight up slowly at right angles to the trunk without bending the knees, lowering them again quite slowly. The arms should be kept stretched out as in the former exercise, or extended straight down the sides of the body. These exercises should not be continued after it is felt that the muscles are becoming appreciably tired.

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But perhaps the best exercise for strengthening the running muscles and exercising the heart and lungs, and which at the same time trains a man to acquire good style, is an elaboration of the familiar skipping rope movements, and I believe originally recommended by W. G. George in a little book devoted to training the body.

He called it the "Hundred up" Exercise, and as I know no other which benefits the runner so greatly, and yet is so easy to perform, I will explain how it should be carried out.

All that is wanted is an area of level ground or floor (ground floor preferably). Scratch or mark two parallel lines about eight inches apart. Place the feet in the middle of these marks, with the heels slightly raised from the ground. The inclination of the head and body should be very slightly in advance of the perpendicular. The arms should be allowed to hang almost but not quite at full length, the elbows just bent enough to allow the hands to swing just above the hip-bone.

Now begin springing lightly up and down on the balls of the feet, raising the knee each time

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to the level of the hip joint (this is important), and then dropping the leg to the original position, taking care always to keep on the toes, and to drop the feet each time on to the same spot. The arms should swing a little way across the chest and back again with each stride. It will be found that the action is precisely similar to running except that there is no forward movement.

In performing this exercise the chief thing to be remembered is to maintain a good style and correct action, for if not the exercise is valueless and may do harm.

The knees must be brought up at each stride to the level of the hip, but as the knee descends the foot behind should not be carried further backwards than level with a line drawn straight down from the back.

If the knee is brought higher than the hip, the body loses its perpendicular position and is thrust backwards, while if the foot is thrown out behind further than level with the back, the body is forced unduly forward. In either case form and pace also are lost.

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On first starting this exercise nobody should attempt to do more than twenty up and down, ten for each leg. It will be found a difficult thing to do so many as that number even, in perfectly correct form. The number can be increased gradually as soon as practice has made perfect. But on no account should a man persevere with this exercise if he gets tired and can no longer maintain correct form. Also he must not expect to arrive at the best action all at once.

This exercise is not so easy as it sounds or appears at first sight.

But by steady practice any one can become proficient at it, and will eventually work up to the "100 up," which is enough for any distance up to half a mile, though if done slowly "3 to 400 up" may be found to give stamina.

I strongly recommend a man who is training conscientiously for any athletic event to give this exercise a trial, limiting the number "up" as he may think fit. But whatever number he sets himself to do, he will find that he will benefit

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in every way so long as he keeps correct form and action.

The only disadvantage connected with the usage of many of these physical exercises is the danger of a man's muscles becoming too hard and rigid. It is absolutely essential as I pointed out above that this should not be allowed to occur, as it is when they are in this condition that a runner either becomes muscle bound or liable to break down. A little common sense and moderation will enable any one who is liable to develop muscle rapidly to avoid these contingencies.

No exercise, however beneficial, should be overdone. Ball punching, Indian clubs, and skipping are all worth taking up in the winter months. Skipping especially is an excellent exercise, increasing a man's agility and springiness, improving his wind and rendering the muscle supple. Any of these exercises can be practised in the home or at a gymnasium.

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PRACTICAL ADVICE

Before closing this chapter I would like to call attention to one or two especially personal and practical bits of advice.

If you have been successful in one or two events do not boast or set yourself up as a critic and adviser of all men in the changing room. I have known several charming men who have been completely spoiled socially by success on the track. Success in such an individual kind of sport seems to have a worse effect on some people than even victories at golf. Don't always talk running "shop" in and out of the changing rooms. It really is the most boring of all shop, and does not do yourself or your unfortunate listener any good.

When practising always have a definite plan as to what you are going to set about doing. Do not go vaguely out on to the track uncertain what to do and waste time loafing about.

Do not neglect to put on enough clothes; it is better to feel too warm when practising than

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too cold. When jumping or taking part in any such sport when much waiting about is entailed, do not be ashamed to wear a big coat, or even to slip on a pair of trousers over the legs.

All Americans wisely take great care not to walk and wait about with nothing on but vest and shorts as many of our men do. The muscles will work far more easily when warm than when slightly chilled.

Do not wear unnecessarily abbreviated shorts : such a custom is not pretty and there is no practical good in it. Similarly do not wear sleeveless vests like many foreigners do ; this often looks repulsive.

Always be ready in the changing room for the summons to a race. It is unsettling to the mind if you are only half dressed when your name is called by the stewards, and the starter often will not wait for long. But on the other hand it is not wise to change hours before a race and hang about getting cold and nervous. The best plan is to go out on to the track two minutes before the time of your event and have a gentle

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trot to warm the legs, breathing deeply through the nose to open the lungs.

If there is a draw for positions, quickly get your number, choose your position, and make your preparations promptly. Always go back to the changing room quickly after being successful in a heat; wrap up warm and if possible have a gentle massage.

At all events do not hang about outside "showing off" as so many men seem inclined to do after a win.

Do not neglect massage before and after a race, but do not overdo it. Much rubbing and kneading of the muscles is not always good for them unless they want softening and warming.

Bear in mind that for most men the running of races is the best training for a race. Do not be afraid to enter for as many races of different kinds as possible when training for one particular event, even if they are over distances in which you have not the remotest chances of success.

One good race does you far more good and tries you less than three days' training.

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If possible never let the worries and cares of training weigh on your mind. Remember that it is "all a game" in which you wish to do as well as you can, but the upshot of which will not probably affect your life in the very least. A week after a race you will be wondering why in the world you ever allowed such a small event to weigh so heavily on your life.

CHAPTER V

STYLE AND JUDGMENT IN RUNNING

IN the present day I believe that the majority of runners neglect entirely to cultivate what I propose to call "style" in running, while a few endeavour to cultivate it to excess. Though in this case the few probably do themselves more harm than good, I am certain that a little trouble taken to follow the established canons of good style is by no means wasted.

If you conjure up in your mind's eye the usual spectacle presented by the "field" during a race at any local or village sports, and then compare it with the spectacle of a like number of first class athletes competing over a similar distance at an international meeting, what is the most noticeable difference between the two? Obviously it is the difference in "style" between the raw runner and the experienced athlete which is always most noticeable.

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When looking on at a race at village sports one is often astonished that a number of men in the act of running—presumably a natural movement—can present so ungainly and almost objectionable sight.

Clad usually in shorts and vest of weird and variegated hues, they career by diverse methods around the track. One may see in the same race first a short stoutly-built little man getting over the ground with the smallest stride imaginable, with twinkling legs, knees hardly lifted at all and perhaps rather flat-footed.

Then follows perhaps a tall man, all knees and elbows, the former lifted high in the air at each step like a trotting horse, the latter stuck out at right angles to the body and jerked from side to side with every step. It is the same with all the rest. All run in an ungainly way, and their very methods and action prevent them from travelling fast. It is most noticeable how few runners, save the very best, carry their heads in a correct fashion while running. The large majority forget that for its size it is the heaviest part of the body, and throw it

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back between the shoulders, thus causing the body to lean back also. In consequence there is no "following through" of the whole body at the end of each stride as there should be if the runner is fairly upright with a slight forward inclination, and in consequence the next stride must be more jerky and requiring greater effort. A man should feel that he is running smoothly, his centre of gravity so poised as to create a feeling of almost falling forward with each step. K. G. Macleod, a great natural sprinter, would have been, I believe, a yard faster in the hundred if he had not allowed his head to sink right back between his shoulders, and had not fought the air so much with his arms.

It should be one of the aims of the advisers attached to the athletes' advisory club to instil right methods of carriage and style into the minds of all who are anxious to improve. For those who are willing to take the trouble, W. G. George's "100 up" exercise mentioned above, if carried out correctly, will help to form a man's style on a sound basis.

At the same time I do not wish to imply that

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an athlete ought to go out of his way to cultivate a style of running which is unnatural to him merely because it is pretty or elegant from a spectacular point of view. Some great runners have had most ugly actions, but yet have accomplished great feats. A good running style should be that which is at once easy and natural to a man, and also one which enables him to get over the ground at his best pace, with the least exertion. It will be found that it is the really good style which entails the least exertion, and towards the gaining of which a man should always be directing his efforts.

Runners of comparatively short distances, that is up to a mile at least, should endeavour to cultivate a long and springy stride, swinging as much as possible from the hips. The length of stride is to be aimed at, but there should not be any exaggeration or effort used. The athlete must accommodate the length of his stride to the length of his leg and the varying degree of suppleness with which it swings from the hip. While running at half speed in a natural manner, a man should gradually begin increasing almost

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imperceptibly the length of his stride. If he is running well on the ball of the foot, with head and body erect, and very little inclined forward, and arms swinging easily, he will find that a very slight increase of stride requires very little effort, and yet appreciably increases his rate of progression. By continually practising this, a man will soon discover that his *natural* stride has grown longer than it used to be. It is a very useful thing to learn by practice how to lengthen the stride with ease for fifty yards or so, as by this method in a race a man can pass an opponent, or suddenly quicken his pace when leading without taking much out of himself by sprinting.

When practising endeavour to keep the body as steady as possible. Any rolling and swaying from side to side detracts from the smoothness of the striding action, and tends to cause the feet to travel slower and more unevenly than they might between the strides. Do not be tempted to look down at the feet to see how you are going. You can tell by instinct and "feel" if you are moving correctly, and any lowering of

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the head alters the balance of the whole body and may cause the stride to lessen.

Facing this page is a photograph of R. W. Barclay, one of the most consistent and brilliant of quarter-milers leading in beautiful form at the first corner of a quarter-mile race. The next illustration shows the same runner leading round the last corner at Queen's Club. The position of his lower limbs shows clearly that fast running is simply a succession of long smooth leaps.

No good runner ever turns his toes out. The runner's aim should be to throw the foot straight out in advance of the knee as far as he possibly can. It is often easy to tell a good runner from an indifferent one by observing whether the foot seems to reach the ground in advance of the knee, or a straight line drawn down from the knee to the ground. If his toes are turned out as the foot meets the ground he will lose an inch or two with every step, and inches count in a race. Again many men gain extra length of stride by a peculiar swing of the hips inwards with each stride. When this swing is apparent it will

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be found that a runner's foot-marks are almost in a dead line behind each other, and this usually conduces to speedy running and long striding.

A man learning to improve his style or length of stride should always do so while running at only half speed or well within himself. He will then be able to give his whole attention to the fault which he wishes to correct, or the good point which he wishes to develop.

He should never allow himself to run in a slovenly way while training. Bad habits are very easy to acquire through simple carelessness, but it is not easy to pick up good ones.

But while long and springy striding from the toes is eminently suitable for the short-distance runner, it does not necessarily follow that the same methods are suitable for longer distances. The longer the distance the greater the strain on the propelling and weight-carrying muscles, and it is just as important to avoid fatigue as to acquire speed.

A man who throws his feet out well and runs springily will, after a short time, find that his knee-joints get very tired, and realise that for a

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long distance a long stride entails much greater exertion than the quick short and "snappy" step which most first-class distance men make use of. It is obvious that when a man is striding long, certain muscles are used very severely to propel him through the air from one stride to another. A stride of nine feet is not uncommon for a quarter-miler to take when travelling at full speed, and to achieve this both legs must be off the ground for an appreciable space of time. In short he is really progressing by a series of smooth but definite "leaps." For a short distance this is all very well, but over a long distance the strain on the muscles will soon become evident, and the long-distance runner has realised that a short stride, though the legs have actually to go through more movements to cover the same amount of ground, is far less tiring and wasteful of energy.

Conservation of strength and energy are the chief aims of the long-distance men, and by combining the neat body and arm action mentioned above, with a short but easy stride, all unnecessary strain and jarring will be avoided.

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In this case the athlete should run more from the knees than the hips, and in consequence will find that he need not lift his feet far from the surface of the track. The inclination of the body should always be slightly in advance of the perpendicular, as otherwise the beginning of each stride will be checked by the pull back of the dead weight of the upper part of the body, which may tend to make the runner flat-footed. In conclusion, correct style in running can only be achieved by constant and diligent practice, but I am sure that attention paid to a few little details such as I have mentioned above will improve the running capacity of many who have never considered it worth while to pay attention to such things before.

JUDGMENT

Another point which the inexperienced runner often fails to grasp is the importance of using the head and judgment during the running of a race.

This of course is unnecessary in short straight-away sprints in which the only thing needful is

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for a man to start at his fastest and try and go faster.

But even in short distances, when the race is run round a curve, a little common sense and judgment are necessary.

A very great number of runners do not seem to realise that the distance round a track is usually measured a few inches, or not more than a foot from the inside edge. It stands to reason, then, that if you are running a 300-yard race round a quarter-mile track, starting on a straight of 100 yards, round a curve of 80 yards, and finishing up a straight of 120 yards, you will run a good bit more than 300 yards if you choose to run outside two or even one opponent all round the curve. To prove this practically run outside a friend, stride for stride, down the straight and try to continue running at exactly the same pace and with the same length of stride round the curve. If you have both continued at exactly the same pace as down the straight, you will find that the inside man will enter the next straight with a comfortable lead. It is to rectify this that when a furlong race is

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run round a curve between tapes, the men drawing the outer positions always seem to start on marks apparently in front of the inside man, the distance between the outer man's mark and the man with the inside berth being the greatest.

For any short distance, then, not run between tapes, it is advisable to make for an inside berth, even if you cannot get the lead, and at all events do not try to pass opponents round the curve where you have to be running faster than they are, even to keep up with them, and where they make you travel even further by edging out a little into the track.

The worst thing that can happen to you is to get "boxed in" round the curve. By this I mean the position you find yourself in when you are running just behind the leader, while one or two others are running level with the leader and yourself, in which case you can only hope that on entering the straight the leader will edge out a little and give you room to get up on the inside. Anyhow, it is useless to try and go outside the whole lot, and many a man has

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lost a race which he ought to have won by this hard luck befalling him. It is possible partially to avoid being "boxed in" occasionally, by not allowing anybody else to come up level with or pass you. You must edge out yourself and draw up a bit on the leader, thereby not allowing yourself to be fatally shut in, at the expense of sacrificing the inside berth.

This "shutting in" is most often fatal to men in 300-yard and quarter-mile races, which may happen to finish on a short straight, not long enough to allow the strong finisher to circumvent his obstacles and get to the front. In cases of this sort any one in danger of being shut out is quite right to make every effort before or even during the final curve to get out of his predicament even to the extent of running right outside. It is better to have made an effort (even at a great cost) and lost, than to have allowed circumstances to prevent the effort altogether.

While on this subject, one word of warning with regard to running too close to the pole. Some tracks have their inside edges boarded, or

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at any rate the corners so treated, to bank up the turf. At Queen's Club the boarding is both high and formidable, and the runner must be careful not to run so close to it as to risk catching his spikes in the planking. The least touch may cause a nasty fall, as has often been witnessed in the inter-University sports from carelessness on this point.

When running a short distance make every effort to pass your opponents early in the race if you know that they are stronger finishers than yourself. It is better to have made an effort early, even if you are beaten, than to risk being blocked, or being left so far in the rear as to make an effort valueless.

In races over a long distance it is sometimes advisable to pick out from the field a man whose pace you think will suit your own, and run just behind him, using him as a wind-shield and a pacemaker. Running just behind an opponent takes a man's thoughts off the subject of his own running, and prevents him from dwelling on such unpleasant theories as to whether he is likely to last out the distance, or is going too

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fast ; it also tends to make the distance seem shorter.

Again many a man has lost a race through making his effort too late or too early, usually too late.

This error of judgment almost always is due to lack of confidence in, or insufficient knowledge of, one's own powers. Methodical training should be the cure for this. A man should practise and train over the distance he intends to race over in such a way as to know instinctively at what point he can make his great effort with most certainty of success and of getting the utmost out of himself. He should also in practice remember to allow for a little extra margin of pace from the stimulus which the excitement of the actual race produces.

