PRACTICAL TRACK & FIELD ATHLETICS

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Practical Track and Field Athletics

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LONDON

DAVID NUTT

57-59 LONG ACRE

1905

Published March, 1904.

The SCHILLING PRESS
129-133 West 20th Street
New York

To Evert Jansen Wendell, athlete, and leader in the encouragement of athletics; a representative of all that is best in American sport to-day, this book is dedicated by the author.

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INTRODUCTION.

THE high place which athletic sports and exercises occupy in our national life is a fact not open to argument. While we very properly encourage all branches of athletics and follow with interest the careers and records of those who excel in each particular branch, it is peculiarly in keeping with what the founders of our constitution were wont to term "the genius of our institutions" that we should bend our best energies towards encouraging sports which are not restricted to a favored few, but are open to the people as a whole.

Thus it is fitting that track and field sports should occupy an important position in the domain of athletic exercises. Football is confined largely to the Universities and Colleges; baseball consumes a great deal of time, tennis and golf take time and money as well; but track and field athletics, to borrow an expression used by ex-President Cleveland in speaking of the ideal democracy, seem particularly designed to "give the rank and file a chance." Sufficient capital to purchase a running suit and a pair of spiked shoes, sufficient nearness to one of the many outdoor athletic fields or indoor gymnasiums and a spare hour somewhere in the course of the day are all that are required to give any one a chance

to develop his latent possibilities at some one of the many forms of exercise open to him.

In addition the public at large probably does not appreciate that track and field athletics furnish a great opportunity for the development of brain as well as muscle. To take a concrete example, there is a prevailing and most erroneous impression that throwing the hammer is a sport which calls merely for the exercise of brute strength. A man who has never seen a hammer before spreads his feet wide apart, swings the hammer awkwardly above his head, and when he attempts to make his throw loses his balance and very often falls at full length, while the hammer is hurled a distance of some forty or fifty feet. At the other extreme we find a skilled performer like John Flanagan, the record holder, turning around three times at high speed within the narrow limits of the seven-foot circle and hurling the missile, with perfect control in every particular, some hundred and seventy feet. Between these two extremes lies the long course of training and practice, the gradual discovery of the different points which the athlete must acquire in order to become a successful performer. He must reason out for himself why the hammer is swung in a certain way and why the distribution of the weight of the body and the position of the feet bring about given results. In a word, while weight, strength, and physical condition all play their part, their relative importance is slight compared with the knowledge of how the throw should be made. The same rule holds good in all other branches of track and field athletics. It is

doing the thing in the right way, the "knack," which counts. It is brain first and muscle next.

Again, there is the physical benefit that comes from a rational indulgence in outdoor sports. The whole tendency of athletics works for good. The athlete abstains from liquor and tobacco. He does not eat unwholesome food. Exercise, bathing, and rubbing down keep his body clean and healthy. At the same time his mind is filled with healthy, natural outdoor ideals. He is not growing old too fast in an endeavor to rival the pathetic figure of the London gamin who says, "I'm ten years old, but if yer goes by the things I know, I'm most a hundred."

Lastly, track and field sports are something more than mere pastimes. True, they are primarily a recreation and a consequent aid to the more far-reaching aims of our daily life, but running through them all there is an undercurrent which calls forth and develops the same characteristics which make or mar us in affairs of greater moment. The athlete learns to appreciate the good qualities brought out in himself and his mates by actual competition. He learns to value the great quality of gameness, the spirit which fights on undismayed in the face of apparent defeat, and again and again at the last moment pulls out a victory. He learns to respect the rights of his antagonists and comes to realize that his individual success or failure is nothing compared to the success of the meeting in which he is participating, that he must regard the rights of the officials and the spectators, and that true sportsmanship, and not the desire to win at all hazards, is the spirit which should govern competition.

In a word, then, track and field athletics deserve to be encouraged because they are thoroughly democratic in character, because they furnish an opportunity for the development of brain and muscle, and because they teach a man how to control himself and how to conduct himself toward his fellows.

CHAPTER I.

Training in General.

IT is a truism that no workman, however skillful, can turn out a perfect piece of workmanship unless he has the proper tools with which to work. Similarly, no matter how much knowledge of his chosen branch of sport a runner or a jumper or a weight thrower may possess, he cannot convert theory into practical results unless he is physically in good trim. This, then, is the first problem which confronts the athlete before he comes to the second and more important one of how to acquire proficiency in any given event. He must try to discover how much exercise, how much sleep, how much food and what kind of food he requires to put him in the best possible condition.

If any athlete should ask for a fixed set of rules by which to govern himself in these matters, the answer must be that no such rules can be laid down. Probably no two athletes are exactly alike in temperament and characteristics. If a trainer has a number of men in his charge he must make a study of each one and experiment for a time until he is reasonably sure that a certain course of exercise, sleep and diet will bring about certain results. After this knowledge is acquired training becomes a comparatively simple process. Many trainers of college and school teams, however, cannot seem to get this idea through their heads. The sweeping

order will be given perhaps to a hundred men, "Sprinters practice half a dozen starts and then run a hundred and fifty yards at top speed" or "Quarter milers jog an easy half mile." The same amount of work is meted out to the squad just as if its members were all cut out on the same model and would respond to the demands made on them in exactly the same way. The fallacy of this course is obvious. Take the case of two sprinters, both capable of doing even time when in the best possible condition. A, we will say, is not very strong physically but has a highly nervous temperament which gives him great speed for a short distance. B, on the contrary, is strong and of a phlegmatic disposition. If the routine work which is given the whole squad of sprinters is hard, punishing work, B will doubtless thrive under it and at the end of several months be at top form, while A with equal certainty will be completely overtrained and unable to show anything like his real speed. If on the contrary the work is light, we shall find A in first-class condition and B entirely undertrained. The first rule to remember then is to make a study of individual characteristics and remember that nowhere more than in training is it true that one man's meat is another man's poison.

It is probably true that the average athlete is more apt to overtrain than to undertrain. He enjoys his work and is apt to do too much of it, making a possible gain in strength and endurance at an almost certain sacrifice of the feeling of spring and buoyancy which accompanies the very top of condition. When one is overtrained it is not always a mere matter of a few days' rest to put a man right again, but it often means a lay-off for weeks before the athlete recovers his form. If a man is training for an important event which is to take place on a certain day and has plenty of time to get in good shape for it there are two theories as to the best method of preparation. Some athletes believe in getting

into their best form as soon as possible and then doing just enough work to keep themselves fit; others believe in working up their condition gradually, deliberately seeking not to attain their best form until the day of the contest. Both plans have their dangers. In the first case overtraining and the bad results following an enforced lay-off are to be dreaded; in the second the athlete may do too little work in the desire to keep on edge.

With regard to diet, individual taste must again be given some play, although not to such an extent as in the case of exercise. A good safe diet is probably somewhat as follows: For breakfast some cereal, eggs or fish, toast and fruit; for dinner, steak or chops, beef or mutton, with plain cooked vegetables, stale bread or toast, and ice cream or some light, well cooked pudding for dessert; for supper, steak, chops or chicken, dry or milk toast and boiled rice or stewed prunes. This is not of course a hard and fast diet list, and it may be varied in many ways, but it is pretty sure that nothing on this list will prove harmful to the athlete.

A few other rules which are almost self-evident may be noted to advantage. Plenty of sleep is a prime requisite, tobacco and alcohol are strictly prohibited and worry and nervous strain must be avoided if possible. Ice water must not be thought of. Plenty of good cool spring water cannot do the slightest harm as long as care is taken not to drink an excessive amount at meal times. A light rub down before exercising is beneficial and prevents the danger of straining a muscle, especially during the period of Fall training when the days begin to grow colder. A thorough massage after exercising is most beneficial and keeps the muscles from stiffening or growing sore.

On the day of actual competition it is important to step to the starting line with plenty of energy in reserve, and it is a good plan to cease work altogether or to be content with

the very lightest practice for two or three days before an important meeting. Where the contest is one of exceptional severity, as, for instance, the all-around championship, a rest of anywhere from four days to a week is not too much.

After a season or two the athlete begins to discover for himself about how much work he needs to put him in good condition and consequently does not need to think so much about keeping in shape, but is able to devote more and more time to acquiring proficiency in the details of the event at which he is competing.

CHAPTER II.

Sprinting.

100 Yards Dash, 9 3-5s., A. F. Duffey, May 31, 1902. 220 Yards, 21 1-5s., B. J. Wefers, May 30, 1896.

THE term "sprint" or "dash" is confined to distances which a man can traverse at top speed and includes any distance from the ten yards dash sometimes found on the program of indoor athletic meetings, up to about three hundred yards. The standard distances, however, which come to mind at once whenever sprinting is talked of are the one hundred yards dash and the two hundred and twenty yards dash.

The most important thing in sprinting is the start. The fastest sprinters are the men who develop their speed in the first thirty yards, and this faculty of developing speed early is due in a great measure to the start. Until within recent years all sprinters started standing up with the left foot on the starting line and the right foot some distance back, according to their length of leg. All this is changed now and to-day practically every one uses the low or crouching start, which experience has proved beyond all question to be the quickest.

The athlete begins by measuring about four inches from the starting line and there digging the hole for his left foot.

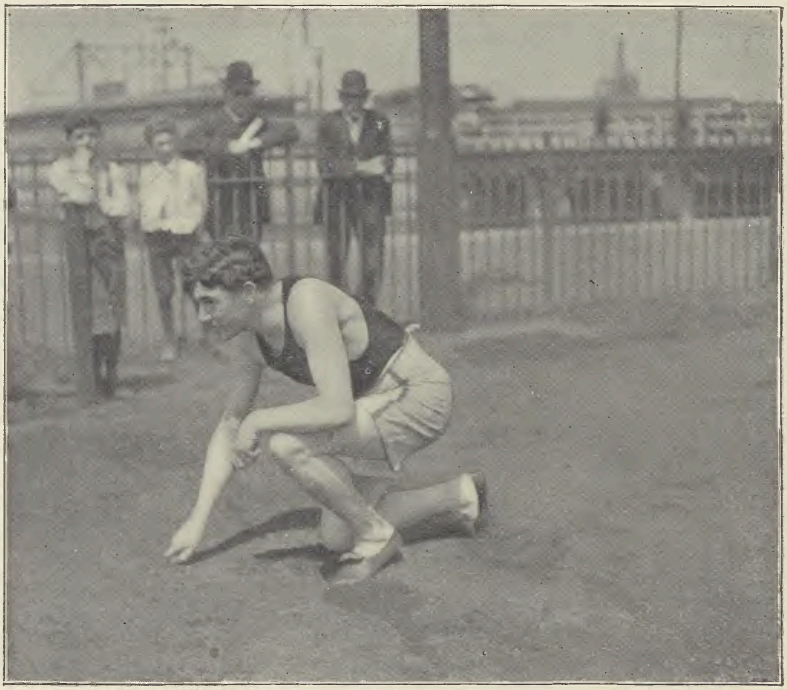


PLATE I.

