

CHAPTER XI

FOOTBALL AND HOCKEY

Regulation Measurements—The Way to Make a Pitch on a Cinder Foundation—To Finish Off with Turf—To Finish Off with Seed—After Treatment—Levelling a Pitch—Working up a Pitch from the Rough—Upkeep of Football and Hockey Fields—Protecting the Pitch—The Lay-Out of a Rugby Football Field—Plan of a Rugby Football Field—The Lay-Out of an Association Field—The Plan of an Association Field—The Lay-Out of a Hockey Ground—The Plan of a Hockey Ground.

Regulation Measurements

Rugby Football, 110 by 75 yards=8,250 square yards.

Association Football, maximum 130 by 100 yards=
13,000 square yards.

Association Football, minimum, 100 by 50 yards=5,000
square yards.

Hockey, maximum, 100 by 60 yards=6,000 square yards.

Hockey, minimum, 100 by 55 yards=5,500 square yards.

These games are played during seasons when turf is dormant, or nearly so, consequently the pitches, if used regularly, soon wear out, particularly in the vicinity of the goals, where, by the end of the season, large bare, muddy areas develop.

The best pitches are made over a cinder foundation, with a true level surface, some being slightly crowned with a view of throwing the water to the sides, others are just levelled out, but the great majority are taken as they are found, the touch lines marked out, goal posts erected, and nothing further done.

Unless the drainage of the surface is so free naturally that it cannot hold surplus water the pitch is bound to wear badly, no matter whether it is made on a cinder foundation or not.

Clay, when worked up or puddled by the feet, becomes quite water-tight, and is in fact used for lining ponds, and even medium soils will puddle up to such an extent as to

become nearly impervious to water, with the result that during a wet season they are almost as bad as clay.

It is, therefore, quite idle to go to the expense of constructing a ground with a cinder foundation and then cover it with clay or any soil of a fine-grained, tenacious nature that will bind if kneaded in the hand, unless it is treated in such a way as to destroy its binding properties, so that the rain as it falls can rapidly percolate through the soil, find its way to the cinders, and thence to the drains.

The Way to Make a Pitch on a Cinder Foundation

Excavate the site to the required depth, and level the same out with the subsoil.

Put in a system of drains with 4-inch mains and 3-inch spurs. Cover the site with 6 inches of graded cinders, breeze or crushed clinkers, putting the coarse at the bottom and the fine on the top; then ram and roll until the whole mass is firm and true.

Take the covering soil, and if it is plastic and likely to puddle up under the players' feet and so become impervious, or nearly so, to the free, rapid passage of water, mix it with sufficient breeze, cinders, or crushed clinkers passed through a $\frac{1}{4}$ -inch square mesh sieve in the ratio of from three parts of soil to one of cinders for medium plastic soils to equal parts for heavy clays.

It is impossible to give exact quantities, various trial mixtures should be made and the one most likely to give the desired result adopted.

Cover the foundation with 3 inches of the prepared soil, spreading it in thin layers not exceeding 1 inch thick, tread it in position, keeping an eye on the level the whole time. Finish off with an inch of the same soil mixed with the same proportion of cinders passed through $\frac{1}{8}$ inch square mesh sieve.

If the soil is deficient in lime, which can easily be ascertained by testing, dress with Pulverised Chalk at the rate of 1 lb. per square yard.

Tread, roll and rake the surface until it becomes quite firm, fine and true.

Dress the ground with Carters General Purposes Fertiliser No. 3, at the rate of 2 ounces per square yard, or 5 cwt. per acre.

The ground is now ready for sowing or turfing, as the case may be. See Chapter XIII or XIV.

To Finish Off with Turf

Lightly break the surface with a rake, and lay the turf on the slightly loosened surface, carefully packing it with sifted soil as required.

Beat the turf gently. Do not be severe with it, otherwise it will make the under side of the turf and the surface of the soil hard, and so make it difficult for the small roots to penetrate.

Dress the turf with the No. 3 Fertiliser, see Supplement, at the rate of 2 ounces per square yard or 5 cwt. per acre, mixing it before use with a quantity of sifted soil, and work the same well into the turf and the cracks by means of the back of a wooden rake.