In most cases the runner is at fault in that he leaves his effort till too late. In this connection again the runner should bear in mind that it is better to have made an effort and lost the race, than to have left it so late that he has never been able to make use of his reserve strength and done his latent powers due justice.

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It is better for a man that he should be overconfident than be nervous and under-estimate his powers. The usual effect upon one's opponents if one makes an effort early often assists one on to victory.

Another error of judgment which is not at all uncommon is seen in the carelessness with which many men finish a race in which they imagine they have the issue safe, or at any rate have gained a place in the final if it happens to be a heat. Such carelessness often results in the prospective winner being rushed on the post by an inferior opponent and perhaps being beaten by inches for first, second or third place, as the case may be, through inability to quicken up again and forestall a challenge when once the tension of nerve and muscle has been slackened.

Such carelessness is often occasioned by the desire of an apparently easy winner to run in "prettily" and be caught by the camera in a becoming pose. The man who is so vain as to think of this deserves to lose.

Such instances of carelessness in presumptive winners should encourage men who seem

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apparently hopelessly beaten for a win or a place, never to give up till the tape is passed. They should stick to it till the very last, trusting that the leader, forgetful of danger behind, may succumb to that fatal desire to ease up before the tape is reached, which has proved the undoing of so many inexperienced runners. The last supreme effort of an apparently well-beaten man has often achieved a well-merited if surprising success.

Another bit of advice to runners is to warn them against looking round unnecessarily and frequently during the progress of a race. It has been found that the act of turning the head while running causes a man to drop as much as a foot in his stride without realising it, and in a short-distance race this is obviously inadvisable. In short-distance races a man should never look round, while over longer distances if he wishes to have a look at his field, he should do so just after passing a corner, when he can easily turn his head, and a quick glance over the shoulder will tell him all he wants to know.

At all events the jerky and unsatisfying

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glances backward which one often sees a runner indulging in for apparently no reason whatever should be avoided. When a man's opponents are close to or just behind him, he can easily tell by ear whether they are gaining on him, and the length of their stride and the condition of their wind can also easily be gauged.

CHAPTER VI

SPRINTING

I PROPOSE to devote a chapter to the races which are commonly called "sprints," *i.e.*, the short-distance races over which a man can run practically at top speed. In the past there may have been a few men, and in the future there will probably be more, who could run as far as a quarter of a mile in one long sprint, but they are outstanding exceptions. I have very rarely come across anybody who could run 250 yards absolutely at his highest speed and finish really strongly. But in this chapter I propose to deal with all the usual distances raced up to 300 yards, all of which ought to be run as "sprints" pure and simple.

There are always a greater number of competitors for short sprints than for races over any other distance.

After all, the short sprint has probably been the

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most useful and natural sort of running which human beings have indulged in since the days when they fled to their caves and rocky homes at the approach of the sabre-toothed tiger and other prehistoric animals.

Everybody can sprint a bit, and any one can become fairly fast with a very little practice, unless old age has stiffened his joints, or adipose deposit formed upon his muscles.

Sprinters may be of all sorts and sizes, but to assure success it is requisite that they have strong muscles in the back, thighs and shoulders.

It was axiomatic in the old days that the sprinter should be a small man, quick and nimble on his feet ; but to-day the best sprinters all seem to be on the big side.

Ramsdell, of Pennsylvania, U.S.A., winner of the Hundred Yards and the Furlong races at the A.A.A. Championships of 1910 and 1911, is a gigantic man with splendid thighs and loins, and probably weighs well over thirteen stone.

It was most noticeable in their 1908 Olympic

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Team how tall and long-limbed most of the Americans were.

Nat Carmell (also of the U.S.A.), winner of the Furlong in the 1909 championships, is a big man, while Donaldson, who has recently run a hundred yards in $9\frac{3}{8}$ seconds, and 130 yards in 12 seconds, is another giant.

Sheer strength of propelling muscle and lengthy stride can be utilised with the help of American training methods to surpass the records of the typical slightly-built sprint champions of the past. There is no doubt that by momentum a heavy man's weight helps him along if he is capable of getting up great speed quickly. But it requires months of training and practice to enable the big man to acquire the muscular propelling power that will enable him to shoot "out of the slips" as quickly as a lighter and more nippy opponent. When once that initial difficulty is overcome, and the big man can hold the smaller over the first fifty yards, the former's length of stride and weight will probably enable him to be the speedier finisher.

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As everybody knows, almost the whole secret of winning short sprints is to learn to be a good starter.

However speedy a man may be, if he is left at the start he will probably not have time to pick up the ground he has lost in the space of a short hundred yards.

There are two methods of starting—the old erect posture and the modern crouching or “all fours” method, as I will call it.

The old method of starting was as follows :

The runner placed the toe of one foot (it matters not which, and I will suppose it to be the right) on the starting line, generally making a small hole or depression to rest it in ; the toe of the left foot should rest in a slightly larger hole at a comfortable distance, say, eighteen inches behind the heel of the front foot and slightly to the left of a line drawn straight back from that foot.

The weight of the body should rest almost entirely on the right leg, and the knee should be slightly bent.

The left leg, also a very little bent at the knee,

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should support very little of the weight, just enough to maintain the equilibrium of the body and be used to shove off violently at the report of the pistol.

The body of a man standing in this position will be at an angle to and not square with the starting line, and the arms should be extended much the same line as the body, the right arm stretched forward in line with the right thigh and the left arm backward in line with the hinder leg.

This posture helps to balance the runner, who should be poised on the toes, with the body leaning well forward.

I cannot honestly recommend this method starting for short-distance runners, who should learn the "all fours" method of starting, but for longer-distance runners who do not require to get into their fastest stride at once, the other method is the best, and saves time. It is unnecessary for a man who never runs a shorter race than one of six hundred yards to learn the "all fours" start, and some very tall men, and others who can not master its difficulties.

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ties, will be well advised to keep to the old methods.

This crouching posture on the mark came into vogue about twenty years ago and is now quite universally practised by sprinters. The outstanding features of this method are that it assists a runner to keep steady on the mark while awaiting the report of the pistol, and also undoubtedly enables him to get into his running very quickly, so long as he masters one or two difficulties which will confront him from the outset.

The following are the chief points of this method, which I will describe as if actually instructing a man on the track.

Take up your position behind the starting line, and with the left foot (most men start with the left foot in front, though in a few cases runners have found that placing the other in front is more comfortable) about six inches behind the line, and the right foot about two feet six inches behind it, and about six inches to the right of a line drawn straight back from the left heel. Balance the weight of the body on the ball

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of the left foot and the toe of the right foot. Now bend the right knee until it touches the ground, about level with the instep of the left foot, and place the fingers of each hand on the starting line. at a comfortable distance on each side of the body. If you find this position comfortable mark the exact position of the toes; get up and scrape holes for the feet, a shallow one for the left, and a good deep one for the right. Go down to your marks again and make sure that the holes are quite in the best position for a strong shove off.

When preparing for a start raise yourself slightly on the toes of both feet, keeping the balance by just allowing the tips of the fingers to rest on the line. The photograph facing page 86 exemplifies this position.

When in this position let little or no weight rest on the right leg, but chiefly on the front leg and the fingers. Keep the head down, and never look up or in front of you. When starting from a pistol think of nothing but the starter.

At the report push off hard with the back leg, the front foot remaining stationary. Some

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people aver that it is the front foot which should make a little forward step first ; but most modern sprinters are against this. If nearly all the weight is poised on the front foot a forward movement of this kind would upset the balance. The photograph facing page 37 shows a runner just in the act of shoving off with the back leg.

Do not attempt to make the first few strides long ones ; the first stride should not be much more than three feet in length But at the same time it should be a “ stride ” and not a plunge. Above all things keep the body low at the start and do not straighten the back with a jerk in the first seven yards. This effectually prevents a man from getting into his running smoothly, and is one of the worst habits which all novices, and tall men especially, have to fight against.

Do not “ jump ” out the marks, but “ run out ” as smoothly and evenly as possible. Your length of stride should increase gradually until at about the tenth the full pace is reached. A man should run from the hips as much as he can in the early part of the race with body leaning well forward, so as to gather momentura as

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quickly as possible. The arms should swing freely backwards and forwards and fairly low. The habit of getting the elbows up and sawing the air tends to make the body action jerky and to throw the head back. For all sprints you should take a deep breath while waiting for the pistol ; in a hundred-yards race this will probably last you till half way if the lungs are in good condition, and you will only require one more at the eighty yards mark before the final effort.

A man should spend some time in getting used to the kneeling posture on the mark, and practise raising himself into the most comfortable and well-balanced position for the actual start that he can find.

He should wait actually kneeling until the starter's last word before he fires, and always find out exactly what the starter's final words are. The starter's usual formula is : (1) " Get on your marks " ; (2) " Get set " ; (3) " Bang." But some starters merely say " Get set," and then fire, and those who are expecting two sentences of warning get left.

Some men endeavour to " beat the pistol " ;

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that is, they try to be moving off the mark at the moment they imagine the starter's finger is pressing the trigger. But honestly this habit is both unfair and not really worth cultivating. Facing page 92 is a photograph which clearly shows how the second man from the left has beaten the pistol.

Always practise several times with the pistol before the race, or at all events get a friend to stand behind you on the mark to give the word and start you with a clap of the hands. Practise especially shooting off the mark with the body held low and without jerking it up. The body should be gradually raised to the erect position during the first fifteen yards. It is not a bad plan to practise running from the start with an exaggerated stoop for several yards to get accustomed to the feeling of raising the body upright gradually while the legs are in motion.

The sprinter has to make use of all the physical strength he can summon up to enable him to be travelling at his fastest within a few yards of the start. If you watch the start of a hundred-yard race you can see what a strain the men put upon

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the muscles of the calf and thigh, and how the ground is spurned up by their feet. But though the legs must make great efforts, the feet should not be raised too high from the ground: this wastes precious time. The photograph facing page 93, which is of the start of the inter-Varsity 100 yards, demonstrates the great physical effort required for starting.

The feet should skim the ground as closely as possible without actually touching it. Good sprinters seem to glide over the ground without wasting either time or energy in throwing up the knees.

Owing to the amount of muscular strain which the crouching method of starting entails, it should be practised in moderation. If due precautions are not taken, the muscles of the thigh and back may be strained or even snapped. It is not wise to attempt the "all fours" posture until they have become supple and elastic from use. It is quite possible to practise fast dashes to improve the speed by trotting up to a mark on the ground and then sprinting on hard, as if from the pistol. When running these sprints or

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practising with a pistol do not ease off suddenly but gradually, “ without putting on any brakes.”

In training for a hundred yards a man should not often run the whole distance. Once in the day is quite enough, but always, if possible, run the distance accompanied by or paced by a friend, and always finish right out and beyond the hundred-yard mark. Many men seem instinctively to slow up during a hundred-yards race when they have passed the ninety-yard mark simply because they have always slackened up at the same spot during training.

In practice then run right through to 105 or even 110 yards, and in the actual race always imagine to yourself that the winning post is five yards beyond the tape.

It is when a man is leading, if only by inches, ten yards from home that he is most likely to ease a very little bit if he has not often practised hard over the last part of the race.

The finish of the hundred-yards race is nearly as important as the start, and men who find that they are not good finishers should make a point of running through 150 yards very often in

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practice, running the first hundred yards at nearly their best pace and going all out in the last fifty, and should race 120 yards at least three times a week. The photograph facing page 105 clearly demonstrates the necessity for finishing “all out” in short-distance races.

Modern sprint-racing up to 150 yards is usually run on a “straightaway track,” and each man runs between strings. This fact should help a man to run in as straight a line from start to finish as he possibly can.

When training, always run in the best form you can. Never even in practice run carelessly or slovenly. The arms should, if possible, be held low, the elbows hanging loosely and not squared.

Practise swinging the hips forward a little with each stride when travelling fast. This helps to increase the length of stride, and if done easily and evenly will keep the runner's course very straight. If you look down a well-brushed and levelled ash track after a good runner has sprinted a hundred yards on it you will very often see that all the footmarks are very nearly

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in a straight line behind each other. Many Americans, and very often short-legged runners, run very slightly bow-legged, and aver that the consequent diminution of stride and swing is compensated by the powerful inward shove they get from the straddle of their legs.

One can easily tell these men by their marks, for naturally looking down the course after they have run one sees two tracks side by side.

LONGER-DISTANCE SPRINTS

The fifty-yards dash and the hundred-yards race are both excellent tests of speed, but, in my opinion, in both events so much depends upon the actual start that in many ways the "longer-distance sprints," as I propose to call them, afford a better test and more satisfactory results.

By "longer-distance sprints" I mean the usual distances raced up to, and including, the 300-yards race.

All these distances should, of course, be run as "sprints" pure and simple, though I know

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that there have been very few athletes who can be said to have ever been able to sprint the whole of the last-named distance.

Very few distances over 150 yards are run on a straightaway track without a curve. Therefore it is advisable, in the first place, for a sprinter to learn to take a corner well when going at full speed.

With the exception of the Universities, practically all tracks are "left-handed," *i.e.*, the runner's left leg is the inside one and nearest the pole.

A good tip to runners negotiating a left-hand corner at a fast pace is to keep the left arm rather lower than usual, and to raise the right slightly. This action will be found to assist the runner to keep close to the edge when coming round the last part of the curve into the straight, this being the moment when he is inclined to lose a few inches by steering too far out into the middle of the track.

Never try to pass an opponent—unless absolutely necessary—on the sharpest part of a curve : he will at once be inclined to run a little

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wide himself and cause you to run still wider and cover a great deal of unnecessary ground, besides having a longer curve to negotiate on coming into the straight.

There is not much difference in the advice suitable to furlong runners from the hints given above to hundred-yard men. If there is a draw for stations and the race is run between strings round a curve, always choose the inside berth if possible, unless the track has been cut up much or is very wet. The fact that the men with the outer positions *seem* to be in front of you at the start may help to draw you out. If you are in receipt of start in a handicap, take no thought of the men behind you and resist any inclination to wait on them. Remember that you have to *keep* in front of them, and that if you once allow them to get up with you at all they will almost certainly beat you.

Go all out for the tape from start to finish.

Start in exactly the same way as for the hundred yards, keeping the body low and rising gradually. There is more time in this race to lengthen the stride, and a man should be faster

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over the middle and finish of a furlong race than over any other distance. The tendency to throw the head back and fight the air with the arms during the last fifty yards is often very strong, but must be resisted. Finish right out and five yards beyond the tape.

This race is usually won by inches, and many a desperate challenge has been beaten off, or a race pulled out of the fire by a man running right through and five yards over the distance.

Training for this event should be exactly the same as for the shorter dashes, but once a week, at least, the runner should run well through 300 yards, and at least twice a week sprint for 250 yards.

The British Amateur record for this distance was made as long ago as 1887, when G. C. Wood covered the distance in $21\frac{4}{5}$ seconds. Assuming that he ran the first 120 yards in 12 seconds, he must have covered the last hundred yards in $9\frac{4}{5}$ seconds, which, with a flying start, is of course quite practicable.

Robert Kerr, the Canadian, is said to have improved on this time to the extent of two-fifths

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of a second, while Dan Kelly and B. J. Wefers, of the U.S.A., are reported to have equalled $21\frac{1}{5}$ seconds.

The average runner ought to make it his endeavour to get as near 23 seconds as he can. He will be up to championship form as soon as he can begin to take a few yards off that.

The 250-yards race is not often run, and in connection with it any remarks referring to the furlong are equally apposite.

The English Amateur record for the distance is $24\frac{4}{5}$ seconds, created by Mr. E. H. Pelling in 1888.

We now come to a distance which, in my opinion, might be raced over a great deal more than it is. I refer to the 300-yards race.