"ON YOUR MARKS!" T. F. KEANE, PROFESSIONAL CHAMPION SPRINTER OF AMERICA.

The skilled performer is not satisfied with making a few scratches in the cinders with his spikes, although the novice often seems to regard this as sufficient preparation. The cinders should be carefully dug up with a small trowel or hoe for a depth of several inches at right angles to the direction in which the sprinter is going to run. The position for the right foot is found by placing the right knee opposite the middle of the left foot, and the spot where the right toe

PLATE 2.

"GET SET!"

rests while the right leg is in this position is the place to dig the hole for the right foot. Both hands are placed on the starting line, with the fingers as a rule extended and the arms perfectly straight. When ready to start the right knee is raised from the ground, the body is moved forward, and the athlete is ready for the signal. No definite rule can be laid down for the beginner as to the distance of the left foot from the mark and the right foot from the left. He

PLATE 3.

"GO!"

must practice different distances until he feels sure that he has got the best arrangement possible. A change of an inch and a half in the position of the left foot has been known to make a noted sprinter at least a yard faster in the first fifteen yards.

After the starter in a race has allowed the contestants a sufficient time to limber up and dig their holes he gives the order "Get on your marks," and the athlete assumes the position shown in plate No. 1. Next comes the command

PLATE 4.

THE FIRST BOUND.

"Set" and the position shown in plate No. 2 is assumed. The weight must be well forward and the mind intent on one thing only, to spring away at top speed at the report of the pistol. With the crouching start there is no excuse for becoming unsteady and starting before the report of the pistol. Sometimes a novice, from excessive nervousness, will start too soon, and as a penalty he is set back one yard for each offense. Some athletes try to gauge the moment when the starter's finger is curling over the trigger of his pistol

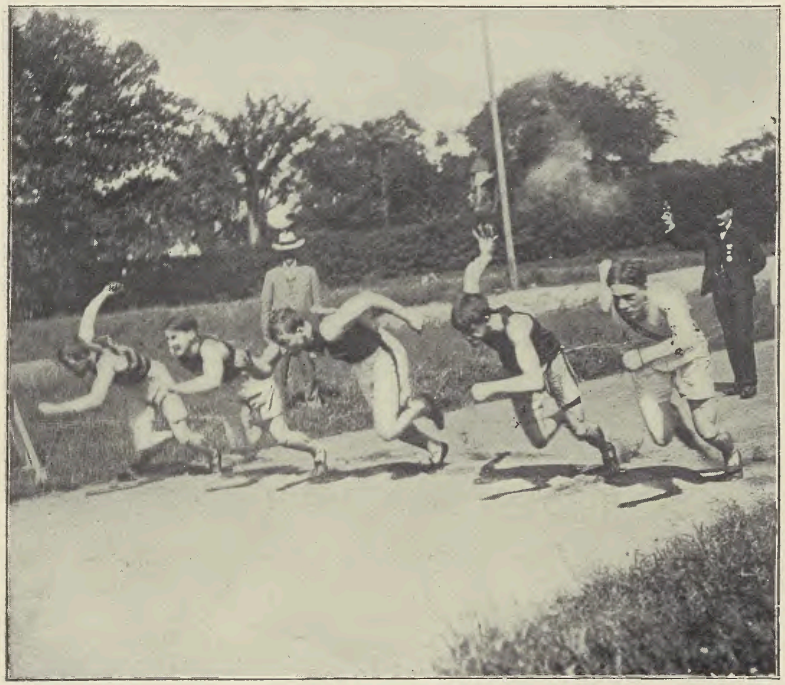


Photo by Pictorial News Co.

PLATE 5.

THE START OF THE INTERCOLLEGIATE GAMES OF 1902 WHEN ARTHUR F. DUFFEY, THE SECOND FIGURE FROM THE LEFT, MADE THE WORLD'S RECORD OF 9 3-5 SECONDS FOR 100 YARDS.

and to start just before the pistol is fired, when it is too late for the starter to check his finger. This is called "beating the pistol," and many athletes who would scorn to steal goods or money apparently think that it is perfectly proper to attempt to steal distance from their competitors in this manner. A little reflection will serve to show that trying to "beat the pistol" is nothing less than rank dishonesty, and

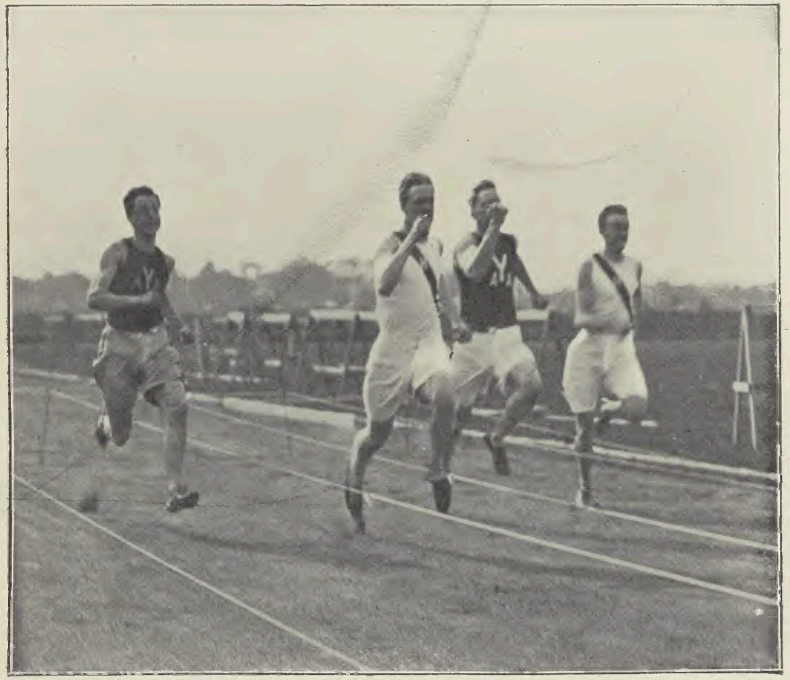


PLATE 6.

HALFWAY DOWN THE STRETCH. SCHICK OF HARVARD DEFEATING MOULTON OF YALE IN THE DUAL MEET OF 1902.

a man who wins a race by this means can have little upon which to congratulate himself.

A very common error in starting is to allow the body to assume an upright position too rapidly. The body should come up gradually, as shown in plates 3 and 4, and correct running position is usually reached by the time the runner has taken about four strides. It is not wise to try and take too long a stride at first. The strides should lengthen

PLATE 7.

THE FINISH OF THE 100 YARDS AT THE INTERCOLLEGIATE GAMES OF 1902. DUFFEY WINNING IN 9 3-5 SECONDS.

with the speed, until when the period of top speed is reached the athlete will be in full stride.

The arms are of great service in sprinting, and the importance of this fact is generally underestimated. When the hands are lifted from the ground at the start the left arm is moved forward and the right back, as shown in plate No. 3, so that arms and legs are working together in unison immediately after leaving the mark. Many novices make the mistake of throwing both arms forward or back, thus

preventing arms and legs from working together until after the runner has gone a considerable part of the distance. The arms are used in bent form and are moved almost straight forward and back and not across the body.

The advantage which may be gained from breathing properly is another point which is not generally appreciated. It is a good plan to practice inhaling a long breath when the command is given to "set" and to hold it for twenty-five yards or more, then to exhale and take in another breath at fifty or sixty yards and exhale and inhale again for the final spurt. The body is more buoyant when the lungs are filled with air than it is with the lungs empty. This breathing practice can be carried to such an extent that men can sprint seventy-five yards on one breath inhaled at the start and then exhale and inhale for the last twenty-five yards, and men have been known to run one hundred yards at top speed on the one inhalation taken at the start.

The athlete should try to run in as straight a line as possible, and after traveling from ten to fifteen yards the footmarks should be in a straight line to the finish.

The work which is necessary to develop a sprinter consists of much practice in starting, fast dashes of from twenty to thirty yards, speed work at from seventy-five to one hundred and fifty yards, and jogging or springing up and down the track to develop springiness. The sprinter must be taught to get his feet off the ground quickly, and to run on the ball of his foot all the time with the toes pointed straight ahead and not turned out in the position humorously referred to by trainers as "ten minutes of two." The knees should be raised more than in distance running and the body should be bent slightly forward over the legs. Before trying any speed work, at the beginning of the day's exercise the sprinter should jog up and down until he is thoroughly warmed up, and should not sit still at any time

during his practice. While waiting for his turn to start he should move up and down on his toes to keep the blood in circulation.

After starting from the pistol and finishing the required distance it is always important to slow up gradually and finish twenty-five or thirty yards beyond the finish line, for stopping suddenly is one of the worst things a sprinter can do.

If possible it is a good plan to do your work in company with another runner, taking a start if you are his inferior or giving him one if you excel him. The little spice of friendly competition is good for both, and very often a friendly critic can detect faults which the sprinter himself would never think of.

The sprinter's work should be varied. There must be days for practicing starting and running in good form, there must be days for "staying-up" work, and there must be days for regular speed trials. While one programme cannot be laid down which will cover the case of every sprinter, the following arrangement has proved a useful one for the average man after he has done some gymnasium work and has done some preparatory work on the track for about two weeks. On Monday the sprinter takes six or eight fast twenty-five yards dashes with thirty yards extra to slow up in. A short rest is taken before each start, and in conclusion the sprinter runs a fast seventy-five yards at top speed. On Tuesday instead of starting he jogs up and down for a straightaway of about one hundred and fifty yards, taking easy, springy steps and allowing himself a short breathing space in the middle of the jog. After covering this distance several times he runs through the one hundred and fifty yards in the following manner: Getting away easily, he runs for about thirty yards with a gradual increase of speed, then gets in about ten fast strides, slows up, and

immediately repeats the process, finishing with an easy thirty yards. After a short rest he finishes the day's work by jogging an easy quarter mile, running as easily as possible and remembering to lean forward. Wednesday calls for the same work as on Monday, but the run at top speed is extended to one hundred and fifty yards. On Thursday the sprinter jogs the one hundred and fifty yards distance three times, and finishes by doing three hundred and fifty yards at a fair gait. On Friday he runs through a fast hundred yards, takes a rest, and then runs a fast two hundred and twenty trial. Saturday's work is the same as that of Monday, but the short dash is reduced to fifty yards.

It is wise to use corks in the hands. They are commonly called grips, and are made of cork with a rubber band running through them, which is passed over the back of the hand before going to the start. They are a great help when a man is finishing, and, in fact, all runners derive some benefit from using them, sprinters especially. The running shoes have six spikes, arranged three on each side of the sole, and are made without heels. They should fit closely. For indoor running seven spikes should be placed in the sole, three on each side and one spike just under the big toe as far forward as possible. This spike will hold when starting on a wooden floor. For outdoor work it is a good plan to have a pair of practice shoes made to stand the preliminary work, and a pair of light racing shoes, which should be used only in competitions.