Follow on with a second dressing of sifted soil mixed with grass seeds in the ratio of 4 lb. per barrow-load, and work it in as above.

As the turf begins to knit, roll with a light roller, and as it develops use a heavier implement. Rake and brush the turf with a stiff broom, mow as closely as possible, and gradually work it up until fit for play.

To Finish Off with Seed

The common fault in sowing fields devoted to these games is the mistaken idea that anything in the shape of grass seeds will do, and that coarse grasses are the most durable and suitable. A greater mistake could not be made; it is not the herbage that resists the wear and tear of the game but the roots, and as coarse grasses do not creep and form a dense root mat they are not the most durable or suitable. On the contrary, it is the fine creeping varieties which form the root mat or sole to the turf, consequently it is false economy to sow coarse grasses. I have known cases where thousands have been spent on the preparation of the ground and the whole job wrecked by sowing coarse mixtures, even the sweepings of hay lofts have been used.

Using cheap mixtures on a properly prepared ground is analogous to covering an expensive billiard table with gunny instead of the specially manufactured cloth. When sowing the seed divide the ground up in strips or squares by means of pegs and string, and the seed into as many equal portions as there are strips or squares. Sow the seed evenly and carefully at the minimum rate of one ounce per square yard, or the maximum rate of two ounces per square yard.

Cover the seed as each strip or square is sown by carefully raking, and finish off with a light roller, choosing a dry, still day for the work so that the seed will not blow about or the soil stick to the roller.

After Treatment

When the young grass is well up, roll with a light roller, and when it is long enough to cut, top it with a sharp machine, or better still, if a practised man is available, use a scythe.

In order to hasten the growth of the grass, make it close up, and get it out of the danger zone, which is the period from when it germinates until it becomes self-protective, dress it with Malt Culms, Kiln Dust, prepared compost or Carters Compound Mulch. As the turf matures, mow regularly, and keep the roller on the move, using a wide, heavy implement as it gathers strength.

Remove the weeds as soon as they are noticeable and large enough to handle, see Chapter XV, and destroy the worms, see Chapter XX.

Levelling a Pitch

Some pitches are made true level by removing the existing top spit soil, levelling the site with the subsoil, and after putting in a system of drains if necessary, returning the top spit soil.

It is of course uneconomical to make a pitch in this way unless the natural drainage is so good that a cinder foundation and the preparation of the top spit soil can be dispensed with.