There are many strong sprinters who have never managed to make themselves really first-class off the mark, and have in consequence never done justice to their powers in such events as the hundred yards and the furlong, in which races the yard or so lost at the start can never be made up against capable opponents. For such men there is usually nothing left but the quarter

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mile, which is really quite a different sort of race.

That the 300-yards race can be run practically as one continuous sprint is shown by the fact that Lieut. Wyndham Halswell, the famous quarter-miler, covered the distance in $31\frac{1}{5}$ seconds in 1908. In this he probably ran the first hundred in $10\frac{4}{5}$ seconds; the second in 10 seconds; and the third in $10\frac{2}{5}$ seconds.

Over this distance the long-striding sprinter usually has the advantage over his more short-legged opponent as the last eighty yards must put the propelling muscles to a great strain.

To run this distance well a man should go off at his hardest, as if starting for the hundred-yards dash. The race is bound to be round a considerable curve and, of course, it is a great advantage to be leading with the inside berth round that curve.

Nobody can really keep up a hundred-yards pace for three hundred yards, so that it is as well to take a pull on oneself round the curve. The sprinting stride should become a little slower, but slightly greater in length, until the straight

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is reached, when the runner must choose for himself whether he can get the greater pace out of himself by breaking into his sprinting action again or by merely quickening the stride without diminishing its length. In most cases it is not advisable to change the style in the middle of a race unless you have proved to your satisfaction in practice that the results justify the experiment.

While making the final effort endeavour not to lose all form. Many men think that they will travel faster by getting the elbows up and putting in a lot of arm work. This is an error, as it is much more likely to interfere with the balance of the body and cause the stride to become irregular, and tempt the runner to throw his head back. Concentrate the mind rather on keeping the head and body inclined forward, the hands low, and the legs well thrown out in advance with each step.

In this race never go off at a slower pace than your fastest sprint. If you make this error and go easy in the first hundred yards you will be last round the bend into the straight, and though you may finish like a lion you will not be able to

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catch opponents of any class. Especially when starting as a back-marker in handicaps make up your mind^d to make your greatest effort at the start and get on terms with your field before the furlong mark if possible, and you will find you have quite enough left in you to finish strongly.

Remember that you will probably do a faster time for the distance by running all out for 250 yards and scrambling home somehow than by covering the first hundred yards at a relatively slow pace and finishing like the proverbial stag.

On coming into the straight never "let up" an opponent on your inside, and never begin to slow up ten yards before the tape unless you are at least five yards ahead of your nearest opponent. An apparently beaten man over this distance often finds himself capable of an astounding access of speed in the last few yards, which may enable him to surprise and defeat a leader who may be taking it easy.

For sprinters pure and simple, training for this distance should consist in an occasional run through 600 yards, varied by good fastish quarter miles, and plenty of furlongs at top

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speed. The quarter-milers who wish to turn their attention to this distance should not greatly vary their ordinary routine, with the exception of paying more attention to 150-yard sprints at top speed, and run the actual distance several times to get out of any dawdling habits which quarter-miling may have inculcated.

CHAPTER VII

'THE QUARTER MILE

THIS race is one of the most interesting of all races, both from the participators' and the spectators' points of view. Absolutely the best quarter-milers usually form a class by themselves as distinct from the sprinter who can stay the distance, and the half-miler who has sufficient pace to run a fast 440 yards.

Both of these types of runners may occasionally end by being first-class quarter-milers, but it will be found by analysis of results that the majority of the very best quarter-milers who have existed have excelled at their own race alone, and not been out of the way either as sprinters or half-milers. At the same time quarter-mile running should be regarded as excellent training and practice for those runners who usually specialise in longer or shorter distances.

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In order to cover the distance in approximately 50 seconds, which is the time which I will select as the one to be aimed at by most runners who wish to be above the average, it will be seen that each hundred yards must be run in about $11\frac{2}{5}$ seconds. Thus the man who is capable of running a hundred yards in $10\frac{4}{5}$ seconds, by attending to his staying powers *ought* to be able to run practically what amounts to four and a half hundreds fairly easily in $11\frac{2}{5}$ seconds per hundred yards, more especially as it is quite easy to run a hundred yards in 11 seconds, *without sprinting*, given a flying start.

When we come to actual facts, however, we find that only very few men have ever covered the quarter in 50 seconds or under, while 51 seconds seems to be fast enough to win many championships. We are forced to the conclusion that it is beyond the limits of the strength and endurance of 99 per cent. of runners to run as much as 440 yards at a pace very nearly equal to sprinting without collapsing before the finish, or yielding to a fatal desire to ease up a bit at the half distance.

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Until Myers, an American, some thirty years ago, won the championship quarter in $48\frac{3}{5}$ seconds, practically all runners treated this event as a waiting race, going easy for 280 yards or so, and sprinting the last 160. Since then, however, quarter-milers have decided that the most satisfactory results over this distance can be arrived at by running the race in a sort of crescendo—starting very nearly at top speed and endeavouring to get a little faster by working up the length and pace of their stride throughout the race.

At all events it has been proved that length and strength of stride are absolutely essential to a good quarter-miler. The leg-muscles of the quick short-striding sprinter will never be able to stand the strain of a hard finish if he has already travelled 400 yards by the same methods with which he would cover a hundred yards.

I propose to deal with the two types of runners who most usually are found in the ranks of the quarter-milers.

They are, firstly, men who are essentially

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sprinters, who hope to be able to find enough stamina and lasting power to stay the distance ; secondly, men who are not remarkable for great pace in shorter races, but who can easily stay the distance, and whose chief desire is to find enough speed over the first half of the race to enable them to be on terms with the sprinters for the final struggle over the last 150 yards.

I would remind both types of runner that the quarter mile is an exceptionally trying race for both legs and wind. Any experienced quarter-miler will tell you that there are two unpleasant sensations which can be avoided by careful training. One is the sensation of coming into the straight for home feeling apparently quite strong and fit, but suddenly to lose all control over the legs, which feel as if they no longer belonged to you and cannot be made to move forward at all ; the second is the still more unpleasant sensation of realising that one's legs are fit and strong, but that one's lungs are spent and unable to perform their functions satisfactorily enough to enable one to finish.

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a quarter after running 350 yards at nearly top speed.

The athlete can make the first of these situations unlikely to occur by running slow half miles and moderate-paced spins of six hundred yards until he feels that his leg muscles are tough enough not to feel any strain over a shorter distance.

To avoid the second evil sensation he should then proceed to run short distances as fast as he can, beginning at 150-yards dashes and gradually increasing the distance up to 360 yards till he is fairly assured that his lungs can stand the extra strain entailed by running such a long distance at high pressure.

The sprinting type of quarter-miler should of course spend most of his time in making certain of his lasting powers, *i.e.*, by often running a steady 600 yards, endeavouring to maintain good form throughout, and remembering to throw out his feet at each step, thus acquiring increased length of stride. After running the first 400 yards steadily he should appreciably quicken in the last 200 yards—not by dropping

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into a sort of gallop, but by adding another few inches to his stride, while trying all he knows to run well up on the toes, and keeping the body always inclined forward.

He should always in these training runs force himself not to give up fifty yards before the end of the distance he has set himself to run, just when the unpleasant sensations begin, but should struggle right on to the end somehow, otherwise he will never learn to run himself out, which the good quarter-miler should always be able to do. But with regard to this point I do not advise a man to try and run himself out *early* in training. He can adapt his pace over the first 400 yards to avoid this, or begin his final spurt a few yards further on.

This 600 yards should be run on alternate days only. After running a sound 600 yards on a Monday, I would advise a man to do short work on the Tuesday. Let him practise a few starts from the "all fours" position, and then making a mark at the beginning of any straight hundred yards on the track, let him stride easily for 50 yards up to this mark, and then run as

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hard as he can for a hundred yards, easing up again quite gradually.

This course of training practised on alternate days ought to increase the staying powers of a man and maintain his speed.

Three days before a quarter-mile race it would be advisable to run a five hundred-yards trial at almost full pressure, and the next day do nothing but stretch the legs round the track once, and run through a couple of hundred-yard dashes.

The second type of quarter-miler should follow very much the same course of training, but should pay more attention to practising over the short distances. Pacing with a friend over three hundred yards, three times a week, starting off at full speed, is an ideal preparation, and he should practise breaking into a sprint while running at three-quarter speed.

During the running season he should enter for as many hundred-yards and furlong handicaps as possible. It is sometimes astonishing how much faster as a sprinter a long-striding quarter-miler can become by much racing.

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We will suppose that an actual race in which you are competing is just going to be started. Having drawn your position, select your starting mark quickly and make your holes in the same manner as described on page 91. Having got comfortable, run out of the holes easily down the track for thirty yards, on the toes, if you have time, in order to keep warm and to avoid standing about. Do not go down finally to your marks until absolutely necessary. Slightly raise yourself at the word "get set" and dash off just as in a hundred-yards race at the report of the pistol, remembering to raise the body gradually. Always aim at getting the lead at the first corner, and if you are successful keep it if you possibly can. At any rate make the pace fast enough to cause anybody who tries to pass you to waste a great deal of his superfluous energy. If you cannot get the actual lead endeavour to get a good place on the inside, always looking out for and avoiding the possibility of being badly "boxed in." If you are running second to a sprinting type of quarter-miler, try and "jump" him down the

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first straight 150 yards from the start, that is, put on a sudden burst just when he is beginning to settle into his stride and not expecting a challenge. In a quarter-mile race it is always better to lead a man who is much of the same calibre as yourself, and tempt him to try and pass you on a bend. When running against a long striding man who is capable of doing much the same time over the distance as yourself, your only hope is to get in front of him, and endeavour to steal a few yards lead into the straight and trust to fortune that your pace will last you long enough to stave off his stronger finish. When two men capable of doing much the same times, the one a sprinting type of quarter-miler and the other long striding type, come into the straight on fairly equal terms, it is always long odds on the latter, unless the race has been very slow and the sprinter has still a lot of dash left in him.

Anyhow, never give up the race as hopeless forty yards from the tape, as many men do. The quarter is a trying race whether it is run slow or fast, and many men who may look all

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over winners coming into the last straight, often crack up suddenly from those nasty "lung or leg sensations" mentioned above, if their opponents stick to them to the bitter end. Similarly let not the better man despise his opponents struggling in the rear too much.

In the course of the heats of the Quarter Mile Championship race of 1911, in which only actual winners were eligible for the final, one of the best English quarter-milers had his heat at his mercy from start to finish. But through dropping his hands and involuntarily easing up fifteen yards from the finish he was taken by surprise and beaten by inches on the tape by the last desperate effort of an inferior runner and one apparently well beaten to boot !

In my opinion the most likely type of man to develop into a good quarter-miler will probably be above the average height, long-legged, and capable of running quite a good half mile as well. The better stayer a man knows himself to be, the more confidence he will have in himself to start his quarter-mile races absolutely at top speed. Starting at top speed

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is really the whole secret of fast quarter-miling, and it is very difficult for many runners to follow this policy, a man's natural inclination being to reserve his strength a little for a race which always seems so long when he is actually about to start for it.

I believe that the best way to run a quarter is to run the first hundred yards as fast as possible. By then the runner will be able to drop into his longest easy-going stride which ought to carry him along almost at sprinting pace. Just before the last corner he should quicken a little in order to counteract the slowing-down tendency which generally affects a runner going round a corner, and on coming into the straight, put on all steam possible by simultaneously lengthening and quickening the stride.

Lieutenant Wyndham Halswell, one of the best quarter-milers of recent years, and amateur champion in 1905, 1906 and 1908, used generally to run according to the method described above, but started his final sprint two hundred yards from the tape, and usually gained so long a lead that in the last thirty yards of the

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race, when his stride was beginning to feel the effects of his great effort, there was nobody near enough to take advantage of the momentary faltering.

To my mind as soon as a man has got himself in fairly good trim he cannot train in a better way for the quarter mile than by alternately trying to get well inside 1 min. 16 sec. for 600 yards, and 33 seconds for three hundred yards, and when once he is certain of staying the full quarter mile, turning his attention more to the shorter than the longer distance.

I would advise all quarter-milers to adopt the "all fours" starting position, as a good start is essential if the lead or inside position is to be gained. But care must be taken not to overdo this starting practice, especially by big men, for whom the strain on the back muscles is considerable.

If you have confidence in your own powers never be afraid of making the pace, and making it hot. The field *must* follow you close, as the race is too short for them to let any one man have too long a lead. If possible never let opponents pass you on a straight bit of track,

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but always make an effort to live with them till the curve, when they will think twice about it, and perhaps, on second thoughts, drop back.

Lieutenant Wyndham Halswell holds the British Amateur record for this distance, which he covered in $48\frac{1}{2}$ seconds in 1908. On a straight track M. W. Long, of the U.S.A., ran a quarter mile in 47 seconds, and it is not likely that this time will ever be beaten. Fifty seconds has only been beaten five times in the Amateur Championships, and anybody who can get under 51 seconds may consider himself a quarter-miler above the average.

Facing page 122 there is a photograph of the finish of the Quarter Mile Championship in 1909, resulting in a dead heat between L. J. de B. Reed (on right) and Lieutenant Alan Patterson.

THE SIX-HUNDRED-YARDS RACE

This distance, though not often run at sports meetings, is coming into favour with athletes more and more, and rightly so. Looking at it from a utilitarian point of view there is no

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distance so good for the training of both half- and quarter-milers. It is in itself a very pretty race, being not quite so strenuous as the quarter and not so fatiguing as a half mile.

It is generally run at a good striding quarter-mile pace for 500 yards, quickening up to the best pace possible over the last hundred yards.

Personally I think a man will do the fastest time over this distance by starting at top speed for eighty yards, striding fast up to four hundred yards at quarter mile pace where he should ease a bit and pull himself together for a good long stride home, finishing the last 40 yards "all out." The easiest way to run it is to try and stride the whole distance after the initial burst in the long fast striding action in which a man ought to find himself travelling in the middle of a quarter-mile race.

In this race there is more time for the display of tactics and generalship than in the quarter mile. It is not so important to get the lead early, and sometimes it is useful to play a waiting game.

Then the question arises, at what moment

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and at what distance from the finish is it best to make an extra effort? My advice is always to make the effort in the actual race a little earlier than you feel inclined to make it. If you have decided to make it at the 400-yards mark, begin to lengthen your stride, and work yourself up for it at 380 yards.

If an opponent makes a spurt before you do yourself, keep up with him without endeavouring to pass him, but use him as a pacemaker, and try to make your own effort when his own is beginning to die away.

There is always time "to come twice" in the last hundred yards, and the man who is passed by an opponent that distance from the finish can often come again with success in the last thirty yards of the race.

The quarter-miler training for this distance should run several times half speed half miles to increase his staying power, while the half-miler should aim at improving his pace by running fast quarters and occasional furlongs at top speed. The British Amateur record for this race was made in 1908 by E. H. Montague, who

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covered the distance in 1 min. 11 secs. It was probably his ideal distance, as he never succeeded in doing anything really startling in the quarter-mile race, while the half mile was probably a little too far for him. He had a fairly good stride, and seemed to get his legs off the ground very quickly, and wasted very little time between each step.

CHAPTER VIII

THE HALF MILE

It is rather inexplicable but yet incontrovertible that during the last few years by far the most brilliant athletes have been half-milers. K. Cornwallis, M. W. Shepperd, E. Lunghi, H. Braun, T. H. Just, to name a few, have at different times during the last six years proved themselves wonderful performers over this distance.

With the exception of the last-named athlete, who won his races more by sheer strength than speed, all these men were also first-class quarter-milers. Many men can run a half mile in about two minutes, but as a rule it requires a man who can at a pinch run a quarter mile in 51 secs. to cover the half in 1 min. 56 secs. or less.

When, as usually happens at big meetings, this race is run in heats, I consider it the most trying distance of all.

There is nothing more exhausting than the

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final of a half-mile race, in the heat of which you have had a grilling finish perhaps less than an hour before. It is possible for an untrained man to run a fairly good quarter mile, at the risk of straining heart or muscles, but he will find it practically impossible to run anything like a respectable half mile under the same conditions.