As a rule, famous sprinters are gifted with a fair amount of speed before they ever learn to run, and it is due to this faculty, combined with the instructions they receive from a competent trainer, that they attain their great proficiency. Some years ago men were picked for certain distances and events, mostly by their appearance. For instance, a sprinter was a man of more than medium height with long legs, well-

developed thighs, and medium calves. Nowadays two of the fastest sprinters in America are below five feet eight inches in height. In fact, one man is only five feet one inch, but has beaten ten seconds for one hundred yards on several occasions, and has run two hundred and twenty yards in twenty-one and three-fifths seconds. It does not follow that short men are not proper material for the sprinting events as much as the taller men. As a rule, the latter prevail. It is uncertain just when a man will be at his fastest, but as a rule the third or fourth season is the most opportune.

CHAPTER III.

The Quarter-Mile Run.

440 Yards, 47s., M. W. Long, October 4, 1900.

THIS race is one of the hardest at which the athlete has to compete, for it requires both speed and strength to become a good quarter-mile runner. Although the distance lies midway between the short dashes and the distance runs, it approaches the former much more nearly than the latter, and is practically a sprint all the way. Training for the quarter mile, while on the same plan as training for the shorter distances, calls for more "staying-up" work. The jogging distances must be lengthened and the speed work must be at longer distances than in training for the sprints, and must not be done at quite so fast a rate of speed. While the stride is the most important in the quarter mile, and consequently the point on which the athlete has to center the greater part of his attention, he must not neglect to do considerable practice work at starting, for up to the present time almost all quarter-mile racing is done on an oval track and the starting point is usually only a short distance from the first corner. The fastest man in a race, if he is a slow starter, may easily become "pocketed" in the confusion which results from a large field of runners turning the first corner together at high speed, so that it is impossible for him to make up the distance thus lost. It seems probable that in the future more atten-

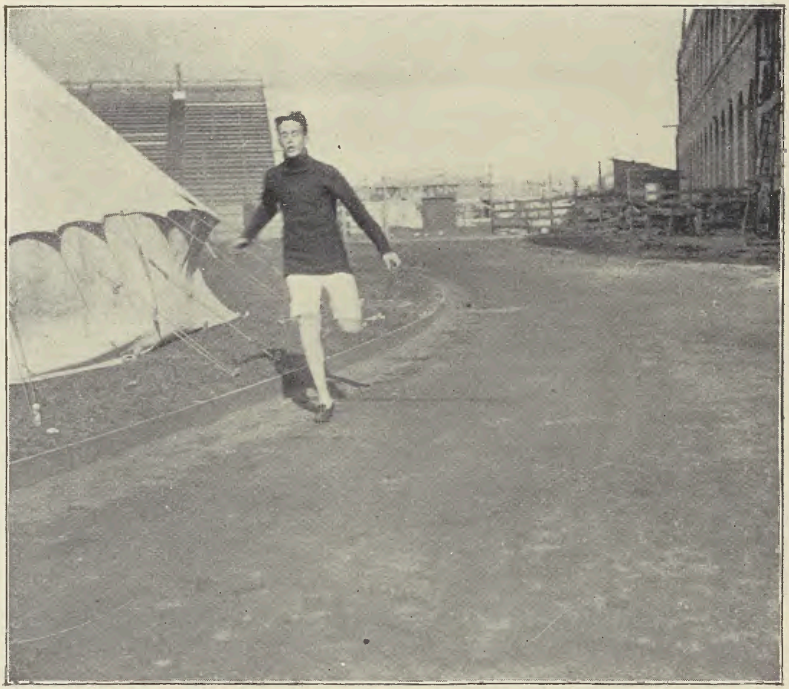


PLATE 8.

E. C. RUST, CAPTAIN OF THE HARVARD TRACK TEAM FOR 1904, RUNNING THE QUARTER-MILE.

tion will be paid to having the race run on long straightaways with one turn and to having the first part of the distance marked out with lanes as in the sprints. In any event, however, practice at starting is a good thing, for there is no opportunity to loaf in a quarter-mile race. The pace is fast at the start and keeps at pretty near top speed until within about fifty yards of the finish, where the runner has to exert every bit of muscular power and all the grit and determination which he possesses to bring him to the tape without faltering.

Photo by J. C. Hemment.

PLATE 9.

T. E. BURKE DEFEATING M. LONG IN THE QUARTER-MILE AT THE NATIONAL CHAMPIONSHIPS OF 1897, IN 49 SECONDS.

To acquire the proper stride for running a quarter mile the knees should be well raised and the athlete should run on the ball of his foot with the toes pointed straight forward. The body should be bent slightly forward and the arms, as in sprinting, should be moved straight forward and back, and not across the body.

The work at the beginning of the track season after the athlete has done some preparatory work indoors, and is consequently in fair condition, should be of such an order as to

PLATE 10.

T. F. KEANE'S STYLE AT THE QUARTER, SHOWING EXCELLENT FORM FOR THE SHORTER AND MORE STOCKILY BUILT RUNNER. MR. KEANE WAS AMATEUR CHAMPION OF AMERICA AT THE QUARTER-MILE IN 1894.

develop endurance. For the first week or two an easy half mile on Monday should be followed by a fair six hundred yards on Tuesday and two easy quarters with a rest between on Wednesday. On Thursday the athlete should run five hundred yards, the first two hundred and the last hundred at fair speed, and on Friday he should practice six or eight starts and finish with a good lively three hundred yards. On Saturday he should run a fairly fast quarter, getting away

Photo by J. C. Hemment.

PLATE II.

E. HOLLISTER OF HARVARD LEADING HIS FIELD IN THE HALF-MILE IN THE DUAL GAMES BETWEEN HARVARD AND YALE.

to a fast start, then settling down into a good fair gait, thinking especially of his stride and finishing the last fifty yards at top speed. As the season advances the work should be made a little harder. The speed work should be done at a little faster rate and the athlete should go through some good fast two twenty yard and three fifty yard dashes. Once in two weeks at least he should run a trial to see whether it is endurance or speed that he lacks most. As in sprinting, it is always a good plan to work with others, practicing starting and getting to the first turn at top speed as if in actual competition.

Quarter-milers as a rule are rather tall with long legs,

for a short man is not capable of developing a stride long enough to cover the distance in fast time. A man who can run a good two twenty yards can almost always be developed into a quarter-miler and vice versa. Occasionally phenomenal quarter-mile runners are discovered who are gifted with exceptional ability and do not require a great deal of development. To the ordinary man, however, careful steady training is bound to be of service. A man may train for three years and think that his improvement is painfully slow, and then all at once will begin to develop very fast, and in a short time be running at greater speed than he ever dreamed of.

CHAPTER IV.

The Half-Mile Run.

880 Yards, 1m. 53 2-5s., C. H. Kilpatrick, September 21, 1895.

WITH the change from the quarter to the half-mile run, speed becomes of much less importance and endurance becomes an absolute necessity. Of course a first-class half-miler, a man who can beat two minutes, must be possessed of a fair amount of speed, but endurance must be cultivated at all hazards. Some cross-country running during the winter, combined with gymnasium work for the upper part of the body, is the best preparation for the running season.

It is of the utmost importance that strict attention should be paid to good form and to the manner of striding. The knees should be carried fairly high and the athlete should run on the ball of his foot. Some men acquire the bad habit of curving the instep, which breaks and shortens the stride. While a long stride is desirable, the runner must be careful not to acquire an exaggerated style. The stride must be natural and comfortable, and he must be able to sprint when called upon. The body should be carried slightly forward and the arms should not be swung too high, but should be carried easily, so that the runner will feel that he is getting some benefit from them. Another common fault is to raise the heels too high behind, wasting energy and tending to develop a slow style.

PLATE 12.

W. COLWELL OF HARVARD WINNING THE HALF-MILE IN 1M. 58 3-5S. AT THE HARVARD FALL GAMES OF 1903.

The programme for the first week on the track should be somewhat as follows: Monday an easy three-quarters, Tuesday a fair half, Wednesday some jogging and a good quarter mile, with special attention to running in good form, Thursday a fair six hundred yards, Friday an easy thousand yards, and Saturday some sprinting, with a good quarter to wind up with. Later on in the season this work may be increased somewhat and an occasional time trial should be run, as in the case of the quarter mile, so that the athlete may

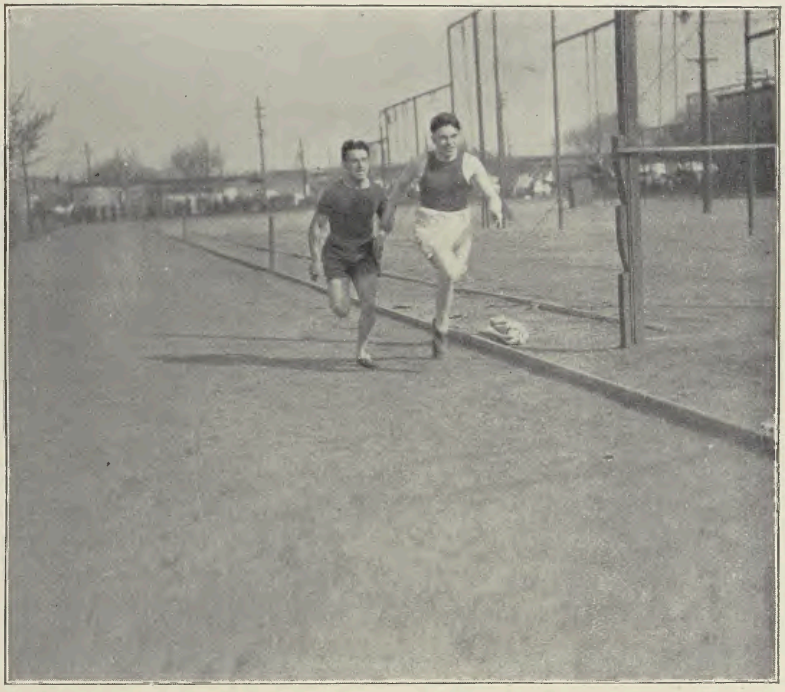


PLATE 13.

T. F. KEANE DRAWING AWAY FROM HIS PACEMAKER (E. B. HYNES) IN A FAST HALF-MILE TRIAL.

know whether the work he is doing is tending to make him deficient in speed or in endurance.

While a first-class half-miler could do a quarter in somewhere near fifty-two seconds, he usually runs the first quarter of a two-minute half in from fifty-seven to fifty-nine seconds. If he runs his first quarter any faster than this, the pace tells upon him so that he is unable to make a strong finish.

CHAPTER V.

The One-Mile Run.

One Mile, 4m. 15 3-5s., T. P. Conneff, August 28, 1895.

THE mile is one of the hardest running events on the entire programme, and the necessary endurance cannot be cultivated in a week or a month, or as a general rule in a year. Cross-country running is the best work that a mile runner can do to lay a thorough foundation for the subsequent training necessary for the mile. No one can expect to do wonders the first season, and as a rule the third year is better than the second and the fourth better than the third.