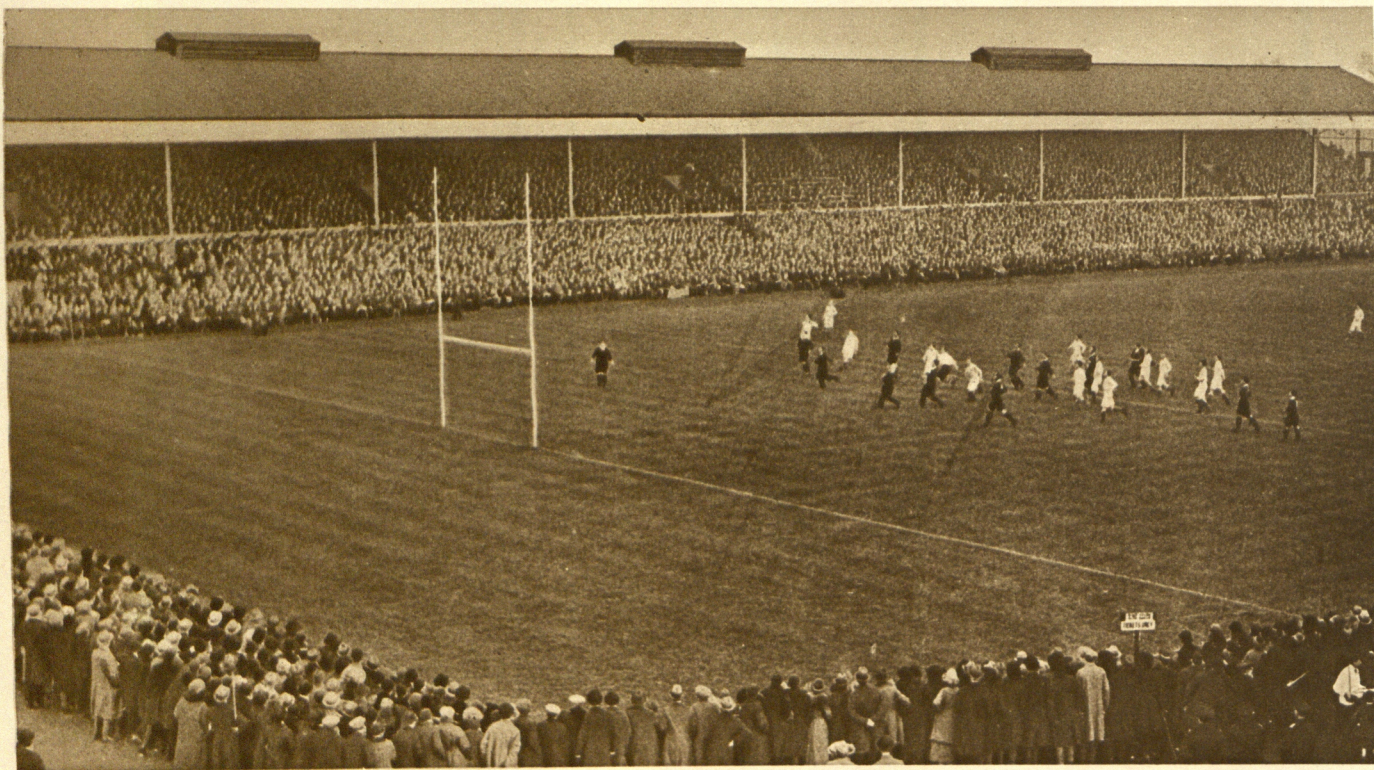
The order of the work, however, is so similar to the practice just described that it calls for no special explanation.

Working up a Pitch out of the Rough

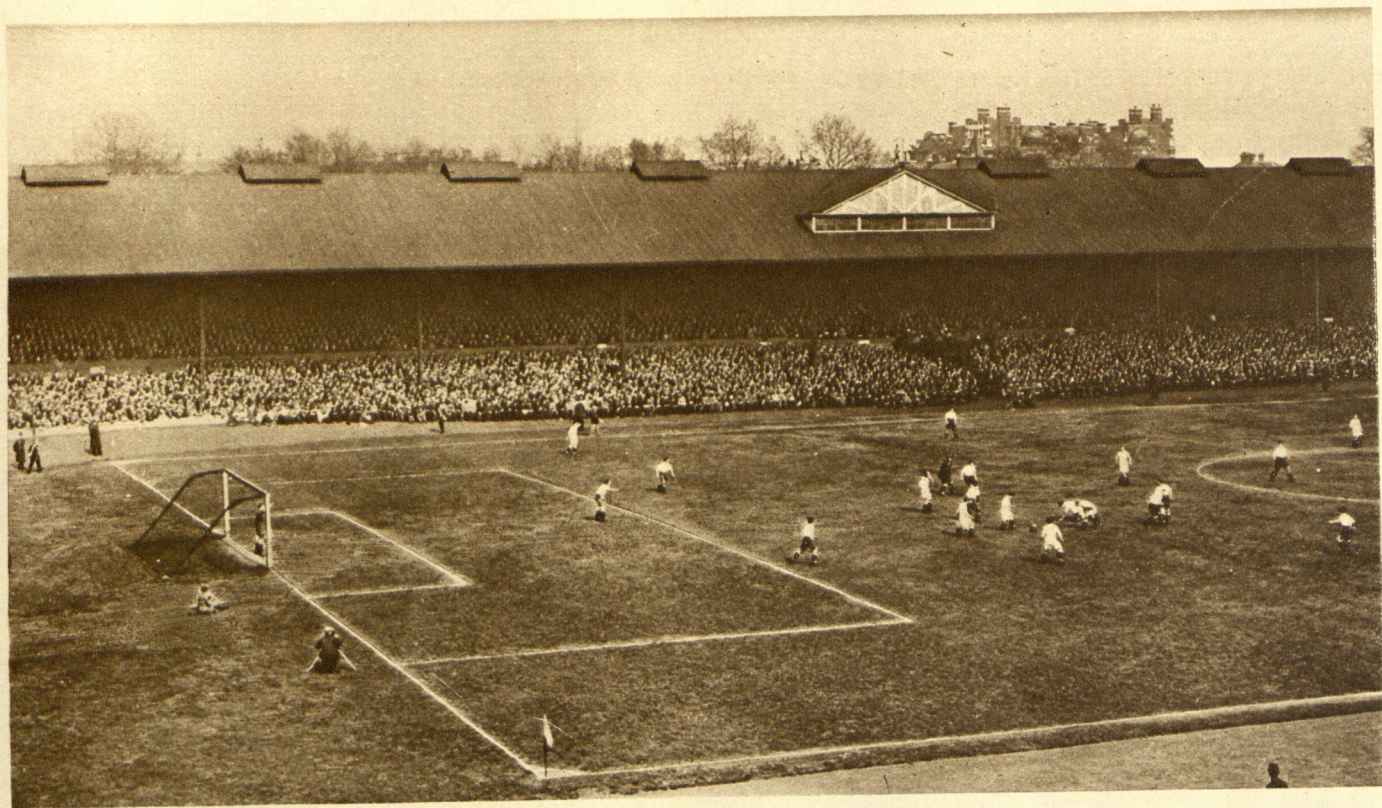
First of all cut the grass as close as possible, then hand-rake vigorously so as to tear out all the dead herbage, moss and other rubbish, and mow again if necessary.