A miler who has managed to improve his pace will probably find it easier to become a consistent and successful half-miler than the quarter-miler who has to train hard in order to stay the distance, though the latter will probably beat the former for pace when he has surmounted the initial difficulties.

In order to run a fast half mile, *i.e.*, in less than 1 min. 57 secs., a man must cover the first half of the distance in 55 seconds at least. This will allow him a little more than a full minute for the last quarter.

This policy of running the first quarter fast must be adopted by all who can stay; experience has proved that it is really the only successful way of running a fast half mile.

In training for this event it is above all things

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necessary first of all to make sure you can stay the distance. Many men are apt to sacrifice staying power to mere pace, and train too much under the distance.

In fact I have heard many men say that after giving up the half mile for a year or two in preference for longer distances, or even cross-country running, they have returned to the old distance and found themselves yards better over it than they were in the first instance.

In the early stages, then, of training for this event, do plenty of quite slow long-distance running, either across fields or on the track, not trying to stride even, but just jogging along, strengthening the legs and wind.

Then begin doing a steady mile three times a week, or stride through a thousand yards, varying these distances with occasional fast runs of three hundred yards to keep up the sprinting powers.

When fit, endeavour to run a half-mile trial according to a prearranged schedule, setting yourself the task of running the first quarter in about 56 seconds and the second somewhere

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about 68 seconds. Get a friend to take your time and shout out the time of the first quarter mile. It is not advisable to carry a large watch in the hand and inspect it at the half distance, as I have seen innocent novices doing.

After such a trial you will be able to judge for yourself whether your legs and wind are sound enough to stand the journey, and if not, you can easily tell by your condition what is the weak spot, and rectify it by further practice.

If both lungs and legs stand the strain, you may knock off training over the distance, and turn your attention to running fast 600 yards, or quarters, though it is as well to run the full distance once a week at least, keeping always as near to a scheduled time as possible. I think it is always advisable to run as good a trial half mile as possible three or four days before the race.

When running in a heat remember first of all to find out exactly how many will qualify for the final. Turn your whole attention to getting safely into the first three or four—whatever the number of qualifiers may be—and bear in mind

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that it is not in the least necessary to win the heat outright, but that the more you save yourself the fresher you will be for the final.

Run the first quarter mile just as you would if it was the final, and from thence to the finish maintain the best position you can without unduly exerting yourself, taking care not to be out of the running for a place in the last 300 yards, or to be done out of that place through carelessness in the last few strides.

In the final, it is, as in all races, advisable to start off at full speed and endeavour to get the lead, or at any rate a good position on the inside. There is generally a scramble at the first corner, and it is well to get a good start and a clear lead at this spot if possible, and to keep it as long as you possibly can, without actually racing anybody who tries to pass you so early in the race. Never let anybody get right away from the field after the first quarter is passed, but use anybody who sprints ahead as a pacemaker.

The crucial point of this race is generally when the first man begins to spurt in the last

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quarter mile. Personally I believe that if a man is fit he ought to begin to quicken quite three hundred yards before the finish. Extra pace put on at this point will "do in" many of his opponents before the last straight is reached. But he must keep enough in him to respond to a further challenge in the last eighty yards.

When an opponent has made this kind of spurt stick close to him and endeavour to press him when he is beginning to feel the effects of his effort. In such a case he may have only acted as a pacemaker for you, and be unable to respond to your challenge in the straight.

A man who is not certain of his staying powers should try and get the lead, and set a slow pace, not allowing any one to pass him without a struggle. The slower the pace, and the longer the opposition is kept back, the shorter will be the final sprint, and the more chance of the partially trained man making a show at the finish. The same advice applies to the quarter-miler who has not quite enough stamina to last a fast half mile.

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The world's record for this distance is held by Emilio Lunghi, an Italian, who in 1909 ran this race in the wonderful time of 1 min. $52\frac{4}{5}$ secs. In the Championships the time this race is won in does not usually sound out of the way, but it must be remembered that the heats which are often run in faster time than the final may have taken place less than an hour before.

Any man who can beat two minutes twice within the hour is well above the average.

THE THOUSAND-YARDS RACE

This race is not a very common one, but as a test of endurance for the half-miler it is an excellent distance, and should be run in very much the same manner. Start off fast, steady down after going a hundred yards, and then at an easy stride run through to the 800-yards mark, and then lengthen the stride, and go all out for the tape, and try not to falter in the last furlong. I say this because a man is apt to lose his first wind after travelling any distance more than half a mile in length, and in conse-

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quence in races over 1000 yards or three-quarters of a mile, the last furlong or so may prove very trying, as the runner will not have had time to get what is usually called his "second wind." Therefore in training for this and similar events it is as well to run through the whole distance several times, and a little further, so as to get accustomed to the uncomfortable sensations likely to be present during the last fatal furlong.

CHAPTER IX

THE MILE

THIS is one of the most classic races on the championship programme, and in consequence performances over this distance have greatly improved in quality during the last few decades. For many years it was looked upon as a phenomenal achievement for a man to beat 4 mins. 30 secs., but to-day 4 mins. 25 secs. is regarded as nothing out of the ordinary, and 4 mins. 20 secs. is often beaten during a season's running.

But though it is a popular race at nearly all meetings, large or small, I think it is a very noticeable thing how few of the competitors ever seem to be in a fit condition to cover the distance. The condition of the majority of the starters during the last lap of the mile race at any chance meeting that one may attend is usually pitiable. By then all idea of form and style has vanished, and it is a wretched spectacle

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to see the men struggling along and collapsing exhausted by the side of the track at the finish.

Of course the reason is that most of the men who think that the mile race will suit them have not troubled to go through a long enough preparation, or, more probably, have not had time to do so.

Not taking into account really good runners, let us make an analysis of what type of runner the field for a mile race usually consists of. To tell the truth the great majority are men who think that they have not sufficient pace for the half-mile race, and certainly do not possess the necessary stamina for longer distances. The mile is all that is left to them and they probably have no idea of training for that. I believe that this is the reason why—putting the few good runners out of the picture—one sees more hopeless so-called “athletes” engaged in struggling along in a mile handicap than in any other race. Far be it from me to dissuade the man who is not a natural runner from trying to get exercise and enjoyment in this way. The mile is indeed an excellent distance for him to jog round. But I

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do think that many of this type of athlete might, with excellent results to himself, endeavour to train with a little more common sense and follow a few of the suggestions put forward in the chapter of this book devoted to training and physical exercises. Facing page 123 we see the start for a mile race, and it is interesting to note the diversity of types represented.

Mr. P. J. Baker, the President of the Cambridge University Athletic Club, dual winner at the inter-'Varsity Sports of 1911, has kindly sent me the following notes on the mile race :

“The mile may be regarded as the typical ‘middle distance,’ and as such it is essentially different from all races, which can be classified more or less exactly as either ‘short’ or ‘long.’ In one sense the mile is neither short nor long ; in another sense, and more correctly perhaps, it may be said that it is both short *and* long. For the miler requires in a considerable degree the qualities of both the short- and the long-distance runner : endurance without speed is as useless to him as speed without endurance.

“It is this which makes it such a peculiarly

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interesting event, both to the runner and to the spectator. There is no race which it is more fascinating to watch and none which it is more satisfactory to compete in ; and the reason why it is so pleasing lies, as has been said, in its nature as a ' middle ' distance. In a race which is both short and long, the part that is played by the strange faculty called ' judgment ' must necessarily be large. More races are lost by bad judgment, or won by good judgment, in the mile than in any other event.

" It would be fitting, therefore, first to say something about the function of judgment. But it is very difficult to define in intelligible terms what precisely is meant by the phrase. Any rules that can be formed for the mile seem to be of general as well as special application. It may, for example, be said that it is fatal to let an opponent draw away more than a few yards in the last part of a mile race. But the same remark is true of any race. It is, however, of special importance in the mile for this reason : there is, on the one hand, so much less time to make up lost ground than there is in a long race, while, on the other

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hand, it is so much easier almost unconsciously to get left six or seven yards behind than it is in a short race. And a runner who is about a dozen yards away is in a very poor position when it comes to the finish of a mile. If he were only two or three yards behind his opponent he would be 'pulled out' by his sprint; as it is he is 'pulled to pieces' by it. If he had been close up he might have turned defeat to victory and have run much faster without any discoverably greater expenditure of effort.

"This is one of those racing maxims which it is almost impossible to explain, and which are true in a certain degree of every race.

"Its application to the mile serves, however, to illustrate aptly the special importance of the faculty of judgment in that event. Similar special applications of the other general rules of judgment may easily be made. A knowledge of pace is important in any race; but it is more important in the mile than in any other because it is so much easier to be deceived into running too fast or too slow a pace through mere carelessness or inexperience. A miler should practise by the

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watch until he can tell certainly within very few seconds what time he has taken over any given lap. Again, watching an opponent is always important, but it is particularly so in the mile because in that race especially the place at which the finishing sprint is begun depends at least as much upon the tactics and the exhaustion of his opponent as upon the condition of the runner himself. The using of an opponent as a pace-maker is, again, more valuable in the mile because the mile is pre-eminently the race in which pacemaking in general counts for most. Lastly, a runner who 'loses his head' will practically never win a mile, although he may often do so in races which it is less difficult and less important not to. Facing pages 136 and 137 there are two photographs of the same race in two different stages. In the first the runner marked 2 is running wide, hindering others and losing ground himself; in the second illustration he has taken up the ideal position.

"Enough has perhaps been written to indicate roughly what is meant when it is said that experience and thought and coolness count for

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more in the running of a mile than in any other race. It is only a little less true to say that the training for a mile requires similarly a specially large amount of thought. The rules which may be laid down are extremely elastic, and their value is always dependent on circumstances—especially upon the condition of the individual runner.

“Of course, all the general maxims of training both on and off the track apply to the mile. Plenty of running should be done ; a good many races over shorter distances—anything from the quarter to three-quarters of a mile—should be run. Once or twice before the final event, for which training is being undertaken, comes off full-distance trials should be run, and once at least the runner should be ‘all out.’

“Before the actual race several days’ rest—usually three is not too many—should be taken.

“All this, however, is merely general wisdom.

“There are also special rules as to the sort of track work which the miler should, on the whole, get through before his race. The key to these rules lies again in the nature of the mile. As it

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is both short and long, both short and long work should be done.

“ Perhaps it is easiest to explain what is meant by outlining the broad features of a course of training, and as it is difficult to keep a runner ‘at concert pitch’ for any length of time, let us assume that he has in view one especially important race, on the day of which he must be at his very best.

“ His track work should begin very gently. If he is heavy, walking exercise should be attempted first, and for ten days, at least, he should never run himself tired.

“ In the second week long-distance work should be done. Two or three miles at a gentle pace is not at all too far, and this sort of running strengthens the legs and gives endurance in a way that is absolutely necessary to the later stages of training. This long-distance work may be varied by running some such distances as six hundred yards at a fairly fast pace. The object of this is gradually to prepare the muscles for sprinting practice.

“ As the condition of the runner improves

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and as his legs get stronger his long-distance work should gradually be shortened and made faster. He has no longer much need to develop the capabilities given by distance work, while he does need to grow accustomed to the sort of pace at which his race will actually be run.

“This shortening of his distance work should be a continuous process and should go on by gradual stages until he is running about two-thirds or three-quarters of a mile at racing pace. He will do better if he always or nearly always runs ‘on the watch.’ It is the only way to gain a knowledge of pace and a knowledge of his own capacity, the importance of which has already been shown. The shortening of his longer work should be accompanied by a similar shortening of his short work. Instead of running distances of six or seven hundred yards he should run quarter miles, and finally he should attempt actual sprinting practice, if possible, with sprinters. The more races over distances from 100 yards to 600 yards that he can fit into his training routine the better. Only this course can give him the capacity for a sudden change of pace

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and for a fast finish, without which he will not win races.

“Where these two continuous processes have been so far developed that both in sprinting and over two-thirds of a mile the runner is doing almost his best, it is, as a rule, advisable that he should have one or two full-distance trials in which he should be fully extended.

“The last of these should be timed to take place about a week before the race for which he is training.

“It will serve to bring him up to the highest point of fitness—which is only a little removed from staleness. For while it is true that it is better not to be ‘fine’ enough rather than ‘too fine,’ it is, at the same time, true that to do the best of which he is capable a runner should be close to the verge of staleness. Two or three days’ rest before his race will restore a man’s freshness, and he will find himself in that delightful condition which makes racing a pleasure, both while the race is in progress and afterwards.

“No two runners, of course, will reach that

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condition by exactly the same methods. At the same time, the scheme of running outlined above is a sort of basis which may be useful as a guide. No more than that is claimed for it ; if it is of use in that respect its object will have been attained."

The world's professional record for this event is 4 mins. $12\frac{3}{4}$ secs., by W. G. George, in 1886. In 1895 T. P. Conneff, of the U.S.A., ran the distance in 4 mins. $15\frac{3}{5}$ secs., while the British record of 4 mins. $16\frac{4}{5}$ secs. was made by J. Binks in 1902.

CHAPTER X

LONG-DISTANCE AND CROSS-CO'UNTRY RUNNING

THE preparation necessary for all races over a mile in length is very much the same whatever the distance to be raced may be.

When preparing for a two-mile race the runner should vary his practice runs between three miles and two thousand yards, running the longer distance at an easy pace and the shorter a little more rapidly.

A man should set himself the task of not exceeding a certain time, determined beforehand, for the distance he is about to run, and should aim at keeping inside this limit, without attempting to do more.

For all these long races a man should practise running at exactly the pace he intends to run during the actual race, and when the time comes, not allow himself to be hustled or made to run

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much slower than in practice. Similarly in training for three or four-mile races the same methods should be employed. For three miles a man should vary his training runs from four to two miles alternately, and for four miles, from three to five miles.

The short stride is probably more serviceable in these distances than the long, and six feet is quite long enough for any one to stride over any distance further than a mile, and many men do not stride more than five feet.

The runner should endeavour to keep this stride going without any diminution in length or jerkiness throughout the whole distance until the final three hundred yards, when he should make the best use of any reserve of pace that he possesses. Facing page 156 the illustration shows the field for a distance race at the Olympic Games of 1908 running easily and well within themselves.

If a man wishes to do any good over long distances he must make up his mind to go through with a long period of training. I would recommend the following course for a three or four-

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miles run. For several weeks at the beginning of training he should run two or three miles three times a week, and then gradually increase the distance to as much as six miles. Unless he is training for a ten miles or a Marathon race this will be sufficient. He should then turn his attention to fast trials over two miles and try to cover that distance under eleven minutes and as near ten as possible. Once staying power and the necessary stamina have been developed the runner can really follow his own discretion in the amount of work he does, only he should not on any account run long and fast trials on successive days, or run too far in the three or four days immediately preceding a race.

Cross-country running and steady walking are both excellent exercises for long-distance races on the track ; in fact, most of the successful distance-runners on the track have been schooled in cross-country work.

The long journeys over ten miles, or the Marathon distance of twenty-six miles, are almost entirely tests of endurance and perseverance.

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Long twenty-mile walks and slow ten-mile runs are the best initial preparation for these distances, and the length of both should be gradually extended till a man is sure of his staying powers. It is the distance and not the pace that kills in this sort of race.

CROSS-COUNTRY RUNNING

Of all the different branches of athletics, cross-country running is one of the most enjoyable and health-giving. Not only is it less monotonous than ordinary track running, but it also affords opportunity for collective training and team running. The art of successful "packing" has enabled many quite moderate but evenly-balanced teams to defeat on points teams possessing individuals of far superior calibre, but weakened by a very long tail. It is obviously better that a team's placings after a race should be 6, 7, 11, 12, 15 than 1, 3, 14, 19, 27.