It is of prime importance for the beginner to develop an easy manner of running, for in a hard race like the mile an easy style is bound to be of assistance. Every muscle must do its share and all the weight must not be thrown on the legs. The knees do not need to be lifted as high as in the shorter runs, but the stride adopted must be smooth, even, and springy. The longer the stride the greater the advantage to the runner, but he must remember not to over-stride in his attempt to gain ground and thus acquire an exaggerated style. As in the shorter runs, he must run on the ball of his foot with the body carried a little forward and the arms swinging easily at the sides. It is of great importance to be a judge of pace, and if the runner always tries to figure at what gait he is running, he will be enabled to judge almost

Courtesy of Boston Herald.

PLATE 14.

MR. COCKSHOTT, THE FAMOUS ENGLISH MILER.

to a second the time which he is taking to run each quarter of a mile. It seems probable that about one minute and five seconds is fast enough for the first quarter, even if a man is trying to do the full distance in four minutes and thirty seconds. One noted amateur who could do four minutes and thirty seconds for the mile used to run a slow three-quarters and run his last quarter in fifty-seven seconds, but such form as this is exceptional. Some men manage to

change their gait in the last lap, and thus relieve the leg muscles by placing a different tension on them.

The following schedule is given for the average week's work: Monday a mile with a fairly good three-quarters and the last quarter easy. Tuesday a half mile in about two minutes ten seconds, a rest, and then another easier half mile, sprinting the last hundred yards. Wednesday jogging up and down the straightaway, rather quicker than if running a mile, followed by an easy one and one-half miles. Thursday a fast half, followed by a rest and an easy three-quarters. Friday an easy two miles, sprinting the last hundred yards. Saturday a mile trial on time. Sunday some walking.

It is an undeniable fact that athletes in this country do not seem to be able to make a success of running distances. Although more men try for the short distances than for the long, there are a greater number of failures at the longer distances. The lack of endurance and ability to stay is very marked when one of our athletic teams meets an English team in a track athletic contest. While we are almost sure to win all the runs up to the half mile, in the distance runs there is absolutely no comparison. In England it is no very uucommon thing to have men who can beat four minutes twenty seconds for a mile. In fact, at the British championships in 1901, the winner, J. Binks, did four minutes, sixteen and four-fifths seconds, the second man was only one yard back, and the third and fourth men also ran inside four minutes twenty seconds. Our American record is four minutes fifteen and three-fifths seconds, but the maker, T. P. Conneff, is not a native of this country, but came over from Ireland. Our next best mile, four minutes twenty-one and four-fifths seconds, was made by G. W. Orton, who is a Canadian.

CHAPTER VI.

The Two-Mile Run.

Two Miles, 9m. 27 4-5s., A. Grant, September 26, 1903.

IT distances of two miles and upwards endurance becomes the one essential and speed is practically of no importance whatever. As a preparation for the long-distance runs a man should devote his spare time during the winter and early spring to cross-country running and walking, beginning easily and gradually extending the length of the runs as his condition grows better and better. It is not necessary to run every day in the week; two days' running and one day's walking is sufficient, and other sports may be indulged in on the off days to give a spice of variety to the training. All this work is absolutely necessary to develop the endurance and general ruggedness, without which a distance man can never be really first-class.

With the beginning of track work in the Spring the finer points must be studied and more attention devoted to the stride, the position of the arms and body, and the proper manner of breathing. The first consideration should be the stride, the exact length of which is a matter of the utmost importance to the distance man. Even a few inches in each stride will make a difference of yards in long races, so that a short choppy stride is fatal, while on the other hand the runner must be sure that his stride is a comfortable one and

Photo by Pictorial News Co.

PLATE 15.

W. E. SCHUTT WINNING TWO-MILE RUN AT INTERCOLLEGIATE GAMES, 1903.

that he is not overstriding. While some men try to make the thigh muscles do most of the work and others use the leg from the knee down, the best way is to use the whole leg from the hip down. The athlete must run on the ball of his foot with the toes pointed straight forward, taking care not to curve the instep or to raise the heels too high behind. The body should be carried a little forward and the arms should swing easily by the side straight forward and back.

The head should be kept straight up and not thrown backwards.

It is absolutely essential for the distance runner to be a good judge of pace and to know at what rate he is running each lap, for a man who is not a good judge of the speed at which he is traveling can easily be led into following a decoy runner who is put into the race merely for the purpose of drawing out some of the competitors and exhausting them by a fast burst of speed at the start.

As a rule heavy men do not make good distance runners. Small men gifted with plenty of strength and endurance, and moderately tall men who are not burdened with superfluous weight, are the proper candidates for the distance events.

The training for the two-mile run necessarily consists almost entirely of staying-up work, although occasional fast work on the straightaway will develop quickness and speed. In doing this work, however, the athlete must remember to use his regular stride, for a shorter and quicker stride places a different tension on the muscles. A week's work is about as follows: Monday an easy two miles. Tuesday a mile and a half, with the first mile at a fairly good gait and the last half easy. Wednesday a good fast mile. Thursday an easy two and a half miles. Friday a fair mile and a half. Saturday a two-mile trial. Sunday some walking.

CHAPTER VII.

The Half-Mile Walk.

Half-mile Walk, 3m. 22-5s., F. P. Murray, October 22, 1883.

THE only claim of the half-mile walk for consideration in a work on track athletics lies in the fact that it is still retained as one of the ten events which go to make up the list of the individual all-around championship.

The first difficulty in store for judges of walking and competitors alike is to determine where walking ends and running begins. The test of walking, "square heel and toe walking," as it is usually called, is that both feet are on the ground at the same time. That is, the toe of one foot does not leave the ground until the heel of the other foot touches it. To walk fairly the knee must be locked as the leg is thrown forward, so that the whole leg from the hip down is perfectly rigid and remains so while the foot is on the ground, the knee, of course, being allowed to bend as the foot is brought forward for another stride. This is the first and most important principle in fair walking. The legs must work from the hips down. At each stride the hips are given free play, the body swaying slightly from right to left. This imparts a curious rolling motion to the walker's gait which never fails to excite the laughter of the onlookers, but which enables the walker to get over the ground at a tremendous rate of speed.

Photo by Pictorial News Co.

PLATE 16.

ELLERY H. CLARK WINNING THE HALF-MILE WALK IN THE ALL-AROUND CHAMPIONSHIPS OF 1903.

One fault which the walker must guard against is walking too much upon the heels. This imparts a jerky spring to the whole leg and increases the danger of the knee not locking properly. There is no attempt to acquire a springy gait in the half-mile walk. The step is taken from the whole sole of the foot.

The other essential to fast walking is the use of the arms and shoulders. The arms are bent at the elbow, the right arm and shoulder being swung forward in unison with the

left leg and vice versa. The arms are allowed to come well up across the chest and the elbows are carried low and well back.

Almost every muscle in the body is thus called into play in the half-mile walk, and it is an extremely exhausting event which calls for much preparation, the strain on the muscles of the front of the leg from the knee down being especially severe.

CHAPTER VIII.

The One Hundred and Twenty Yards High Hurdle.

120 Yards Hurdle, 15 1-5s., A. C. Kraenzlein, June 18, 1898.

THE high hurdle race is one of the prettiest and most interesting events of an athletic meeting. There are ten hurdles, three feet and six inches in height, and these are placed ten yards apart, leaving fifteen yards from the start to the first hurdle and fifteen yards from the last hurdle to the finish line. At all well-regulated meetings each competitor has a separate set of hurdles. The method of hurdling has changed in late years. The old style of going over the hurdle was to curl the leading leg in such a manner that from the knee down it would be almost parallel with the top of the hurdle. The new style is to curl the leading leg, but slightly, and, in fact, almost stride across the hurdle. This method gives the long-legged man a distinct advantage. In training for the high hurdles the greatest difficulty is found in reaching the first hurdle at top speed, for it is in this first fifteen yards that sufficient speed must be developed to carry a man through the full distance. If he loses here, he is sure to be slow all through. The start used is the same as the sprinting start, but the strides to the first hurdle must be arranged so that the athlete is not too far away from the hurdle or too close to it on his take-off step. Very often it is necessary to shorten the first few strides, or to start with the right foot forward in-

PLATE 17.

THE OLD STYLE OF CLEARING THE HIGH HURDLES. ELLERY H. CLARK.

stead of the left, to insure getting this distance correctly. There should be three strides between hurdles after landing. This necessitates taking-off and landing on the same foot, the stride over the hurdle being between thirteen and fourteen feet. In practice it should be the main object to get as close to the hurdle as possible without touching it, the rear leg coming over with the foot turned outwards and not downwards. By trailing downwards the knee is brought low and the toes are liable to pull over the hurdle. It is of the utmost importance to remember that the longer the body is allowed

Courtesy of Boston Globe.

PLATE 18.

THE NEW STYLE. F. W. BIRD OF HARVARD.

to remain in the air while going over the hurdles the more time is wasted. The correct theory of hurdle racing is to keep close to the hurdles and to the ground, and to bring the legs down again as quickly as possible as each successive hurdle is cleared.

The aspirant for hurdle honors must practice high jumping and sprinting besides his regular practice over the hurdles. He should begin by taking about three flights easily, and in all his practice should start exactly fifteen yards away, so that he will be learning just how to start and where his take-off foot should be in front of the first hurdle. It is not

Courtesy of Boston Globe.

PLATE 19.

THE NEW STYLE. J. H. CONVERSE, HARVARD'S FAMOUS HURDLER.

a good plan to hurdle every day. High jumping and sprinting should be practiced to develop spring and speed. It is very good practice to raise the knees in front of the chest. This exercise strengthens the muscles which lift the knees. Another good exercise for the trailing leg is to raise that leg with the knee bent in a trailing position, while the body is held as straight as possible, so that the position will be nearly that assumed while going over the hurdle. After continued practice it will be noticed that the landing leg has a tendency to become sore on the shins from the impact with

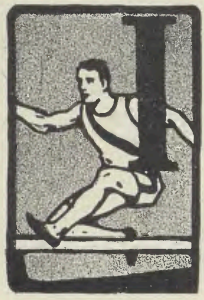
the track, and most hurdlers are troubled in this way, but as a rule the soreness seldom gets so bad that it compels a man to stop. A rest of a day or two is usually of great benefit. In going over the hurdles the athlete should learn to travel in a straight line, for the least tendency towards landing with the foot too far under the body will throw the body sideways and cause a loss of speed. Always practice sprinting fifteen yards after clearing the last hurdle, even when not using the full ten flights, to give the faculty of finishing fast.

A week's programme is something as follows: Monday four flights six times to acquire good form, finishing with an easy quarter-mile jog. Tuesday three flights four times at full speed and then some easy work over the hurdles to correct the faults which appear in the speed work. Wednesday six or eight sprinting starts and a fast seventy-five yards dash. Thursday six flights three times, practicing a fast finish and some easy jogging or a little easy high jumping. Friday the whole distance twice at very nearly top speed. Saturday a speed trial over the whole distance.

CHAPTER IX.