The number of cross-country clubs and teams of harriers is very large. Big cross-country races for clubs affiliated to the Midland, Northern and

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CROSS-COUNTRY RUNNING

Southern Counties Athletic Associations take place every year shortly before what is called the "National" cross-country race.

Mr. C. H. Porter, winner of the inter-University cross-country race in 1911, has kindly given me the following article on this subject :

"It is a fallacy prevalent especially among cross-country runners to suppose that this form of running is of value as training for cinder-track running. Even the man who in a race of from seven to ten miles over uneven ground could average 4 mins. 45 secs. for each mile (and such runners are not numerous), would find it necessary to give up cross-country running and spend weeks on the track before he could hope to become a fair mile runner. On the other hand, the converse does not apply. To the average cross-country runner even racing, in moderation, on the track cannot fail to give pace for his cross-country work, provided the training needful to acquire the endurance requisite for the more trying sport is not neglected.

"For running across country no clothes are required beyond the usual zephyr, shorts, which

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must not quite reach the knee, and sweater (the latter never to be left off on training runs, whatever the weather may be), whilst a scarf, worn loosely and not wound tightly round the neck, is also desirable if the day be cold. Of far greater importance, however, are shoes. For mere training runs, sand shoes as favoured by the seaside youth of the nation on any summer's day are the ideal if there is a yard of road on the course. If not, leather shoes with spikes can do no harm to the feet and are most suitable also for racing over a course with a minimum of path and road work. For racing over a light, firm course, leather shoes with leather studs should be worn, as they give a firmer grip than india-rubber shoes—even when fitted with india-rubber studs—can possibly give ; and a complete control over the ground traversed is essential. With either kind a low heel is permissible. Socks, or some other form of lining, should be worn between the shoes and the feet for obvious reasons. Both spiked and leather shoes should be worn sparingly, as they can only be expected to survive a comparatively small number of races

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with such rough usage, even when fitted with steel plates. When either spikes or studs begin to come through don't blame the maker, for the perfect cross-country running shoe is to be the invention of the twentieth century—if not after. They should be as light as durability will permit. Steadiness can never compensate for lightness. Corks may be carried in the hands, as they are of material value when passing a rival or at the finish of a race, but when surmounting or getting through obstacles they are apt to be a positive nuisance. Their usefulness on the whole outweighs any possible inconvenience.

“Much has been written and to little purpose on the subject of eating and drinking. Every one must suit himself. Training for long distance is not of nearly so fine a nature as for the track. Endurance comes first, and for long-distance events a competitor must have plenty of strength to spare, which he can best attain by eating reasonably, if anything slightly more than usual, to compensate for his extra exertions, and by drinking little of anything, especially some hours before a race. When in training it is advisable

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to be in bed not later than 10.30 (in the evening) and to be up—well, in any case, before 8 A.M. .

“Walking is excellent; but a walk before breakfast of more than two miles is undesirable, and any attempt at running at that early hour is reprehensible in the highest degree. After breakfast, walking or even running, in moderation, may be indulged in if circumstances permit. Over-walking is impossible, except on the morning of a race, as walking gives the endurance and, I may add, perseverance which are of primary importance to the cross-country runner. Pluck and pace are quite secondary. Neither will compensate for over-training, which is generally the result of too much running.

“Massaging or rubbing before and after running is beneficial, but can be made too much of. If it is the first thing the patient thinks about before his every movement it begins in time to tell on his nerves. It is, perhaps, best to be massaged by some one else; but, failing that, most people are capable of doing it for themselves. The use of either boracic powder or some

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form of embrocation, even for simple rubbing, prevents soreness and irritation of the skin.

“The chief feature of training for running across country must, of course, always consist in exercise in running, of which the heavy man requires far more than the light. No running should on any account be done the day before, and as little as possible on the day after, a race. If the race be on a Saturday, a walk of from six to nine miles on Friday afternoon and another of about the same distance on the following Sunday is sufficient, and a training run across country on Tuesday or Wednesday, or even Monday and Wednesday, in the case of a runner who needs more training. The remaining days of the week ought to be filled up with slow or fast work on the track or by long walks if a cinder track is unobtainable. No serious running should be done on any pretext whatever within two days of a race.

“Perhaps the most delightful part of cross-country running is the practice run. Here the runner is always entirely at his ease, for in well-managed clubs no racing for any distance

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is allowed on such runs, with the exception of a gradual quickening at the finish—necessary when members are beginning to get into training.

Too great stress cannot be laid on the necessity of all training to be gradual. The first run of the season should be slow, with breaks, and indeed a brief period of walking in the middle of any practice run is bound to leave the man fresher for a race. When in training, a fair pace over the first portion of the course and a quick finish are desirable. The length of these training runs need not come up to the full distance of the course to be raced over, but should vary in proportion to the proposed length of that course. A Marathon race can be trained for on precisely the same principles as a seven- or ten-mile race. All that is required is a gradual system of training, leading up by degrees to the desired distance.

“ In running, the arms and hands should hang easily at the sides and move with the motion of the whole body, as in this position only can full use be made of the shoulders. To get the best pace possible out of himself the runner must run with his whole body, and should strengthen his

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shoulders in so far as possible by means of physical exercises, with or without dumb-bells (ordinary corks in the hands to obtain a grip on something will do), the attention being always concentrated on the part exercised. As a general exercise skipping cannot be too highly praised, since for a race the runner needs all the help he can get from whatever source.

“In an actual race a fast start is exhausting, but also necessary if others do it. It is best to be prepared for a fast start, but reduce pace after the first few hundred yards. On a runner perfectly fit and trained for the distance a heavy course should prove no serious hindrance. The pace is slower in proportion to every one concerned. But on such a course clear jumping is risky, as a fall may mean the loss of much ground. Any low obstacle of 3 feet or even slightly over may be jumped with advantage. Above that height the advantage does not compensate for the risk entailed. By placing one hand on the stile or gate and vaulting lightly over the runner takes nothing out of himself; but he must take care to judge the exact height.

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Vaulting too high over a comparatively low obstacle involves loss of time, as likewise all clear jumping over objects of any considerable height entails effort, loss of strength, and is frequently risky, seeing that the competitor's object is usually to finish the race and to finish early. Exactly the same principle applies to brook jumping. Only jump clear over narrow-water jumps ; over broad-water jumps get as near the other side as you can without over-exertion. The extra strain of a long jump seldom pays its way. The negotiation of wire fences and similar barriers must always depend on attendant circumstances.

“A heavy course generally contains a certain amount of ‘plough’—frequently not level, and seldom entirely downhill. For level and downhill ‘plough,’ a long, low stride covers the ground most quickly, whilst a short and moderately slow stride over uphill ‘plough,’ taking in breath evenly to suit that stride, will be found, generally speaking, to answer best. Whenever running uphill it is most essential to breathe evenly, taking in breath regularly with

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every stride, as over uphill 'plough.' By observing this rule it is possible to run up a steep embankment with comparative ease. Indeed, it is the secret of all running. *Never get out of breath.*

"Over reasonably even turf, or path, or road, a full, long 'track' stride covers the ground at the highest speed, and it is sheer folly in a race not to employ such a stride where the going is sufficiently firm. A short, quick stride is very restful, but only those perfectly sure of their own capabilities can afford to spend much time in this manner. Such a style may be useful in resting behind an opponent, with intent to rush past him when feeling disposed, or when he obviously feels indisposed. In a race a runner should never be dependent upon any one, but should follow his own inclinations from start to finish—keeping well within his own powers until after half way, only starting fast if obliged, as the slower he covers the first part of the course the easier it is for him to have his own way over the latter half. It is advisable, as has been already suggested, to be able to start fast if

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others do, for being left at the start has its inconveniences. After the first few hundred yards, however, the runner must use his own individual judgment—never forgetting how far he has to go and suiting his speed over every section of the course to the distance to be traversed, as he suits his pace to the character of the soil.

“ For a fast, light course a free use of the cinder track is invaluable training.

“ Only those in reasonably good health can hope to make cross-country running a success, for the severe physical strain of such an amusement requires a far better general condition than ordinary track running. At the same time, mere physical strength, symmetry, and even lightness, are of small value without experience.”

CHAPTER XI

HURDLE RACING

RACING over hurdles is one of the most interesting recognised athletic events, and it seems strange that there are so few men nowadays who compete in the 120-yards race over hurdles, which is always awaited with interest by the onlookers at any sports meeting. Probably the chief reason for the usual scarcity of class competitors is the fact that it requires a little scientific training for a man to become proficient at the sport, and the average English athlete, even if endowed by Nature with all the attributes required by the successful hurdler, is never eager to take up any exercise which requires a special kind of preparation.

Many a moderate sprinter could, with practice, have become first rate "over timber," but very few take the trouble to practise long

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enough over the sticks to overcome the initial awkwardness.

Mr. K. Powell, three times winner of the inter-University hurdle race, has allowed me to incorporate the following remarks on hurdling in this chapter.

“The race is run on grass, except in America, where it is run on the cinder track, and with loose top-rails. In England the hurdles are always fixed firmly in (or on) the ground, and are 3 ft. 6 in. in height. They consist of ten ‘flights,’ the height of each obstacle being 3 ft. 6 in. The distance from the starting point up to the first flight of hurdles is 15 yards in length; the flights are placed 10 yards apart, and the ‘run in’ at the finish is another 15 yards in length.

“In order to cover 120 yards and also to clear ten obstacles in approximately sixteen seconds, it will be found essential to acquire mathematical precision as regards the number of strides taken during the race.

“Eight strides should be taken up to the first hurdle, three strides between each flight,
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and probably eight more at the finish, making forty-three strides in all, exclusive of the actual flying of the hurdles.

“ It follows that the hurdler will always need to clear his fences with the same foot in front. This should be the foot with which he takes the first stride at the start of the race, and the runner should quickly make up his mind which foot that is to be, and always keep to his decision in practice.

“ The aim of every hurdler is firstly to skim his hurdles as closely as possible without actually striking the top-rail, and secondly to remain as short a time as possible in the air while clearing the obstacle, for, of course, the greatest waste of time takes place while he is in the air.

“ To accomplish these two objects with success it will be found essential to eliminate all actual ‘ jumping ’ as much as possible, by clearing the obstacles in the stride, raising the front leg as straight as possible in front of the body, and wriggling the hips sideways when crossing the top-rail.

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“As for the back leg, this will look after itself, but care should be taken to practise turning the hind foot outwards so as to be parallel with the top-rail. This will assist in preventing the toe from catching, and save many a nasty fall. .

“The distance ‘flown’ over each hurdle from the take-off to the landing spot will be found to be usually about $13\frac{1}{2}$ to 14 ft., and certainly should not be more. To descend with great celerity on the further side of the hurdle which has been flown is most important.

“It will be seen from the above remarks, that the hurdler to be successful must be the possessor of marked physical peculiarities, as well as of the requisite all round fitness necessary for all descriptions of flat racing. These characteristics can be summed up as consisting of length of limb, litheness and lightness, to which must be added an uncommon share of stamina, for the winner of a fast hurdle race must take the tenth hurdle with quite as much dash as his first.

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“These qualities are rarely to be found combined in one person, which account for the exceptionally small number of first-class hurdlers racing in any one year.

“In almost every case the best hurdlers are found to be about six feet in height, and not over eleven and a half stone in weight. If a man is much less in stature than six feet he will have great difficulty in covering the distance between the hurdles in the requisite three strides, unless his length of leg is out of all proportion to the length of his body.

“If he weighs more than eleven stone odd he will find that the weight he has to carry will be a great handicap before the end of the race. Moreover, the heavily developed man is rarely lithe and lissome enough to be a good hurdler.

“In training for this event, the most important point is never to overdo it and risk getting stale.

“In practice run as a rule over not more than five or six hurdles at most, except when actually having a trial test. On the other hand, take

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plenty of exercise of a kind likely to make one muscularly strong without endangering the speed. Never do anything so deadening to the springiness of the legs as long-distance running.

“The following training scheme may be of service to those men who have not already found out for themselves what method of training suits their individual cases best.

“Firstly, a few remarks on the preliminary training necessary for six weeks to within a fortnight of the race.

“Begin by gentle sprinting and striding practice for several days before starting actual hurdling. The best distances for the hurdler are the 100-, 220-, and 300-yards dashes, especially the last named, as it will help to develop staying power as well as pace.

“Then start by flying over one or two hurdles, gradually increasing the number up to five or six. Very occasionally race over the whole flight. In order to practise running on grass, and as a change from sprinting, football under both codes may be indulged in with great

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advantage, if the hurdler is willing to take his chance of being crocked. But a man should not, if he can avoid it, play on very wet ground, as continual slipping is likely to stiffen the muscles of the thighs.⁷₈

“High and long jumping are also useful preliminary exercises, but should be given up a fortnight before the race, as they tend to make the hurdler jump “big” over his hurdles instead of gliding over them. Some few athletes have, however, managed to combine success at high jumping with hurdling, but this combination is rare.

“It has been found possible to train successfully for hurdle races by skipping, hitting the punch ball, and practising various forms of indoor leg exercises (including the classical ‘hundred-up’) when one is debarred from the ordinary methods of outdoor training.

“The would-be hurdler should make use of some form of exercise which is likely to increase his sense of balance, as this is most essential for timber-topping. High kicking, the military goose-step done quickly, and ‘splits’ are typical

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forms of this sort of exercise. Also all forms of exercises for the trunk are useful, as the hip muscles must be well developed to stand the great strain put upon them.

“Secondly, with regard to the finishing touches necessary during the last fortnight. Every other day during this period, run at least once over the whole ten flights of hurdles. Practise the crouching start, described in the chapter on sprinting, daily several times over, clearing at least one hurdle each time, and indulge in several sharp sprints on the cinder track.

“With regard to the question of diet, the usual type of long lean hurdler will not find it necessary to restrict himself at all, though he should, of course, avoid all stimulants. Fresh fruit is generally found to be excellent for keeping the blood in good order.

“With regard to the hurdler’s general equipment; his running shorts should be as loose as possible, since otherwise they may interfere with the stride when they are stretched out over a hurdle.

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“The shoes should have two large spikes in each heel and six in the main part of the shoe. My advice to hurdlers is not to use running corks, as the hands should be quite free in case of a sudden fall.

“With regard to the actual start, the hurdler should remember not to jerk up too rapidly, and should get up all the pace he is capable of before clearing the first hurdle. The pace at which the first hurdle is flown is the index of the speed at which the whole race will be run. The race is not long enough for a slow starter to make up for lost time.

“My advice to all hurdlers is to keep loose limbed and free from stiffness. Be careful to be massaged, or massage yourself regularly before and after practising, and before any race, but do not indulge in this to excess, as too much rubbing tends to weaken those who are not in the first place endowed with superfluous flesh.”

Mr. G. R. L. Anderson, amateur champion in 1910, and holder of the British record for the 440-yards hurdle race, has supplied me with a few more hints on hurdling.

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He points out that there are two distinct methods of clearing the hurdle: (1) With the front leg straight out in front almost at right angles to the body, and (2) the "curled-up" method, when the front leg is curled up across the front of the body. In his opinion the first method is the fastest without a doubt, and the hurdler is not so liable to fall, since in this style he will push the hurdle over with the front foot instead of catching his knee on it as in the other method. But this method has its drawbacks. It involves a great strain on the muscles at the back of both legs owing to the amount of stretch entailed.

American hurdlers go through a special course of exercises devoted to the strengthening of these muscles, and rendering them elastic. The ordinary athlete neglecting such a course renders himself liable to injury from sprains and torn tendons. The hurdler who wishes to strengthen this part of his body should go through one or two special exercises, such as sitting on the floor[™] with one leg stretched straight out in front, and the other one sideways, wide enough

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for him to feel the strain. He should always take special care to have the back of his legs and thighs well kneaded and massaged before hurdling, and should never hurdle much when tired, because then the muscles are liable to become unduly contracted, or to have lost their elasticity and be more easily torn.