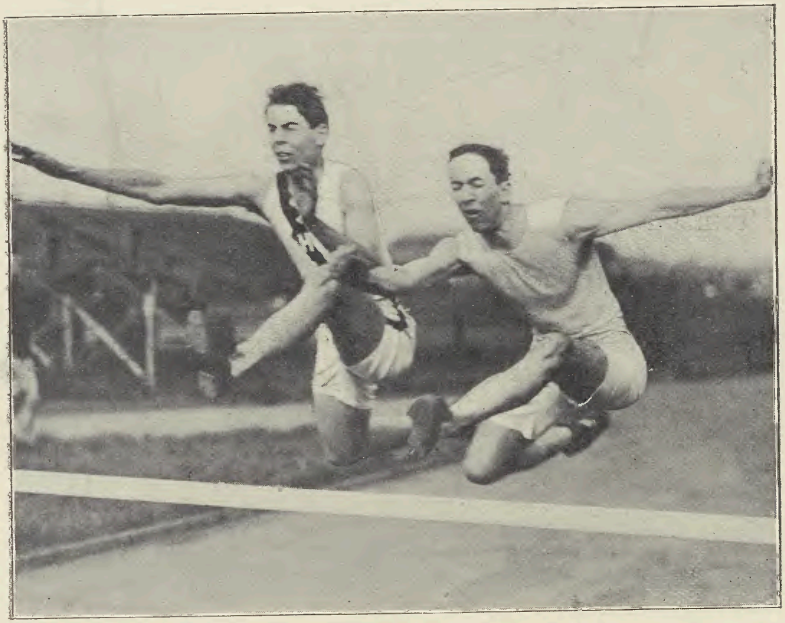
The Two Hundred and Twenty Yards Low Hurdle.

220 Yards Hurdle, 23 3-5s., A. C. Kraenzlein, May 28, 1898.



IN this event, as in the preceding, ten hurdles are used, but they are only two feet and six inches in height and are placed twenty yards apart, leaving twenty yards from the start to the first hurdle and the same distance from the last hurdle to the finish. The lessened height of the hurdles makes the race more a question of sprinting ability and less a question of ability to take the hurdles properly, although there is a certain rhythm in striding over the hurdles which is difficult to acquire at first.

The beginner will find that he will be obliged to take about nine strides between the hurdles, but after some practice he will be able to reduce this number to eight. This necessitates springing off each leg alternately, and consequently is somewhat of a handicap, and the best method, which can be accomplished by practice, is to reduce the number of strides between the hurdles to seven. The best method of taking the hurdles is to stride or practically step across them with very little curl of the leg and without any break or stop in taking off or landing. As in the high hurdles, the athlete must remember that taking the hurdles high is so much wasted time. He must skim the hurdles as closely as



Courtesy of Boston Globe.

PLATE 20.

THE LOW HURDLES; BIRD AND PETERSON OF HARVARD.

possible and must not keep his body in the air an instant longer than is necessary.

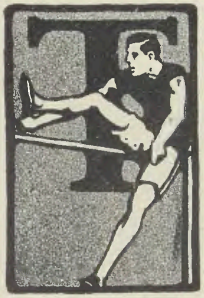
Speed work on the flat and over four or five hurdles after the athlete has learned to take them properly is the best kind of practice, but a trial through the whole distance at least once a week for staying-up work should not be neglected. On days when no hurdling is done some starting and long sprinting and some easy quarter miles will prove beneficial. The programme for an average week's work should be about as follows: Monday five flights four times at full speed and the full distance at a moderate pace. Tuesday seven flights at top speed twice, three flights four times fast,

and an easy quarter mile. Wednesday some starting, a little practice in taking the hurdles properly, and a fair three hundred and fifty yards. Thursday five flights three times at fair speed. Friday three flights five times at full speed and an easy quarter. Saturday a trial over the full distance.

CHAPTER X.

The Running High Jump.

Running High Jump, 6 ft. 5 5-8 in. M. F. Sweeney, September 21, 1895.



THE running high jump is perhaps the most scientific of all the jumping events, and there is no event where careful study of the proper method will be better repaid. Until within comparatively recent years all athletes ran at the bar from one side or the other, clearing it in a sitting posture, as shown in plate No. 21. It is clear from a study of this style of jumping that there is a great deal of wasted effort, and that sooner or later the hips are bound to strike the bar. This danger is avoided by the modern style of jumping which is now almost universal. The athlete runs straight at the bar and throws his legs high in the air and directly forward, causing the body to assume a horizontal position while going over the bar. Roughly speaking, the difference between the height which can be cleared at the old style and the new is from four to six inches.

Although there are various methods of clearing the bar under the present style, the run used is practically the same in every case. Some speed is necessary, but a regular sprint at the bar is impracticable since the speed acquired would carry the body directly forwards and not upwards. On the other hand a slow cautious crawl towards the bar, while it may be perfectly serviceable at low heights, will not serve

Photo by Pictorial News Co.

PLATE 21.

THE RUNNING HIGH JUMP. OLD STYLE. MR. GREEN OF BALTIMORE.

as the bar begins to be raised higher and higher. The athlete's spring may carry him up over the bar at almost any height, but there his momentum fails him and struggle as he may he falls directly upon the bar instead of clearing it. The speed with which different jumpers approach the bar varies a great deal. Some find that they have to depend to a great extent upon speed; others that the spring is for them the important part of the jump. The beginning of the run may be as slow as the jumper desires, but the last few strides, from three to six as a rule, depending upon the physical

Photo by Pictorial News Co. PLATE 22.

THE HIGH JUMP WITH THE TURN. R. P. KERNAN WINNING, HARVARD-YALE GAMES, 1902, AT SIX FEET.

make-up of the jumper, must be long, powerful springs at increased speed to give the necessary impetus. The body should be bent slightly forward during the run.

Although the method of clearing the bar is to a great extent the same in the case of all jumpers, there are two or three variations in style which have lead to a real difference of opinion among experts as to the best possible method. One class of jumpers, as a rule slim men of unusual height, simply gather their legs well up in front of them and shoot

Courtesy of Boston Herald.

PLATE 23.

R. P. KERNAN LANDING.

over the bar in a horizontal position with little or no movement of the body. Jumpers who are not gifted with such unusual height have to depend more upon a series of quick movements with the legs and body. The jumping foot is turned slightly so that in rising the body is turned half around. Then just as the body is going over the bar the leg from which the athlete has jumped is kicked down and out, turning the body completely around, drawing both hips and shoulder away from the bar and enabling the jumper to land directly facing the point from which he started.

Photo by Pictorial News Co. PLATE 24.

THE STRAIGHT OVER METHOD WITHOUT TURN. F. W. C. FOSTER OF HARVARD.

The leg that is not used to jump from must be thrown high in the air as the jumper leaves the ground to give the body the necessary horizontal position or "lay out" as it is termed. Still another class of jumpers prefer not to turn the jumping foot at all, or at the most very slightly. The knee of the leg not used to jump from is drawn in close to the chest and then shot out with tremendous force. The leg from which the athlete has jumped follows suit, and then to avoid the danger of the hips touching the bar a jerk is given with the back and shoulders and the hips are curved up and over the

bar. Each style of jumping has its advocates, and the merits and defects of these various sub-divisions of the same general style are so evenly balanced that no absolutely decisive opinion can be expressed.

The commonest fault with beginners at high jumping is to jump every day and to keep on trying to do their highest on every occasion. It is extremely easy to grow stale by doing too much jumping. Three times a week is ample, twice for easy work at comparatively low heights to obtain good form and once for a regular trial for height. On the off days practice in starting and good lively jogging up and down on the toes is good exercise for developing spring.

The shoes for the running high jump should have a strong heel with two spikes and a circle of sponge rubber should be worn inside the shoe.

CHAPTER XI.

The Running Broad Jump.

Running Broad Jump, 24 ft. 7 1-4 in. M. Prinstein, April 28, 1900.

A SUCCESSFUL broad jumper must possess two qualities, speed and spring. It seems probable that in nine cases out of ten the former of these qualities is emphasized at the expense of the latter. It does not require any great skill to run down for the take-off at full speed, and nearly every sprinter of fair ability can clear nineteen or twenty feet without effort. The successful broad jumper, however, is the man who realizes that it is a genuine jump which he is attempting and not a sprint with a perfunctory lifting of the legs at its conclusion.

The first thing for the beginner to do is to find out the exact length of the run which he must take preparatory to the jump itself. Speaking generally, it is customary to take about sixteen strides, which cover a distance of about one hundred feet. It is a good plan for the beginner to make two marks, one fifty feet and one a hundred feet from the take-off. He must begin to run at good speed and increase the pace until when he strikes the fifty foot mark he will be travelling at top speed. From the fifty mark on the runner must exert every effort, for every bit of additional speed will impart so much more momentum to the body after it leaves the ground. The strides must be of natural length. If the

PLATE 25.

THE RUNNING BROAD JUMP. ELLERY H. CLARK LEAVING THE TAKE-OFF.

last stride is too long the body is thrown backwards and a weak jump is the result; if too short the body is pitched too far forward and the jumper has no chance to get up into the air. The final stride should bring the toe exactly even with the outer edge of the take-off board. The exact distances for each individual athlete can be discovered only by a good deal of practice, and the condition of the jumping path, the direction and velocity of the wind and the temperature of the day are all factors which must be taken into consideration in lengthening or shortening the distances.

Photo by Pictorial News Co.

PLATE 26.

MEYER PRINSTEIN, AMERICA'S GREATEST BROAD JUMPER, IN MID-AIR.

The discovery of the proper length of the run, valuable as it is, is of secondary importance to the jump itself. It is absolutely imperative for the athlete to get well up into the air. To do this he must be able to run down to the take-off with full confidence that he will strike the board correctly, and must have his mind intent on the moment when he springs from the board. The body must be bent a little forward and when the spring is made both knees must be raised as high as possible and held there until the moment when the jumper is about to touch the ground. Then the feet

PLATE 27.

ELLERY H. CLARK WITH KNEES WELL RAISED IN THE MIDDLE OF THE JUMP.

should be thrown as far in advance of the body as possible.

Shoes for broad jumping should have a strong heel with two spikes in addition to the six spikes in the sole of the shoe, and a circle of sponge rubber on the inside of the shoe under the heel to prevent the danger of a stone bruise. There is considerable jar on landing from a broad jump, and it is a good rule never to jump unless the landing-place is carefully dug up.

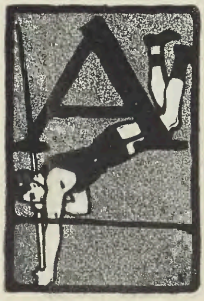
The ambitious broad jumper must be extremely careful not to practice too much. It is one of the easiest events on

the whole program at which to become stale, and really first-class jumpers have been known to go backwards week after week from excessive practice, so that from clearing twenty-one or twenty-two feet without difficulty, they were forced to exert every effort to accomplish a jump of nineteen or twenty feet. Three times a week is enough to jump, and an actual trial should not be indulged in more than once a week. Practice at starting, sprinting and high jumping will fill in the odd days and prevent a man from going stale. A protracted number of attempts on the same day should also be avoided. A jumper should never make more than a dozen attempts at one time and if his work is fairly satisfactory it is better to limit the number to six or eight.

CHAPTER XII.

The Pole Vault.

Pole Vault, 11 ft. 10 1-2 in. R. G. Clapp, June 18, 1898.



AS an object of interest to the spectators the pole vault often suffers from the great amount of time which it takes up, and from the fact that it is usually placed at the very end of the program of events. On the other hand, it is the most spectacular of all the field events and the sight of the athlete clearing the bar at a height of eleven feet or more never fails to arouse the enthusiasm of the onlookers.

Unlike the high jump, where different styles are permissible, there is practically but one correct style of pole vaulting and the slightest deviation from good form is certain to cost the performer dear.

Two marks should be used, as in the running broad jump, one about fifty feet and one about a hundred feet from the take-off, and while the athlete, encumbered with the long pole which he carries, cannot run at the take-off with the same speed which he would use if he were trying a broad jump, he must nevertheless remember that to get over any considerable height he must be travelling at pretty nearly top speed. Before starting to take his run the vaulter places his pole against the cross bar, measures with his eye the point where it touches, and places his right hand a few inches above this point. The left hand is placed lower down and

Photo by Pictorial News Co.

PLATE 28.

POLE VAULTING. THE OLD STYLE.

the end of the pole which is to be placed in the ground is carried somewhat higher than the vaulter's head as he runs down to the take-off, so that when he makes his vault the sudden drop of this end of the pole imparts a powerful impetus upwards to the other end and enables him to leave the ground just as the pole enters it. If the pole is placed in the ground before the athlete makes his effort, a tremendous strain comes on the middle of the pole and the danger of a broken pole and an injured athlete becomes imminent.

Formerly the position of the hands remained the same

Photo by Pictorial News Co.

PLATE 29.

THE NEW STYLE. MCLANAHAN OF YALE.

when the vault was made, but a glance at plate No. 28 will make it clear that no very forcible pull can be exerted while the hands are placed in this manner. The present method is to shift the lower hand upwards when the pole is placed in the ground. Then with both hands in a natural position for a strong effort the athlete pulls up with all his force, gets his feet higher than his head for a clean shoot over the bar and when the pole is nearly upright lets go and lifts his arms straight up so that they will not strike the cross bar in his descent. The body is turned directly over the bar as the

athlete clears it and he should land facing the direction from which he has jumped.

Vaulting poles are usually made of spruce and may be solid or hollow, or may contain a steel rod or be made entirely of steel. They are from twelve to eighteen feet in length and should be wound with electric tape to make the vaulter certain to get a secure grip. Some poles are made with a metal spike at the end, but the majority of successful pole vaulters prefer to have the pole blunt at the end and to make a hole in front of the take-off in which to place the pole and prevent its slipping.

As in high jumping and broad jumping it is a mistake to vault more than three times a week. Exercise tending to strengthen the upper arms and shoulders should be practiced in addition to the regular practice at pole vaulting. It is the temptation of many athletes to practice at low heights which they can clear at ease with the idea that they are attaining a good style. It seems probably that after a good style is obtained this practice at low heights does more harm than good for the speed of the run, the pull upwards and the whole style of the vault are materially different if the cross bar is at a height of eight feet or at a height of eleven feet.

CHAPTER XIII.

Putting the Sixteen-Pound Shot.

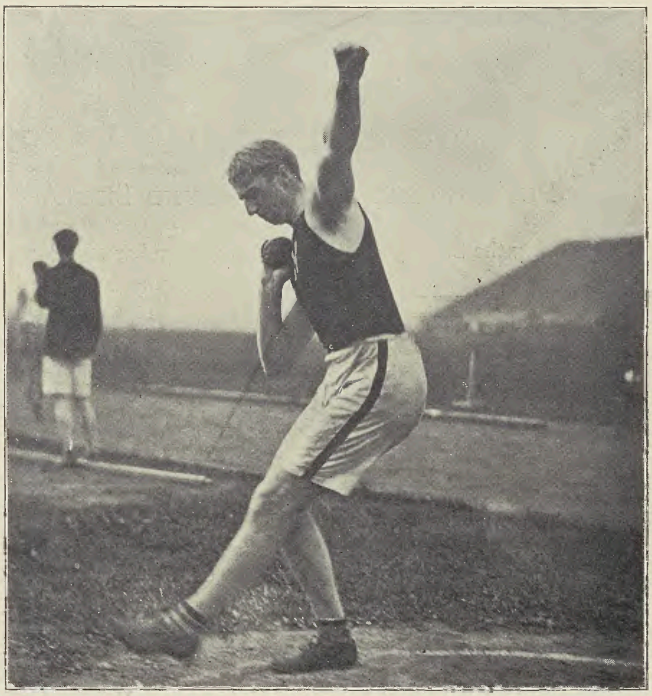
Putting the Shot 47 ft. G. R. Gray, September 16, 1893.

PERHAPS no other athletic event furnishes such a diversity of styles as those seen in putting the 16-pound shot. Really good athletes who have attained proficiency in shot putting differ as to the best method of holding the shot, the position of the hand and arm, the balance of the body and the position of the feet. It may fairly be said, however, that much of this apparent difference of opinion depends on the physical characteristics of the performers. A man with a large hand may prefer to hold the shot in an entirely different manner from that employed by a man with a small hand; a very muscular man may prefer a slower style of putting while a light, active man may have to acquire greater speed to make up for his deficiency in weight.

There are three or four cardinal principles, however, on which all students of shot putting are agreed.

First the elbow must be kept close to the body. If the elbow is allowed to come out from the body a weak put made entirely with the arm is the result. To drive the shot with the weight of the body behind it, the elbow must be kept in and down.

In the second place the position of the body and of the feet at the conclusion of the hop are of the utmost impor-



Courtesy of Boston Herald

PLATE 30.

PUTTING THE SHOT. POSITION AT STARTING USED BY C. H. ROBINSON OF HARVARD.

tance. Equally good performers adopt different positions at the start of the put and many curious mannerisms become habits which the athlete is unable to overcome. However the performer may start his put, whether the body be swung to the right or to the left, whether the weight is forward or back and whether the shot is held away from the body or close to it, well in advance of the shoulder or behind, does not make any vital difference. The position on landing from the first hop is the really important part of

Courtesy of Boston Herald. PLATE 31.

STARTING POSITION OF FRED BECK OF YALE, THE INTERCOLLEGIATE CHAMPION.

the put. Some performers believe that the weight of the body should be far back , but it will readily be seen that this has a tendency towards causing a slower put, as the body has to swing just so much further forward before the second hop can actually be taken. It seems probable that the body at the conclusion of the first hop should be upright or nearly so. Again, many performers have a trick of throwing the body around to the right as the first hop is made. This has a tendency to impart a circular motion to the put when the final effort is made and is apt to force the elbow away from

PLATE 32.

PUTTING FROM A STAND. ELLERY H. CLARK.

the body. The body should be about at right angles to the direction in which the shot is going.

In the third place the finish of the put is the time when the chief effort must be made. It is the besetting sin of novices to start by making a long hop at great speed and finish with a weak half turn of the body. The first hop must be made slowly and is in reality little more than a preparatory movement to place the body in correct position for putting and at the same time have it in motion and not completely at a stand still. The moment the right foot touches the ground

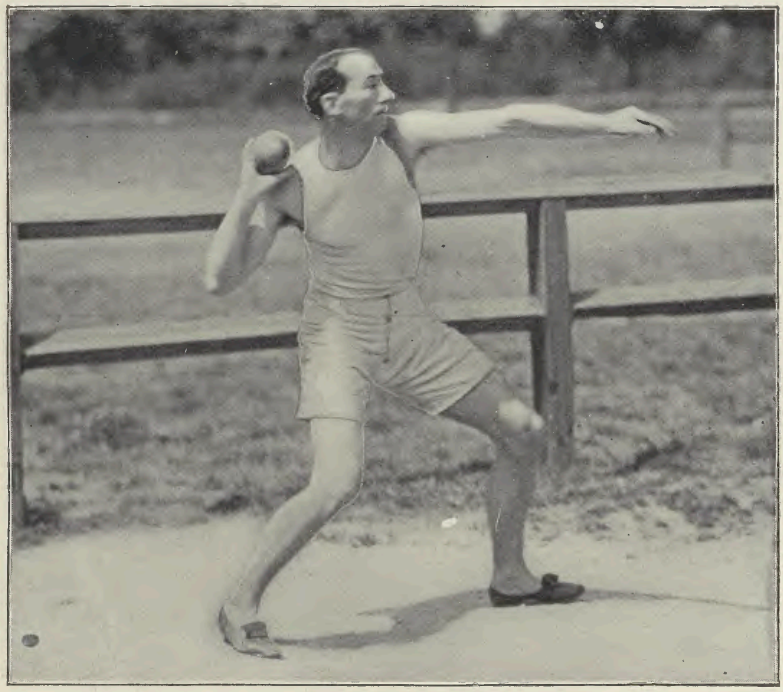


PLATE 33.

MIDWAY IN THE PUT. HARRY GILL, PROFESSIONAL ALL-AROUND CHAMPION OF AMERICA.

after the hop the chief effort must be made. The spring forward from the right leg and the drawing back of the left turns the body completely around and the performer should follow out the shot with his right arm as far as he possibly can.

The novice at this event will do well by beginning the put from a stand, the body turned slightly to the left, the weight well forward on the ball of the right foot and the elbow well down and in. When a put is made the body is swung around

Courtesy of Boston Herald.

PLATE 34.

MIDWAY IN THE PUT. RICHARD SHELDON OF YALE.

until it is at right angles to the direction in which the shot is going. A sudden spring forward is made from the right foot while the left foot is drawn back with equal rapidity and the right arm with the full weight of the body behind it shoots out to its fullest extent. As in almost every other athletic event, it is a question of applying the force at the right moment.

After the performer becomes familiar with this style of putting he should try the regulation style of putting with a hop. The start is the same as in putting from a stand and

PLATE 35.

THE FINISH OF THE PUT. ELLERY H. CLARK.

the only real difference in the put is the advantage gained from the additional momentum imparted to the body by the preliminary hop. To counterbalance this advantage there is the constant danger of falling into one or more serious errors. The hop may be made too quickly, the weight of the body may be either too far forward or too far back, the necessary balance may be destroyed and perhaps most common of all, the elbow may be allowed to leave the body either backwards or sideways, making a good put an impossibility.

When the feet have once landed, the performer must take great care not to lose the benefit of the momentum thus gained, but must bring the right shoulder and arm around with lightning rapidity and must follow the shot through and out as far as he possibly can.

Plenty of practice during the earlier stages of training for the shot put is desirable, but after the muscles are in good condition and the athlete is putting in good form very much practice and especially very much practice at one time is to be avoided. The speed, the "jump" at the one particular instant is so important that the muscles must be kept fresh for the task assigned to them. After the athlete is once in good form, two or three practice puts and eight or ten puts for distance daily are enough to keep him in condition.

CHAPTER XIV.

Throwing the Sixteen-Pound Hammer.