One can always tell whether a man is likely to be a good hurdler or not, by watching whether he bends his body forward from the *waist* when flying the obstacles. The forward inclination of the body *must* be from just above the hips, not from anywhere lower or from the shoulders. This is a notable point, as by so doing a man can get his body well forward when over the top of his hurdle, and so reach the ground on the toe with the weight forward, not on the heel. The golden rule in hurdling is to get the weight of the body well forward while one is in in the air.

Other useful hints are to practise starts at full speed always, so as to get the run up to the first hurdle perfect ; never go over all ten

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flights more than two or three times a week ; practise the last two hurdles and the run in ; practise running 150-yards dashes at full speed on the track, and longer distances as well ; get advice from friends as to whether you are jumping too high.

The correct position for a hurdler to be in when in the act of flying the hurdle, supposing that the left foot is in front, should be something like this. The left arm and shoulder flung out as much as possible over the foot, the knee as close up to the chin as possible. Just when clearing the top of the hurdle swing the right leg, shoulder, and arm round and forward, making the first stride on reaching the ground on the other side a short one.

In handicap races over hurdles, the scratch man is placed so many yards behind the proper starting line, and he must in consequence remember that the number of steps up to the first hurdle will not be the same as he is accustomed to, and that the increased pace which he will have worked up over the longer starting distance will probably land him further

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over the first hurdle than usual, so that he will have to shorten stride between the first and second flight to get into the proper rhythm.

With regard to the quarter-mile hurdle race over ten flights not less than 30 yards apart, and 3 ft. in height, nearly all the methods of training which apply to the shorter distance are equally applicable. Of course, there is no fixed number of strides to be taken between each flight, as the hurdles are lower and much further apart. The distance to be practised on the flat is, of course, the quarter mile or 600 yards. As a race, this event is much more a test of running than hurdling capacity. Mr. G. R. L. Anderson is at present the holder of the British record for this distance, which he covered in $56\frac{4}{5}$ seconds in 1910.

The world's record for the 120-yards hurdle race on grass is held by F. C. Smithson, U.S.A., who ran over in 15 seconds dead at the Olympic Games of 1908.

The photograph facing page 157 illustrates in the person of the left-hand hurdler the

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ideal position to be in just before reaching the ground, while the photograph facing page 168 demonstrates well the action of “flying” the hurdle the right foot turned well out, the weight of the body thrown well forward over the front leg.

CHAPTER XII

PUTTING THE WEIGHT AND THROWING THE HAMMER

THE rules and regulations for this event are as follows :

“The weight shall be put from the shoulder with one hand only and without follow, from a 7-ft. circle.

“The weight shall be of iron and spherical, and shall weight 16 lb. All puts shall be measured perpendicularly from the first pitch of the weight to the front line of the square or that line produced. Each competitor shall be allowed three ‘puts,’ and the best three competitors of the first trial shall be allowed three puts more. The farthest put of the six shall win. If any part of the competitor shall cross the circumference of the circle before the weight have reached the ground, it shall count ‘no put.’ ”

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Mr. H. A. Leeke, several times winner of the weight in the inter-University sports, has supplied me with a few notes which are here found paraphrased.

The furthest distance that the 16 lb. weight has been put in the British Isles is 49 ft. 3½ in. by Ralph Rose of the U.S.A., who achieved this in Ireland in 1908, and has since put 51 ft. in America. Denis Horgan, an Irishman, who has won this event in the A.A.A. Championships a dozen times, has put as much as 48 ft. 2 in., while T. L. Kirkwood, a Scotchman, has managed to reach 45 ft. 8½ in.

All these men attain these long distances by the tremendous driving power they exert on the weight at the finish of the "put," this being the secret of all long-distance putting. The difference in the physical characteristics of these men is remarkable. Ralph Rose is 6 ft. 5½ in. in height, and Horgan only 5 ft. 10 in., though both scale between 17 and 18 st., while Kirkwood is only 13 st. in weight. Another instance of a comparatively light weight excelling in this branch of sport is

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afforded by G. R. Gray, a Canadian, who only scaled 11 st. 4 lb., and yet put the weight 43 ft. 5 in. in the competition between the L.A.C. and the New York A.C. in 1895.

The best method for the athlete to put the weight is for him to stand sideways with his right foot on the backmost edge of the circle with the left foot about 18 in. in advance, and only touching the ground lightly, all the weight of the body being supported on the right leg. The left arm should be extended high over the left foot in the direction that the put is to be made. The weight should be held in the right hand, with its centre resting on that part where the fingers join the rest of the hand. The weight should be supported by the fingers, but not grasped by them.

The elbow should be bent so that the hand is level with the shoulder, and the back of the hand should lie over the shoulder, thus bringing the weight close in to the neck. The elbow should be as close to the side as is comfortable, and the body slightly bent over the right hip. The athlete is now ready to begin the actual

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propelling movements for the "put." A short hop on the right leg should now be taken forward in the direction that the "put" is to be made, but not too high in the air. This movement will bring the athlete on to his right leg again about 2 ft. from his original position, and his left foot about 8 in. to 1 ft. from the front of the circle. And now comes the crucial moment. The putter must now shove the weight upward and forward with all his strength, at the same time reversing the position of his legs, swinging the whole of the body round with the movement so that every ounce of the weight of the body is behind the outstretched arm as the weight is made to leave the hand. The right leg will end by being in front as near the edge of the circle as possible, with the weight of the body resting on it. This movement is an intense muscular effort, bringing the shoulders and every muscle of the body to the assistance of the propelling arm. The whole secret of successful putting depends on "timing" this great effort so that the outward and forward heave of the weight of the body

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coincides with the movement of the arm which propels the weight.

Only prolonged and careful practice can teach a man to do this correctly. He must be careful not to crouch too low when starting the first movements ; there must be no pause between the first hop and the next great reverse movement ; and at the finish the arm must be shot well out, upwards and forwards, and be in line with the shoulders, and the athlete be well up on his toes.

The tall man has a great advantage over shorter opponents in this event, and he should endeavour to make good use of every inch of his height.

The first photograph facing page 174 shows a man just after the first hop described above, summoning all his energy for the heave of the whole body round on to the right leg and the simultaneous propulsion of the weight as depicted in the photograph facing this page.

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THROWING THE HAMMER

The rules governing this sport or exercise have been altered and rewritten times without number. At the present day the hammer (which is no hammer, but a heavy ball at the end of a wire) must be thrown from a 7-ft. circle. The "head" consists of a spherical mass of iron or lead, the handle now invariably is of well-tempered malleable steel wire, the weight of head and handle combined being 16 lb. The total length of the hammer or missile must not exceed 4 ft. over all.

The old wooden handle, which was always used before 1900 in England, has been superseded by this pliable wire steel shafting, fitted with a swivel just above the head, and the top end branching into two triangular handles, which should be bound round with wash leather or some such material to save the fingers.

Though this event is generally voted dull by the crowd, it is a beautiful sight to see a big man hurl the missile over 150 ft. without losing his balance, having succeeded in whirling

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the heavy ball with great rapidity round his head.

To the uninitiated I should state that the competitor must throw from within the circle, and must not touch the ground outside its radius with any part of his person until the hammer shall have fallen to earth.

The two main things to be insisted on are (firstly) that the length of throw depends almost entirely on the rapidity of the swing round his head which the competitor must impart to the missile, and (secondly) that it must be allowed to leave his grip at the right fraction of a second, when the momentum it has acquired is greatest and most "centrifugal," and the thrower has sufficient control over the poise of his body to keep within the circle.

Mr. H. H. Leeke has been kind enough to give me a few notes on this branch of athletics, of which he is a well-known exponent.

"The longest distances thrown in the British Isles with this missile are 170 ft. $4\frac{1}{4}$ in. by J. J. Flanagan, an Irish-American in 1908 at the Olympic Games, and 164 ft. 8 in. by

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T. R. Nicholson in the English Championships of 1909.

“The best method for the athlete to adopt in throwing the hammer is to stand with the toes on the far edge of the circle, facing the opposite way to that in which the missile is to be thrown. The handles (I am supposing that the thrower is using double triangle handles) should be firmly but lightly held on the first joint of the fingers of each hand. The athlete is now ready to start to throw.

“He should begin to swing the missile slowly round and over his head (*vide* photograph facing this page), keeping the arms well out, and the head of the hammer about 1 ft. from the ground at the lowest part of its radius. The swing of the hammer should be at an angle of forty-five degrees. After it has been whirled round three or four times, and the requisite balance secured, the thrower should, say on the fifth swing, decidedly quicken the speed at which he is causing the head of the hammer to revolve, at the moment it is over his right shoulder. When the head is directly in front of him, the

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left foot should be drawn smartly back, as in the photograph facing this page, and the first turn commenced. Great care must be taken to keep the arms absolutely straight, and that the thrower is throwing the hammer, and not the hammer throwing him.

“Having turned round once, while still keeping the hammer revolving round faster and faster, repeat the process of turning rather more quickly than the first time, as the momentum will be greater. At the finish of the second turn, when the athlete's back is turned towards the direction he wishes to throw in, a tremendous heave should be imparted to the hammer, while at the same time he makes another half turn, this bringing him to the edge of the circle facing the direction in which the hammer should have gone, as in the photograph facing page 182.

“The athlete must remember that this event, like weight putting, requires a great deal of practice and trouble.

“The training for it is practically the same as for the weight. But though most people

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associate the hammer and weight together, they really use quite a different set of muscles, the pushing muscles being used for the weight, and the pulling ones for the hammer.

“Three cardinal points to remember are (1) to get a perfect balance for the body and hammer at the start ; (2) to increase the pace of the swing of the hammer from start to finish gradually ; (3) not to let there be any appreciable pause between the completion of the first turn and the beginning of the second.

“It is better for a beginner to start learning to throw with one turn only, and only to try three turns when he is completely at his ease with two.

“Flanagan throws with three turns and Nicholson with two. The number of turns taken by a thrower depends entirely on his neatness of footwork, which decides for him whether he can keep within the circle.

CHAPTER XIII

THROWING THE DISCUS

Contributed by W. E. B. HENDERSON

THE discus shall be two kilogrammes (4.4 lb.) in weight and 22 centimetres (8.7 in.) in diameter. It shall be made of wood with a smooth iron rim, and shall be capped on each face with a smooth metal plate.

Every competitor must throw with a discus provided by the Committee.

1. Free style.

(a) The discus is thrown from a circle 2.50 metres (2.733 yards) in diameter.

(b) From the centre of this circle a straight line shall be drawn in the direction in which the competitors are to throw. At an angle of forty-five degrees on either side of this line shall be drawn side lines. To constitute a valid throw the discus must first strike the ground in the space between these side lines.

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(c) The method of throwing is at the absolute discretion of each competitor.

(d) The thrower must remain entirely within the circle until the discus first strikes the ground, otherwise the throw is invalid.

(e) To measure the distance thrown, a straight line is taken from the point at which the discus first strikes the ground to the centre of the circle. The distance thrown is the portion of this line which lies outside the circle.

2. Throwing the discus "as at Athens."

(a) The discus is thrown from a rectangular pedestal 80 centimetres ($31\frac{1}{2}$ in.) long and 70 centimetres ($27\frac{1}{2}$ in.) broad, sloping forward from a height of 15 centimetres (6 in.) at the back to a height of 5 centimetres (2 in.) at the front.

(b) The method of throwing is as follows :

The thrower places himself on the pedestal with the feet apart, and holding the discus in either hand. He then grasps it with both hands and raises them without letting go the discus with either, extending the rest of his body at the same time in the same direction.

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After that he turns the trunk to the right and bends sharply so as to bring the left hand, which has now left hold of the discus, to the right knee, and the right hand, still holding the discus, as far back as possible. At this moment the right foot should be forward and both legs bent; the right foot rests full on the sole, and the left on the toes only. Then by a sharp and simultaneous extension of the whole body the thrower throws the discus forward.

(c) The thrower may leave the pedestal at the moment of throwing.

(d) The measurement of the throw shall be from the point at which the discus first strikes the ground to the centre of the front side of the pedestal.

The above are the rules which obtained at the Olympic Games of London, 1908, with regard to the two styles of throwing the discus, each of which constituted a separate competition. Little could usefully be added to the above rules, as far as concerns throwing the discus as at Athens, for the rules themselves are practically

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a description of this awkward method of throwing, which is founded, in the writer's view, upon a misconception of the import of Myron's "Discobolos."

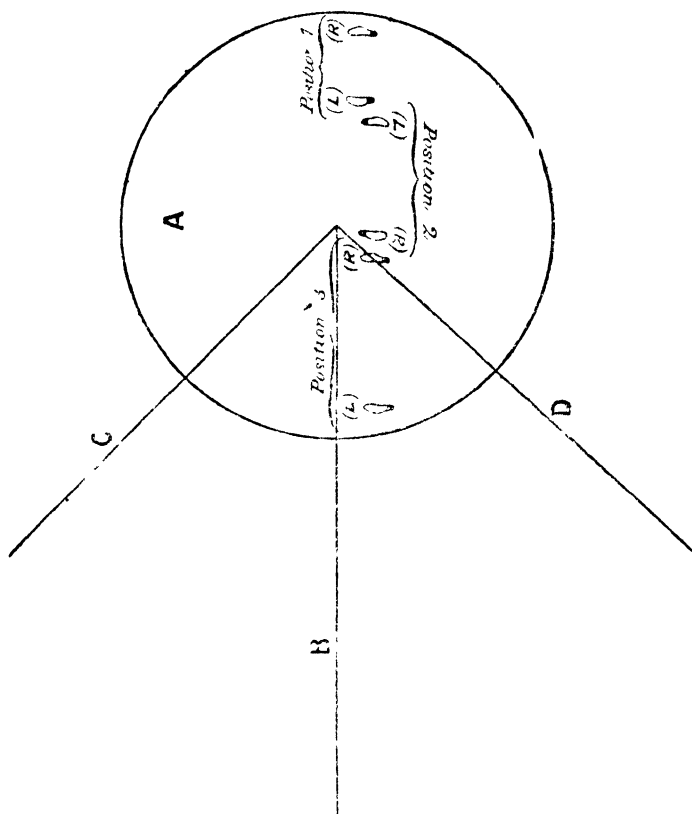
Accordingly the following remarks are confined to the Free Style.

As in throwing the hammer, so in throwing the discus, the principle of centrifugal force is involved. Momentum is applied by means of the revolving body and outstretched arm. Endeavour is here made to surmount the difficulties attending a written description of that which could be illustrated with ease by practical methods.

In quasi-Euclidian phrase let A be a circle—the circle in fact. B represents the straight line (see above rule), and C and D the side lines drawn at an angle of forty-five degrees.

The novice takes up his position at the rear of the circle facing the direction in which he intends (the word is used advisedly) to throw, the feet—R. and L.—in the position indicated on the opposite page (Position 1). Practically all the weight of the body should rest on the right foot.

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The discus lies upon the palm and fingers (which should be outspread) of the right hand, the extreme tips of the fingers curving very slightly over the edge (but not too far) in order to prevent the implement from slipping to the ground. The thumb rests against the discus, and acts as a balancer.

When a comfortable position—or rather one as comfortable as possible under the circumstances, for half the difficulty of throwing the discus lies in the awkwardness of handling it—has been secured, sweep the right arm (held perfectly straight) once or twice to and fro in front of the body, as in the photograph facing page 183; then, with a long swing, bring the straight arm behind the right side of the body. As the straight arm begins to swing round again towards the front, like a pendulum, turn the hand over so that the back of the hand is now uppermost, with the discus underneath (it will be found that this is possible in motion, though not in a stationary position). At the same time the performer should turn his body (always in advance of the arm, which should

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hang out perfectly straight at right angles to, but behind, the revolving body), using for the purposes of the turn a step practically equivalent to the “reverse” used in the old valse (not the Boston). With practice the performer should “nick” into a sort of rhythm in his revolutions—which is the poetry of motion as far as discus throwing is concerned. Never jump round in the air.