Throwing the Hammer, 171 ft. 9 in. J. Flanagan, September 3, 1901.

THE gradual evolution of the hammer from the iron ball and stiff wooden handle of old times to the lead ball and slender wire handle of to-day has been accompanied by a no less remarkable change in the method of throwing it.

The old style, still in vogue at the Caledonian games, was to throw the hammer from a stand without a turn, and this method is probably the best to enable the beginner to acquire the rudimentary principles of the game. The performer should stand with his back turned squarely to the direction in which he intends to throw, with his feet about a foot apart and in an easy and natural position. The hammer head rests on the ground to the right and the body is turned slightly to the right as the throw is begun (plate 36). The head of the hammer should be kept as close to the ground as possible and to accomplish this, the hands should be kept low and to the right, bringing the hammer head nearest the ground at a point back of the right shoulder.

Perhaps the most important principle in throwing the hammer is the proper distribution of the weight of the body. If the body is kept perfectly erect, the pull of the hammer, as it comes back over the right shoulder, throws the body to the right and when the hammer is to be delivered, the final jerk, instead of imparting the necessary impetus to the ham-

Photo by Pictorial News Co. PLATE 36.

THE START OF THE THROW. CHAMPION J. S. MITCHELL.

mer, throws the performer off his balance. In common athletic parlance, the hammer throws the man instead of the man throwing the hammer (plate 38). To counteract this pull of the hammer, the body is thrown to the left as the swing is begun, bringing the weight of the body on the left leg.

Now suppose that the left shoulder is swung still further around to the left. Even although the weight is rightly distributed, the result must be that the hammer gets around too quickly and again when the final effort is made, the hammer

PLATE 37.

THE FIRST SWING OF THE HAMMER AROUND THE HEAD. THROWING FROM A STAND. ELLERY H. CLARK.

is so far in advance of the body that it is the man and not the hammer that is thrown (plate 39). To keep the hammer properly behind the body and well under control, the body must be turned to the right when the swing is begun.

Plate 40 showns good form in throwing the hammer from a stand and the three principles referred to are well illustrated. The hammer is close to the ground, the weight of the body is on the left leg and the body is turned to the right, so that the hammer is well back and under good control.

Photo by Pictorial News Co.

PLATE 38.

WEIGHT OF BODY TOO FAR TO RIGHT. MAHONEY OF THE N. Y. A. C.

The speed with which the hammer is swung is a very important consideration and must be carefully regulated. It is a constant temptation not only to the novice, but to the skilled performer as well as to imagine that the rapid swing of the hammer means a powerful throw. Nothing could be more erroneous. Whatever quick work is necessary is done with the body, legs and arms and the motion imparted to the hammer is comparatively slow. In throwing from a stand the weight is swung very slowly the first time, a little

Photo by Pictorial News Co. PLATE 39.

BODY TURNED TOO FAR TO LEFT. F. W C. FOSTER OF HARVARD.

faster the second and the crucial moment is reached midway in the third swing. Here as the hammer falls over the right shoulder every ounce of strength is applied and the performer pivots around on his left foot bringing the arms well up and through to give the necessary elevation.

The speed reached by thus swinging the hammer around the body is necessarily moderate and after the beginner feels that he has reached a reasonable degree of proficiency in throwing from a stand, the next step is to attain greater momentum. This is acquired by making a complete revolu-

PLATE 40.
CORRECT FORM IN THROWING WITH SINGLE TURN. ELLERY H. CLARK.

tion of the body, known as the single turn, and this was for many years, until the comparatively recent introduction of the double and triple turns, the recognized style of throwing the hammer. Some performers prefer to start with the feet close together and then, just before the turn, to move the left foot back. The left foot is the pivot upon which the body revolves and it seems preferable to start with it somewhat back as shown in plate 40. The hammer is swung twice around the head exactly as in throwing from a stand and, on the third swing, the body revolves on the left foot as rapidly as possible. Even greater care than in throwing

PLATE 41.

JUST BEFORE THE TURN.

from a stand must be taken to preserve the proper balance and turn of the body, and to keep the hammer well behind and under control. The right foot leaves the ground completely and strikes again in the rear of the left. Then the left foot is brought back and strikes the ground so that the position is almost the same as in throwing from a stand. Then the final turn is given to the body and the greater momentum, thus acquired, should make a difference of twenty-five or thirty feet in the length of the throw. The finish of the throw is shown in figure 44.

Photo by Pictorial News Co. PLATE 42.

THE FIRST SWING IN THE DOUBLE TURN. ADAM B. GUNN, ALL-AROUND AMATEUR CHAMPION OF AMERICA, 1901-1902.

A few years ago the double turn was introduced and a few of the most skilful and scientific hammer throwers can even revolve three times and still stay within a seven-foot circle. A somewhat different method from that used in learning the single turn must be made use of in learning the more complicated double turn. All the available space of the seven-foot circle is necessary and consequently the left foot is not placed behind the right, as in the single turn. In like manner the hammer cannot be swung so far behind the

Photo by J. C. Hemment.

PLATE 43.

JOHN FLANAGAN, WORLD'S CHAMPION HAMMER THROWER, IN THE DOUBLE TURN.

right shoulder and the body cannot be turned so far to the right. The use of these methods results in a long throw, but the distance traversed by the body is so great that it is practically impossible to stay inside the circle. Methods differ among various good performers with the hammer, but it is probably most effectual to keep the weight well on the toes, the body not bent back but erect or a little forward and the back turned squarely to the direction in which the throw is to be made. This makes the first turn necessarily a

PLATE 44.

THE FINISH OF THE THROW. ELLERY H. CLARK.

short one and leaves space enough in the circle for a second turn to be made more like that used in the single turn. The natural error is to make the first too rapid and thus allow the hammer to get ahead of the body, so that the second turn instead of proving an additional advantage is really a handicap, and a throw results shorter than that obtainable with a single turn. The first turn should be comparatively slow and really amounts to little more than to get the body in proper position for a quick second turn with the additional advantage of being actually in motion, instead of at rest, as

PLATE 45.

THROWING THE 56-POUND WEIGHT. THE START OF THE THROW.

in the single turn. Just as in the single turn, the important moment was the middle of the third swing of the hammer round the head; so in the double turn the important moment is when the feet touch the ground after the first revolution of the body. All possible speed must be applied at this moment to get the body around well ahead of the hammer. Correct form with the double turn should mean an additional twenty-five feet over the distance gained with a single turn.

The triple turn is merely an extension of the double turn principle and marks the acme of scientific hammer throwing.

It is possible only for the strongest and most skilful of our hammer throwers, and even then there is a constant tendency towards fouling. The double turn offers difficulties enough to the ordinary athlete and even the single turn requires careful thought and study. The prevailing notion that success in hammer throwing depends merely on brute strength is most erroneous. It is doubtful if there is another event on the athletic programme where careful and scientific study will be better repaid.

It is not an easy matter to overtrain while practicing for the hammer throw. As a rule, plenty of good hard work is desirable and the greater the amount of intelligent practice up to a reasonable limit, depending on the physique of the performer, the better the results to be obtained.

CHAPTER XV.

Throwing the Fifty-Six Pound Weight.

Throwing the 56-lb. Weight, 36 ft. 9 1-2 in. J. Flanagan, October 20, 1901.

THROWING the fifty-six pound weight does not find a place on the list of college athletic sports, but it is placed on the championship list of the Amateur Athletic Union and is one of the ten events which go to make up the all-around championship programme, where the competitors as a rule are older and more experienced. At first sight the big, lead ball seems a formidable missile and for the unskilled performer there is every chance to expend a huge amount of misdirected energy and constant danger of a strained or pulled muscle. To the performer, however, who understands the art of throwing the weight, it presents no more difficulties than the hammer. Competitors who lack the necessary strength often try to throw the weight from a stand or to revolve once in the circle without swinging the weight around the head, but these methods of throwing cannot result in a throw of any length and the only problems with which we need to concern ourselves are throwing the weight with a single and with a double turn.

The theory is exactly the same as in throwing the hammer, except that the greater weight of the fifty-six requires an exaggeration of the principles used in throwing the lighter weight. The start for the single turn is shown in plate 45. As the weight swings over and behind the right shoulder the

PLATE 46.

THE FIRST SWING.

pull exerted is necessarily tremendous, and to counteract this pull and prevent the body from being thrown entirely off its balance the weight must be thrown far over on the left leg, and, in addition, forward a little, so that the weight of the body comes upon the ball of the left foot and not upon the heel. In addition, the body must be turned well to the right and the weight must be allowed to swing low over the right shoulder, for keeping the weight well behind the body is absolutely essential for a throw of any length. The moment the weight gets in front of the body the performer is thrown

PLATE 47.
JUST BEFORE THE TURN.

off his balance or even thrown to the ground by the force exerted as the weight leaves his hands.

The turn of the body is made exactly as in the case of the hammer. Plate 47 shows the position before the turn, and plate 48 shows both feet on the ground and the weight well behind and under control.

Throwing the fifty-six with a double turn is a problem which need not trouble most athletes, for exceptional strength is required to keep control of the weight under these circumstances. The principle is the same as in throwing

PLATE 48.
THE FINAL EFFORT.

the hammer. The weight of the body is further forward on the toes, the left foot is not placed so far back and the weight itself is not swung so far back over the right shoulder during the first turn.

CHAPTER XVI.

Throwing the Discus.

Throwing the Discus, 127 ft. 8 3-4 in. M. J. Sheridan, August 30, 1902.

DISCUS throwing was unknown in America until 1896, when the revival of the sport at the Olympic Games, at Athens, and the winning of the event by a member of the American team caused its introduction on the list of athletic sports in this country.

The discus is made of wood, brass and steel, and is circular in shape. It is eight inches in diameter, about two inches thick in the middle, and a half inch thick at the edges. Its weight is about four and a half pounds.

According to Greek rules the athlete stands at the back of a six-foot square, facing the direction in which he is to throw. The discus is held in the right hand, with the fingers spread around the edge and the discus resting against the arm. Then a quick step is taken, first with the right and then with the left foot, and the right arm is swung backwards at the same time. The right leg and the right arm come forward together with much the same motion used in the finish of the shot put. When the right arm is brought forward it must be perfectly straight and the wrist must be bent over and forward so that when the discus leaves the fingers it will be almost flat and scale through the air in much the same manner as a clay pigeon shot from a trap. Under the Greek rules all throws are measured from the

PLATE 49.

THROWING THE DISCUS. OLD STYLE.

point where the discus drops at right angles to the front of the box, or if the throw is not made in a straight line at right angles to the front of the box extended.

Under the rules now in force in this country the discus is thrown from a seven-foot circle to secure uniformity with the shot, hammer and fifty-six pound weight. Although some athletes still throw from the circle in the same manner as they would in throwing from the six-foot square, the prevailing method is to treat the discus as if it were in a class with the hammer and fifty-six pound weight. The athlete stands at the back of the circle with his back towards

Photo by Pictorial News Co. PLATE 50.

THE NEW STYLE. JOHN FLANAGAN THROWING DISCUS.

the direction in which he intends to throw. The right arm is swung back and a quick revolution of the body is made on the left foot, as in the case of throwing the hammer with a single turn. Some performers even turn twice to gain additional momentum. The principles are the same as in the other weight events. The discus must be kept back of the body and the right arm must follow well out and through at the conclusion of the throw.

CHAPTER XVII.

The All-Around Championship.

THE foregoing chapters have been written with the intention of pointing out the way to proficiency in each particular event, for the average athlete aims to excel in one, two, or, at most, three events. For those with higher ambitions, there remains to be considered the subject of training for the all-around individual championship, held annually in July, and often referred to as the "blue ribbon" event of the athletic year.

The term "all-around championship" is certainly no misnomer, for the programme calls for proficiency in every known branch of track and field athletics. The athlete's running powers are tested by the one hundred yards dash, the one hundred and twenty yards hurdle race and the mile run; his jumping abilities by the running high jump, running broad jump and pole vault, and his strength and knowledge of weight throwing by the sixteen pound shot, the sixteen pound hammer and the fifty-six pound weight. The program is rounded out by the half-mile walk, an event no longer in favor on athletic programs, which is retained on the all-around list only because it was placed there originally and a change in the list of events would render them valueless as a basis of comparison. Surely a more complete test could hardly be devised. Speed, spring, strength and endurance are all necessary, and inability to meet any one

PLATE 51.

HARRY GILL, PROFESSIONAL ALL-AROUND CHAMPION OF AMERICA.

of these requirements is fatal, since each performance is marked on the scale of one thousand points, the maximum being represented by the world's record in that event, while the minimum is represented by a performance so poor as to be practically within the reach of all.

A light man can hardly hope to prove a successful all-around athlete, for, while he may do well at the runs and jumps, and even learn to put the shot creditably, the hammer and the fifty-six pound weight are apt to be a fatal stumbling block. Of course it does not require a giant for

these events; the present champion, who weighs one hundred and sixty pounds, has thrown the hammer one hundred and forty feet, and the fifty-six pound weight thirty-three feet, but a man should weigh at least one hundred and fifty pounds and should possess strength and science in order to master these two events.

The all-around athlete is usually a man with a genuine love for athletics, who has spent considerable time not only in training himself, but in watching others perform and in studying the method underlying each event. He must be naturally rugged and able to stand a great deal of work without feeling it, for a very thorough preparation is necessary and it is not an easy task to train for ten different and varied events at the same time. The endurance necessary for the mile run and the half-mile walk, and the strength required to throw the weights well, can only be attained at a sacrifice of speed and spring. On the other hand, light work for the sprints, hurdles and jumps leaves the athlete in good shape for these events, but unable to stand for the wear and tear of the long competition.

The best rule in training for the all-around championship is to acquire strength and endurance at any cost. They are absolute requisites to success, and a lay-off for three or four days before the competition will bring back much of the spring lost by doing much work.

There is a constant temptation to do a little work at each event every day. This must be avoided, for while the muscles receive the required amount of work, the mind goes from one event to another so rapidly that a mere smattering of the method of performance is all that is gained and no thorough study so sure to be attended with good results is practicable. The best method is to work at four or five events every day and to make every moment count, keeping constantly on the alert to discover means of improvement

PLATE 52.

ELLERY H. CLARK, ALL-AROUND AMATEUR CHAMPION OF AMERICA.

and to avoid falling into casual errors which may become serious faults.

The aspirant for all-around honors should begin his training the first of January, but during January and February he should treat his work merely as easy recreation, intended to get him in shape for more serious efforts later on. Light gymnasium work, easy distance running, a little practice at sprinting, shot putting, high jumping and pole vaulting will get the muscles in good shape, so that stiffness and soreness need not be dreaded when the athlete begins harder work. This should be done about March first, and during this month special attention should be paid to the shot, high jump, pole vault, walk and mile run. On April

first, which marks the beginning of the outdoor season, the athlete should turn his attention to the sprint, the hurdles, the broad jump, the hammer and the fifty-six pound weight. During May and June the program for the week should be somewhat as follows: On Monday half a dozen starts and a fifty yards at full speed, then half a dozen puts with the shot and some throws with the fifty-six, some easy high jumping, with special attention to form and a fairly good three-quarter mile run. On Tuesday three trials over four hurdles, three broad jumps, eight or ten throws with the hammer and a fair half mile walk. On Wednesday a one hundred yards trial, shot put, throwing the fifty-six, some easy pole vaulting and a fairly good half mile, striding out well and running well up on the toes. On Thursday the full distance over the hurdles, hammer throwing, high jumping and a fast quarter mile walk. On Friday repeat Monday's program, with a few trials at the broad jump substituted for the high jump. On Saturday repeat Tuesday's work with the pole vault in place of the broad jump.

It is very evident that training for the all-around championship is not a task to be undertaken lightly. No one should undertake it unless he has plenty of strength and takes thorough enjoyment in the work of preparation. On the other hand, if the athlete possesses these requisites the reward is well worth working for. The varied work at the different events builds up all the different muscles and aids wind and limb and if at the conclusion of the period of training the athlete can go through the actual competition with a score of fifty-five hundred points or better, he may well feel that he has attained a good working knowledge of the various branches of track and field athletics.

Publisher's Note to Chapter on All-Around Athletics.

To all those who are interested not only in athletics, but in the broader subjects of physical training and physical education, Mr. Clark's victory in the all-around athletic championship of 1903 must possess a broader interest than that which attaches itself merely to a somewhat remarkable athletic performance.

In 1897, when Mr. Clark was twenty-three years old he was trained especially for the all-around championship and gave the closest attention to strict training and much practice for all the different events.

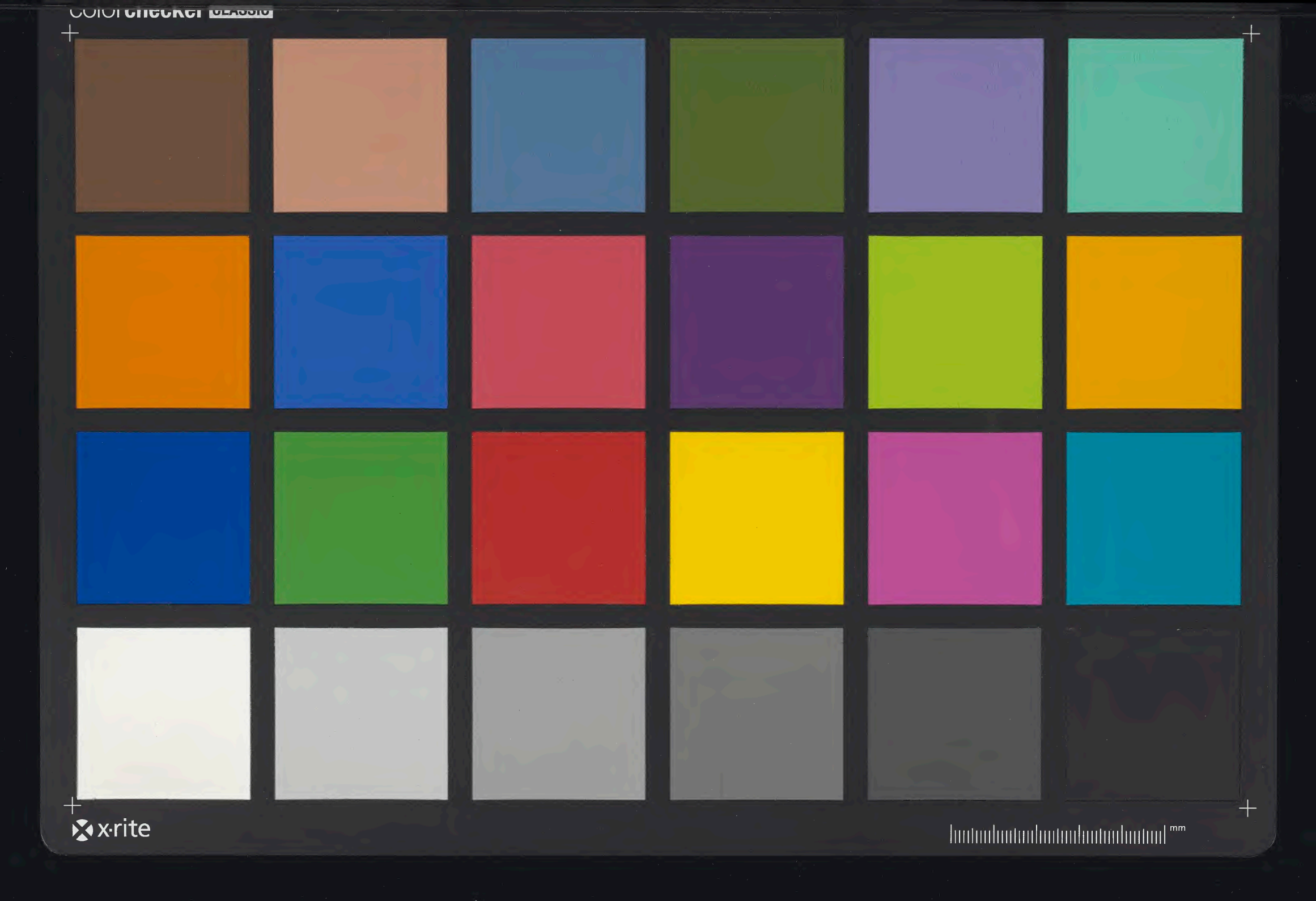
After winning the championship in 1897 he retired from active competition, although retaining a deep interest in everything pertaining to athletics and physical education generally. During the succeeding six years he kept up some form of daily exercise whenever practicable, maintaining that good physical condition is an essential to the best work along any lines.

In 1903 Mr. Clark again competed for the all-around championship, this time, however, without any special preparation or without allowing the time spent in preliminary practice to interfere with his professional work in the slightest degree. While, as might be expected, his records suffered in those events which require spring and elasticity, his gain in the events calling for strength and endurance more than offset these losses, and he not only succeeded in winning the championship for the second time, but in addition improved upon his former record.

The exponents of the value of rational physical training must find much in this practical illustration to strengthen their belief.

MR. CLARK'S RECORDS MADE IN WINNING THE ALL-AROUND CHAMPIONSHIP IN 1897 AND 1903.

	1897 Record	1903 Record
100 yards run	10 3-5s.	10 4-5s.
Putting 16-lb shot	37 ft. 11 1-2in.	36ft. 7 3-4in.
Running high jump	5ft. 9 1-2in.	5ft. 4in.
880 yards walk	4m. 28 4-5s.	3m. 54s.
Throwing 16-lb. hammer	117ft. 4 1-2in.	122ft. 8 1-4in.
Pole vault	9ft. 6in.	9ft. 1 1-2in.
120 yards hurdle	17 1-5s.	17 2-5s.
Throwing 56-lb weight	23ft. 4in.	25ft. 5 1-2in.
Running broad jump	21ft.	20ft. 6 1-2in.
One mile run	6m. 34 4-5s.	5m. 57s.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