The performer should begin to turn by using his left foot as a pivot, which should bring him to position 2 in diagram. Now, from position 2, using his right foot as a pivot, he must turn round into position 3, near the edge of the circle. At the last moment before delivery the right arm is brought round and to the front with a sweep into which the whole strength *and weight* of arm and body should be thrown (*vide* photograph, facing page 188), and the discus (if all goes well) is despatched, cutting the air at the same angle as a stone thrown for “duck and drake” purposes into a pond.

This last point—which is known as “getting the scale”—is most essential, as it makes all

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the difference between a good throw and a bad one ; for if the discus turn over and over in the air, the air resistance necessarily involved soon brings so comparatively light a missile to the ground.

The novice would do well—before he tries the turn at all—to practise standing throws, in order to learn the art of “getting the scale.” Indeed, he will probably find at first that he can throw further standing than by using the turn ; but, once the latter is mastered, there is no comparison between the two in the matter of efficacy.

A good deal of practice and perseverance is essential, for the movements will not be learnt in a day ; but when the “turn” has been mastered, eight to ten throws three or four times a week should be sufficient. It is largely a question of the individual, but the present writer finds that to exceed the above is apt to result in staleness.

Finally, the four golden rules of discus throwing may be stated as follows :

1. Don't start to turn too fast, or you may

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finish slower than you started, with all the consequent loss of power.

2. When turning, keep the arm well behind the body.

3. Keep the arm perfectly straight all the time, and hold it well out from the shoulder.

4. Be careful not to throw too high.

CHAPTER XIV

HIGH JUMPING AND POLE JUMPING

THERE are many methods employed by jumpers in clearing the bar in high jumping. Some run straight at the object to be cleared, some sideways from an obtuse angle; some roll over the bar by getting the body over first, while others get their legs over and twist their body over later.

It appears that a leap of more than six feet in height is beyond the powers of 99 per cent. of those who take up high jumping. World's record for this event is 6 ft. 5 $\frac{5}{8}$ in., a height cleared by Sweeny, an American, in 1895, while P. H. Leahy, an Irishman, accomplished a leap of 6 ft. 4 $\frac{3}{4}$ in. in 1898.

Mr. E. E. Leader, who jumped for Cambridge University and represented England in the Olympic Games in 1908, has kindly written an article on the subject, which follows below.

HIGH AND POLE JUMPING

“In the following remarks I have dealt only with the practical side of high jumping, and have offered some suggestions and advice which I hope will assist jumpers in improving upon their performances and in obtaining the best results from their natural abilities.

“High jumping seems to depend not so much on any special build—I have known tall, short, weedy and muscular men who were all good high-jumpers—but upon a certain springy quality in the muscles without which it would be useless for any one to attempt to gain distinction at this form of athletics.

“The aspirant to high-jumping honours has two aims when training.

“1. To increase his spring.

“2. To find out how to clear the greatest height with the amount of spring he possesses.

“With regard to increase of spring.

“The jumper should never exhaust his muscles by trying solely to see how high he can jump. It may be a great satisfaction to get in a good jump when practising, but he learns nothing by it, and pounding away at the greatest height

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attainable must be most harmful to the springing qualities. It is as if some one, to acquire physical development, spent his time attempting to lift heavier weights than his strength permitted. A man's jumping muscles require coaxing, and it is very easy to get stale. I consider skipping is the best exercise of all, also sprinting is very good training, and any exercise that keeps one supple without being too long sustained and tiring is good. Long walks are bad, and so is bicycling. It is a good plan never to allow oneself to get tired, but to take just sufficient exercise to prevent a feeling of laziness.

“Besides the development of one's springing powers it is most important to be able to summon them when required (how often one hears the remark ‘I don't feel a bit like jumping to-day’), and a jumper must be in the right state of mind as well as of body to do himself justice at the competition. As to bodily fitness any remarks on training in an earlier part of this book apply ; the question of diet is also important, but I do not believe in any special training in

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food ; my advice is to exercise common sense and to eat rather less than one would like to. ' On the day itself avoid especially getting cold, and do not be afraid that a few preliminary sprints will be tiring.

“ It is most difficult to turn out for a competition in the right state of mind, though I believe it to be very important ; the whole thing is such a nervy affair, yet extreme nervousness is fatal. The ideal state to enable a jumper to put the necessary ‘ devil ’ into his work is a reckless sense of enjoyment, but I fear I have few hints to offer as to how to summon such buoyant spirits, they are so much a matter of temperament and temperature. I think a good piece of advice is not to be the first to turn out ; on an occasion of this sort it is better to keep people waiting than to be kept ; also on this subject I may mention that I do not think a confirmed smoker should give up his tobacco unless it is done in sufficient time to enable him to get used to such abstinence, since, after all, smoking is a sort of vice, though a harmless one, and to suddenly break off the habit must at first

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produce a nervous and irritable effect on him; however, I think too many cigarettes are certainly a bad thing.

“Now a few remarks on the high jumper’s second object, namely, how to clear the greatest height with the amount of spring he possesses.

“The first principle in jumping is to get the legs over the bar, and the second and more difficult one is to get the body over.

“A jumper’s style can be either changed or his old style improved; for instance, a sideways jumper may learn to jump straight or else acquire some extra wriggle or other wile to assist him in his old method.

“Nearly all first-class jumpers make their run straight for the bar, the most noteworthy exception, perhaps, being M. André, the Frenchman, who cleared 6 ft. 2 in. at the Olympic Games in 1908, and I should recommend those who have not attempted straight jumping to give it a fair trial and persevere until certain of their inability to master it, as first attempts are sure to be disappointing and the knack comes suddenly.

“In learning to jump straight the common

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mistake is to tuck up the legs. This in my opinion is quite wrong; the legs should be flung out in front with knees bent as little as possible; this will result in the body being straightened out and the hips being raised; the head should be thrown well back as the jumper makes his spring, for if allowed to come forward, his body will in consequence double up and he will not attain the necessary prone position over the bar. He should learn to turn round during his jump and land facing his 'take off,' thus getting out of the way that part of the body which is, nine times out of ten, responsible for removing the bar. The turning movement should start when the spring is made, and if the jumper takes off from his right foot he should turn to the right and *vice versa*; a violent hitch to his hips when his legs have cleared the bar should complete the manœuvre and swing him completely round. The photograph facing page 189 shows a jumper leaping towards the reader, just about to straighten out his legs and raise his whole body over the bar.

"I have watched American jumpers carefully.

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The Harvard and Yale men seem to jump much as described, but in the Olympic Games of 1908 the American jumpers obtained this twist of the body by a wonderful gymnastic performance. As the spring was made the other leg was thrown out to one side with the knee straightened, then the instant it cleared the bar it was brought smartly down and under the body, causing the jumper to pivot round in the opposite direction to that described in the preceding paragraph and with sufficient suddenness to enable him, by lifting his head, to raise his shoulders over the bar.

“Many of the above remarks apply to side jumping. Here the tendency to tuck up the legs is not so great, but the jumper should remember to keep his head well back and try and obtain the same prone position of the body over the bar as in jumping straight. Any bend that there may be at the hips should incline the shoulders away from the bar so that they may pass over it after the hips ; this is important since the jumper should give the same hitch to his hips as in straight jumping in order to raise

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them over the bar, and if they pass over the bar first they will not have to support the weight of the shoulders when called upon to make this effort ; also this leaning away from the bar enables the jumper to turn slightly in the air and greatly assists him in his effort to land on his feet, a luxury not to be despised.

“It is important to take a run of a recognised length, and the jumper should step it out carefully, adding an extra two feet or so if he is jumping with the wind. Inattention to the length of the run results in shuffling and false starts, which have a most injurious moral effect. I recommend a fairly fast run, it is bracing to the nerves as well as the muscles and imparts ‘go’ into the jump. The distance of the ‘take-off’ from the bar should be regulated according to the pace of the run, the faster the run the farther away the take-off should be. Some straight jumpers assist their turning movement by making the last step or so of their run in the suggestion of a semicircle ; this causes the body to commence turning, though the impetus of the jumper is still straight forward.

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“Finally—insist on having a pit to land in. Jumpers who continue practising in their accustomed style may escape injury, but those who try experiments are almost sure to injure themselves if they risk landing on hard turf; the turning movement especially puts a great strain on the knee when the jumper lands. I speak on this last subject with feeling as I have for some years suffered, and still suffer, from injuries which in all probability would not have been received if I had had a soft pit to land in.”

The photographs facing pages 194, 195 and 198 illustrate the various poses in the air of Mr. A. C. Bellerby, late of Cambridge University, whose jumping was for several years a feature of the Inter-Varsity Sports.

POLE JUMPING

This exceptionally spectacular event used to be more often seen in England than at the present day. However, Americans and foreigners have of late years turned their attention to

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this event, and it is to be hoped that in the near future some native pole jumpers will be seen competing on more level terms with representatives of other countries at the Olympic festivals.

In order to practise pole jumping it is necessary to obtain two upright posts thirteen or fourteen feet in height above the ground and about the same distance apart.

Holes must be bored in these uprights at intervals of an inch from quite a low height (to enable them to be used for high jumping) to the top. The cross-bar should be about 13 ft. long and 1 in. square, of tough but light wood.

The established method of leaping with a pole is as follows :

A strong wooden pole (hickory for choice) about $13\frac{1}{2}$ ft. in length and about $1\frac{1}{2}$ in. in thickness at the middle, tapering to $1\frac{1}{4}$ in. at the ends, must be obtained.

The bottom should be bound round and shod with iron, and should terminate in a steel spike with three prongs about $1\frac{1}{2}$ in. in length.

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The length of the pole should, perhaps, vary with the capabilities of the performer. A beginner need only use a pole of from 10 ft. to 12 ft. in length.

After measuring off on the pole the approximate height-bar to be cleared, take hold of it a few inches higher up, holding it between the hands, with the palms facing each other. The right hand must be uppermost with an *under* grip, the left below with an *over* grip, the hands being about a foot and a half apart.

Stand with the business end of the pole slightly raised and take a run of about forty yards, of which the last twenty should be at full speed straight at the cross-bar. While running at full speed, plant the spiked end of the pole in the ground before a spot directly below the cross-bar, and at the same instant spring from the ground, holding on to and rising with the pole. When the pole is practically perpendicular throw the legs forward and upward over the cross-bar, the body being kept stiff until the legs are well over, when the pole may be allowed to fall back and the jumper allow

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himself to drop to the ground, as illustrated in the photographs facing pages 199 and 202.

When he has attained to a certain state of proficiency, the jumper must learn to climb the pole whilst he is in mid-air at the moment when he is almost at the highest point of his original leap.

This is achieved by raising the whole body a little higher by means of leverage on the pole with hands and arms when the pole is upright, and when the jumper can balance himself for a fraction of a second like a monkey on a stick. At that moment he should try to climb the pole as far as possible just before shooting out his legs over the bar.

A beginner should not attempt to do this trick or try to clear great heights before he has thoroughly learned the complete knack of the sport over comparatively low heights.

When dropping from a height on the further side of the bar the jumper should be careful not to injure any of his limbs. He must drop limply without making a single muscle stiff, and with knee-joints prepared to "give" at the

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moment of the impact of the feet with the ground.

It is best to drop with one's back to the bar, not twisted round so as to face it.

To become a really good pole jumper, a man should first of all turn his attention to high jumping.

The initial leap is a most important thing in Pole jumping, and the first-class high jumper has a great advantage over less competent opponents.

Constant practice alone can make a man proficient at this event.

The learner should begin at quite a low height, but endeavour to practise running fast at the leap, without fumbling it. He must learn to carry the pole nicely poised and balanced, and concentrate his mind on timing the finish of his leap with the moment when the head of the pole is almost perpendicular, at which point he can perform the wriggle of the body which enables him to raise himself a few more inches over the cross-bar.

A man should always take care to jump into

HIGH AND POLE JUMPING

a soft pit on the further side of the cross-bar for obvious reasons, and take care in practice to jump into the middle of it, so as to run no risk of sprains from awkward falls.

The jumper's shoes should be extra tough running pumps with two strong spikes in the heels.

With regard to records at this event, L. Scott (U.S.A.) is said to have jumped 12 ft. $10\frac{7}{8}$ in. in 1910, E. H. Archibald, a Canadian, has jumped 12 ft. 5 in. The British Amateur record of 12 ft. 2 in. was made at the Olympic Games of 1908 by E. T. Cook and A. C. Gilbert, who tied for first place.

CHAPTER XV

LONG JUMPING

Contributed by S. S. ABRAHAMS

LET me say at the outset that there is nothing very mysterious about successful long jumping. I am often asked by the aspiring novice or the anxious observer such questions as "How is the whole thing managed?" "How do you get a good take off?" "Ought one to rise high, and how high?" "What do you do in the air?" Yet the theory is simple enough; and I hope to demonstrate that to one who begins at the very beginning, that is to say before he has worked himself into a hopeless style, the art is more a question of common-sense and perseverance than of any other quality. It must, however, be conceded (for indeed it is most obvious) that certain physical and nervous characteristics are as necessary to the long jumper as they are to any other

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kind of athlete, but although long jumping is a science apart, recorded instances clearly prove that long jumpers are not a class apart. The long jumper is frequently a sprinter (it is a belief excusable but ill-founded that he must have a high power of speed). Kraenzlein was as fast as any of his contemporaries over seventy yards, and Prinstein was a good sprinter; D. J. Kelly, though his world's record of $9\frac{3}{5}$ has since been unmercifully treated, possesses great pace. The long jumper is very often a high jumper. O'Connor, holder of the world's record, cleared 6 ft. more than once; Pasemann of Germany is a wonderful high pole jumper. Kraenzlein was a fine high jumper, and Trouse, winner at the 1908 Olympiad, also competed in the high jump. Many hurdlers can also claim long-jumping honours—Kraenzlein is the most illustrious of these—and finally in the Anglo-American 'Varsity contest of 1911 two of the long jumpers opposed were weight-putters.

As to build, there are again great and almost opposed differences. O'Connor is very tall,

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but extremely wiry, and perhaps weighed at his best period eleven and a half stones. Other jumpers have been nearer thirteen, and get the advantage of great momentum, but when we come to a jumper of the type of Trouse, who cleared 24 ft. 6½ in. in the 1908 Olympiad, and whose height is given in the records as 5 ft. 5½ in., and whose weight is less than ten stone, then we realise how much success in long jumping depends upon spring.

It is generally appreciated that the essentials of good long jumping are : Accurate taking off, rising as high as possible in the air, prolonging the flight in the air as long as possible, and thrusting the legs well out at the finish. Let us consider these requisites *seriatim*.

THE TAKE-OFF

To hit the board exactly is of the greatest value, not only on account of the measurement, which is taken from the inside edge, but also on account of the additional impetus derived from the wood. Still, it is probably better to

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lose this advantage rather than take off when the jumper is not at full speed. Attention, however, to detail ought to ensure accuracy without the sacrifice of pace.

Consider these facts for a moment. If a run at full speed brings the jumper's taking-off foot on to the board, surely if he started a foot in front or a foot behind this starting-point he would (assuming his stride not to vary, and he must secure uniformity here) be an equivalent distance over or behind the board. Therefore, the first stage is quite clear: The jumper takes his run, of whatever distance he prefers, at the board, being certain not to swerve, shorten, or lengthen his stride, and observes carefully the exact position of his taking-off foot at his last stride with reference to the board. He ought then to be able to correct the deficiency by starting that distance in front or behind his former mark, and this time he should hit the board fair. If he does not do it, it is on account of some irregularity in his stride, and he must remedy this by more sprinting (a jumper should sprint for a fortnight at least

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before turning his attention to the jump). He has now got what I may call his "run up," but he will find that when he essays his first jump he will not hit the board. The reason is this. The last stride of a man about to jump is shorter than the strides preceding. A few yards from the board he pulls himself together—there is a sort of drawing in as it were—and the last stride is consequently shortened for the supreme effort. Therefore, he will find himself still a few inches short. These he must allow for next time, and even if he gets on the board at his next attempt, I counsel him, for assurance sake, still to shorten his run by a very few inches, for it is by no means impossible that in his effort to reach the board he has lengthened that last stride the merest trifle, and so has not obtained that perfect tightening of the muscles which is so desirable. Let him then go a little nearer still, and if his foot goes over the board he will know that his previous length of run was perfection. The full distance having been attained, it must be kept. The jumper must sprint as much as possible, especially in

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competition. Above all things, he must not succumb to "board funk"—that dreadful feeling that one can only get a good take-off by pulling up partially and going on again. He must get it into his head that he is bound by a mathematical law to hit the board because he has measured his run, and his stride is regular.

As to length of run, personal preference must influence. I cannot help thinking that twenty yards at full speed is ample. The jumper should trot steadily up to his mark and then break into his run. Of course, no one can attain his greatest speed in so short a distance, but steadiness is even more important than speed, and if a very long run is undertaken the jumper is not unlikely to swerve, or to roll and thus miss the take-off in the excitement that the effort of sprinting produces. Here, I think it convenient to refer to an alternative method of getting to the take-off, which I commend to the would-be jumper's serious consideration. I call it the "gallop," and it takes the form of a series of bounds from the taking-off

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foot, the last one being, of course, the leap itself. It has the virtue of perfect uniformity, and although one cannot develop so high a rate of speed as with the ordinary sprint yet a tremendous impetus can be accumulated, and the jumper can approach the board with perfect steadiness and confidence. I really cannot say if it has any superiority over the other method in actual distance the jumper is likely to clear, but for one who cares to judge by results I should like to advance the fact that the world's record-holder, P. O'Connor, made use of the method, and before him, I believe, Newburn, another Irishman, and the first jumper to clear 24 ft. I myself took it up on O'Connor's assurance of the perfect accuracy acquired by its use in taking-off (at that time I never seemed to be able to hit the board by means of the sprint method) and found it effective to the extent of clearing 23 ft. However, I abandoned the method partly on account of the excessive strain upon the taking-off leg, and partly on account of the fact that my average performance was rather less certain. But I cannot

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help believing that the "gallop" run-up would be eminently suitable for the high-jumping type of long jumpers such as O'Connor represented.

RISING HIGH

Here, again, our common-sense knowledge informs us that the higher a jumper goes in his leap the greater the distance he will cover. Of course, it is hardly necessary to explain that this does not suggest rising perpendicularly from the board. I should judge that the zenith of a good jumper's flight through the air is attained about 17 ft. from the board. A very good jumper will be well over 4 ft. above the ground at this point, and, as I shall show when I come to discourse upon that portion of this description concerned with prolongation of the flight, this is the critical stage of the performance, and, if the body is well-managed, an average or just super-average performance is converted into something exceptional.

Most long jumpers that we see (for instance at a college meeting) appear to do no more

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than skim the ground. Scarcely have they taken off when they land in the pit and all the momentum they have accumulated is comparatively wasted. How different is the jumper who rises high. He may have nothing like the same speed, but his higher flight enables him to gather himself together, draw his knees compactly up towards his chin, and finally to thrust his legs out when falling. Incidentally, also, the appearance of the jump becomes attractive.

To secure this rise in the air it is agreed by all experts that some obstacle fixed between the board and the pit should be cleared. Practice at this will develop a rise in the jumper's flight that will reproduce itself automatically when the obstacle is removed. With this object in view the jumper should proceed systematically, for it stands to reason that the longer a great height can be maintained the better will be the result. Further, the clearing of an obstacle will improve the spring to an extent which will be quickly and easily appreciated.

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The obstacle I recommend is a piece of worsted, the kind that is used to judge the finish of a race, and is inaccurately called "tape." This should be stretched across a pair of uprights, and, as it can be easily broken when struck by the legs or any other part of the body, it will not do the injury a cross-bar might; the jumper can leap at it without fear. The obstacle should be placed at such a distance from the take-off as will enable it to be cleared with an easy run, and the worsted should be fixed at as great a height as will enable the jumper to clear it *as a long jumper not as a high jumper*, viz., with knees drawn up and feet together skimming the obstacle, as in the photograph facing page 203. The jumper should ignore the length he clears—he is aiming for height not distance—and should lift himself over the worsted, raising his head and shoulders as far upwards as he can to restrain the downward tendency to the uttermost. Having cleared this height, he should move the obstacle onward until he finds he can no longer clear it. This is the

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crucial point. He should drop the worsted perhaps 6 in., then leap at it again, taking special care to lift his body by shooting his arms above his head and pulling his shoulders upwards as much as possible. The object here is to clear the obstacle fairly (if anything, when rising), not to clear it when dropping. This cannot be emphasised too strongly, for if the jumper can reproduce this lift in the air when at the top of his flight, he prolongs his flight and naturally adds to his distance.

PROLONGING THE FLIGHT IN THE AIR

This is the most difficult factor to master in the whole scheme of long jumping. Some fortunate jumpers have some kind of natural movement in the air which helps them to increase their rise, or to urge them a little further along the horizontal. O'Connor had a distinct lift in the air when he had reached the highest point on his arc of movement. Yet he did not know what he did in the air, and probably all his efforts seemed to him

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combined into one—a gigantic exertion of his muscles to reach the paper indicating the distance he hoped to clear. Other jumpers I have known had a “flip” which twisted their bodies into a sideways position, while others again moved their legs so as to appear walking in the air. Troussard, the Olympic champion already referred to, whose magnificent leap of 24 ft. 6½ in. surprised even his own countrymen, seemed to have a double spring—the second right in the middle of his flight. A photograph of him in Mr. T. A. Cook’s interesting “Fourth Olympiad” is very instructive. It shows him, as I take it, just beginning his descent—his arms well up in the air, and somewhat in front of him; his knees well lifted, though not so high as they were a moment since. I should certainly recommend every long jumper to study this and any other photographs which he can succeed in obtaining, and observing, and if possible criticising the attitudes demonstrated.

I have already indicated how this lift in the air may be acquired, and it remains for the

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jumper to practise this apart from any use of the worsted. I must warn him to expect a very difficult task and one requiring all his patience and courage under seeming failure.

He had best take this task independently of any other, and because it is well-nigh impossible to cultivate any one detail when jumping with a full run because the jumper's whole efforts are concentrated on distance only, I recommend a series of short runs beginning with five yards, and increasing when success begins to be apparent to ten yards, and finally working up to the full distance. These short dashes are extremely useful for cultivating the other factors of rise, and shooting the legs out, and further they increase the natural spring to an incredible extent when trying for distance—they probably summon up a remarkable amount of energy. I believe in utilising these short runs very much in practice, in fact more than the full runs. If a jumper with a five-yard run can clear over 16 ft. and with a ten-yard run about 19 ft., he has a fine spring, and

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ought to get well over 21 ft. when he runs his full distance.

Returning, however, to the "lift," the jumper should dash at the board (he need not worry about the accuracy of his take-off) and when about to leap he should look upward. He rises as high as he can, striving to lift the knees well, and whilst at the top of his flight—or rather when approaching it, for the rapidity of his movements doesn't leave much time for thinking what he should do—he should shoot his arms above his head, still looking upward, and should strive also to keep his knees as high as possible to restrain the tendency he has to drop his legs so soon as this exertion upward has had the effect of raising his body. Again I point out the difficulty of adopting a new and practically an acrobatic movement whilst in the middle of one's flight, and the jumper should get some observant friend to stand by the pit and analyse his movements to him afterwards. It would, I should say, be helpful, if this friend were to shout "up" whilst the jumper was rising in view of the fact that a performer

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is more likely to obey a command from without rather than an impulse from within.

· SHOOTING OUT THE LEGS

This final stage of the jumper's movements is the easiest of the series, and in fact is done quite naturally, but it is possible to do it badly, and a jumper, of course, will wish to make every inch that he can.

The knees should be kept high as long as possible, and the body should remain perpendicular. Then when the body has begun its descent, the head should crane forward towards the paper which it is sought to reach, the body should bend towards the knees, the arms which hitherto have been above the head should simultaneously with these other movements be pulled back sharply, and the legs should be flung out well in advance of the body. If the movements are well executed the jumper need have no fear of falling backwards. He will land not on his heels, but full on his feet with his knees almost touching his abdominal

LONG JUMPING

muscles, which ought to be strongly developed to endure the great strain, and he will run crouching out of the pit.

This movement should also be practised independently, and the helper suggested above could again be of use by calling out "down" as a signal to the jumper to look downwards, throw his arms back and thrust his legs out. To sum up, this is how the jumper should make his leap in practice. Before starting, he should fix his eyes on the piece of paper placed about 6 in. beyond where he expects to land. From his starting-point it will probably look as if he can clear it, and this will give him heart.' He should run hard, without faltering, and should try to think he is in competition. Just before taking off he must remove his eyes from the paper and look well up in the air. He should leap as high as he can, and at once seek to draw his other leg right up to the taking-off one. Then immediately the arms are shot above the head, every muscle is exerted to raise the body, and keep the knees well up; then the jumper looks down at the piece of

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paper, his body will follow the direction of his gaze, but the arms must be flung sharply back and the legs straightened simultaneously. The photograph facing page 222 shows a long jumper in almost ideal position at the highest point of his leap.

TRAINING AND PRACTICE

In the matter of training the jumper will find all he requires to know among authorities who can speak with knowledge superior to mine. For the most part, however, he should train as a sprinter does, with the addition of special exercises to render the abdominal muscles capable of enduring the strain forced upon them. He should enter for all the sprint races he can; his speed must be brought to as high a degree as possible, and uniformity of stride must also be maintained.

He should sprint for at least a fortnight before he approaches the jump, and should keep his muscles from hardening too rapidly, otherwise he may tear or strain a muscle which will place him on the shelf for at least a month,

LONG JUMPING

and will always be liable to go in the future. He should invariably go on the track with plenty of covering, and in the winter should be out as short a time as possible, taking care to keep the legs covered when he is not on the move. Some jumpers wear their trousers until they are about to jump, and any one who invests in a long blanket coat like those which tennis players wear will have expended his money to good purpose. In the summer jumpers are tempted to sit on the grass, and it is useful to have such a garment between the earth and their flesh.

While the preliminary period of sprinting is taking place, a little straight high jumping or mild hurdling may be indulged in, though to a very small extent. When the jumper begins his jumping practice proper, he should start gradually—item by item—giving himself a week's jumping with short runs over the worsted, then a period at the five- and ten-yard runs, studying each movement by itself until he has mastered detail, then he should give himself a week at five- and ten-yard runs trying for

ATHLETICS

distance. Finally, when he comes to essay his full run and jump, he will find himself in excellent form. After that, it is a question of keeping fit and preserving his speed and accuracy. Unfortunately, in this country long-jumping competitions are few and far between, or very little practice would be necessary. To jump in cold blood and in solitude is a melancholy and distasteful business, and I recommend the jumper to go out with a companion if possible so as to stimulate some sort of contest. To jump three times a week ought to be enough once fitness has been attained, and on two of these occasions the jumper would do far better (especially in the winter) to restrict himself to the shorter runs at the jump. When taking the full run three attempts are ample. I am aware that it is as difficult for a jumper as for a gambler to tear himself away. When he is doing well, he won't depart, when he is doing badly he can't; in the former case the hope of excelling; in the latter case the hope of finding his luck at last, holds him back. But he must remember that once he overtires

LONG JUMPING

himself, a muscle may snap and success is dear at that price, and that it is much better to leave the track when things are going badly and then calmly ask himself why. It may be his stride is not yet uniform, perhaps the weather is too cold, perhaps the wind is in his face, or perhaps some detail is still in need of development. Above all, do not despair. A little patience and the use of common sense, and all problems will be solved. It would perhaps be wiser to go as little as possible to the track for a week before the contest.

CHAPTER XVI

WALKING RACES

THIS form of athletic event requires a certain amount of definition. We all know how to walk—or think we do ; but when we come to walk fast for racing purposes, it is very hard to draw the line between what is walking proper and a species of jumping or running action.

The cardinal rule is that the walker's feet must never both be off the ground at the same time.

When one is running—the action being really a series of springs—the hind foot leaves the ground before the front one has arrived at its destination. For a fraction of a second both feet are off the ground. In fair walking the toe of the hind foot must not leave the ground till the heel of the other has touched it. The longer both feet are on the ground together the more obvious and straightforward the

W A L K I N G

walking action, but when the pace is quickened, the period of time when both feet are in contact with the ground becomes extremely brief. The aim of the fast walker is to make this double contact as brief as possible, and the referee of a race often has his work cut out to see that all the competitors are not at times evading this rule, and progressing by what is really a series of jumps.

It is obvious that at the moment when the front foot touches the ground as little as possible of the hind foot should be on the ground at the same time. If you watch a good walker in action you will see that merely the tip of the toe of the back foot is touching the ground when the front foot comes down, and that is raised and propelled forward almost instantaneously.

For fast walking it is necessary to go through what is called the "heel-and-toe" action, *i.e.* the first part of the front foot which touches the ground must be the heel. The photograph facing page 223 demonstrates this well. If this is not the case, and a man is walking fast it

ATHLETICS

is more than probable that he is "lifting" both feet off the ground at the same time, and is in consequence liable to disqualification.

Fast walkers in action do not present a very agreeable sight to the spectator. Their method of locomotion appears always forced and ungraceful, and one of the chief reasons for this is that most walkers endeavour to swing the hips to such an extent that their footprints will be found to be in the same line, in which case the stride is, of course, lengthened. Nearly all walkers should cultivate this swing of the hips, which is useful if not beautiful. The walker should glide rather than jump along, and yet should not be tempted to shuffle.

The knee of the advancing foot should be, of course, bent while swinging forward, and straightened just as the foot approaches the ground and kept straight throughout the stride.

It is not advisable to lean too much forward when walking fast, as this will tend to throw the weight too far forward on to the toes and occasion the competitor difficulty in complying with the heel-and-toe rule.

WALKING

In order to maintain a high standard of walking, it is absolutely necessary to pay strict attention to style. In a letter* to a sporting paper a gentleman recently asked that the following points should be urged upon the notice of walkers as worthy of attention :

(1) Both feet should never be off the ground at the same time ; the action to be distinctly heel and toe. The weight should be on the heels, as this conduces to fair walking.

(2) The body carriage should be upright.

(3) The knees should be well locked.

(4) The hips should be swung easily.

(5) The shoulders should be level with little or no up-and-down motion.

(6) The arms should hang low, and not too much play made with the hands. Properly used the arms will assist in lifting the body forward and in balancing it.

(7) The head kept well up.

The training for walking races should, of course, consist entirely of walking exercise.

* *Sporting Life*, November 26, 1911.

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It is best to begin gradually and walk short distances, gradually working up to the distance trained for.

Diet is, of course, important, especially for long distances, but there is no marked difference between the training necessary for walking and that necessary for running. No one should begin to think of fast walking at a racing pace until he has really mastered the rules of fair walking. But when he has really got into strict training he will find it safest always to train considerably over the distance to be raced.

Proper track walking shoes should be obtained from a man who is accustomed to making such articles. Names of such tradesmen can always be found out at the headquarters of any athletic club or in the advertisement columns of sporting papers.

The shoes should have a very low heel, and be broad and easy fitting. It is best to wear thin socks. If the feet get tender they should be soaked morning and evening in salt or alum and water.

WALKING

The chief walking records are : One mile in 6 min. 26 secs. by G. E. Larnier ; five miles in 36 mins. by the same man ; twenty miles in 2 hrs. 47 mins. 52 secs. by T. Griffith ; fifty miles in 7 hrs. 52 mins. by J. Butler.

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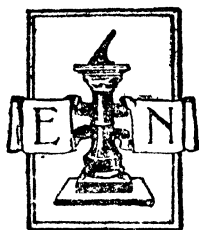
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