If funds will allow, remove the turf from all pronounced mounds and hollows, and bring the ground up to the general plane by filling up the hollows with soil taken from the mounds, and replace the turf.

If the ground contains a series of parallel ridges and furrows so common to farm land, the turf should be lifted



THE RUGBY UNION GROUND AT TWICKENHAM—OXFORD v. CAMBRIDGE.



CUP FINAL AT STAMFORD BRIDGE.

section by section and the hollows filled up with the soil taken from the ridges, and the turf replaced.

Dress the field with Carters General Purposes Fertiliser No. 3, at the rate of 5 cwt. to the acre. See Supplement.

Upkeep of Football and Hockey Fields

At the end of the season test the soil for lime, and if it proves to be deficient in this all-important material, without which it is hopeless to keep turf strong and healthy, dress with Pulverised Chalk at the rate of 1 lb. per square yard.

Repair the bad areas in the vicinity of the goals or elsewhere with good strong turf taken from the margins of the field.

Dress the turf with Carters General Purposes Fertiliser No. 3, at the rate of two ounces per square yard. Rake the surface thoroughly, but with judgment, so as to open up the soil where the turf is thin and bad.

Sow with a special mixture of grass seeds, see Supplement, at the average rate of from half an ounce to one ounce per square yard, according to the existing condition of the turf.

Rake again in order to cover the seed as much as practicable, and if possible cover with finely screened soil or compost, see Chapter XVII, at the rate of one cubic yard per 150 square yards.

Rake again so as to spread the covering soil evenly, and roll with a light roller.

Roll and mow regularly all through the Summer and give from two to four dressings of No. 3 Fertiliser, at the half-rate of 1 oz. per square yard.

If the turf wears out quickly this is due in nine cases out of ten to worms, weeds or a soft muddy surface, or a combination of the three, so destroy the worms, see Chapter XX, and weeds, see Chapter XV, and dress the turf with some porous material such as fine ash passed through a sieve or other material that will cut into the soil and improve the surface drainage. Destroy the weeds, particularly the common plantain and others that lose their foliage in the early Winter, and so leave a multitude of bare places, some measuring 3 inches or more in diameter, which quickly get larger under the feet of the players.

Weeds, worms and faulty surface drainage are most destructive to turf used for field games during the Winter,

and I cannot too strongly recommend Committees responsible for grounds where important matches are played to deal with these three serious faults on the first opportunity.

The worms are easily eliminated, the weeds are simply a question of time and determination, and the mud can be defeated by repeatedly dressing with sand, charcoal, or fine ash.

If a Sarel Spiked Roller is used, see Chapter XXVI, the ash and sand can be forced into the soil to the depth of an inch or more.

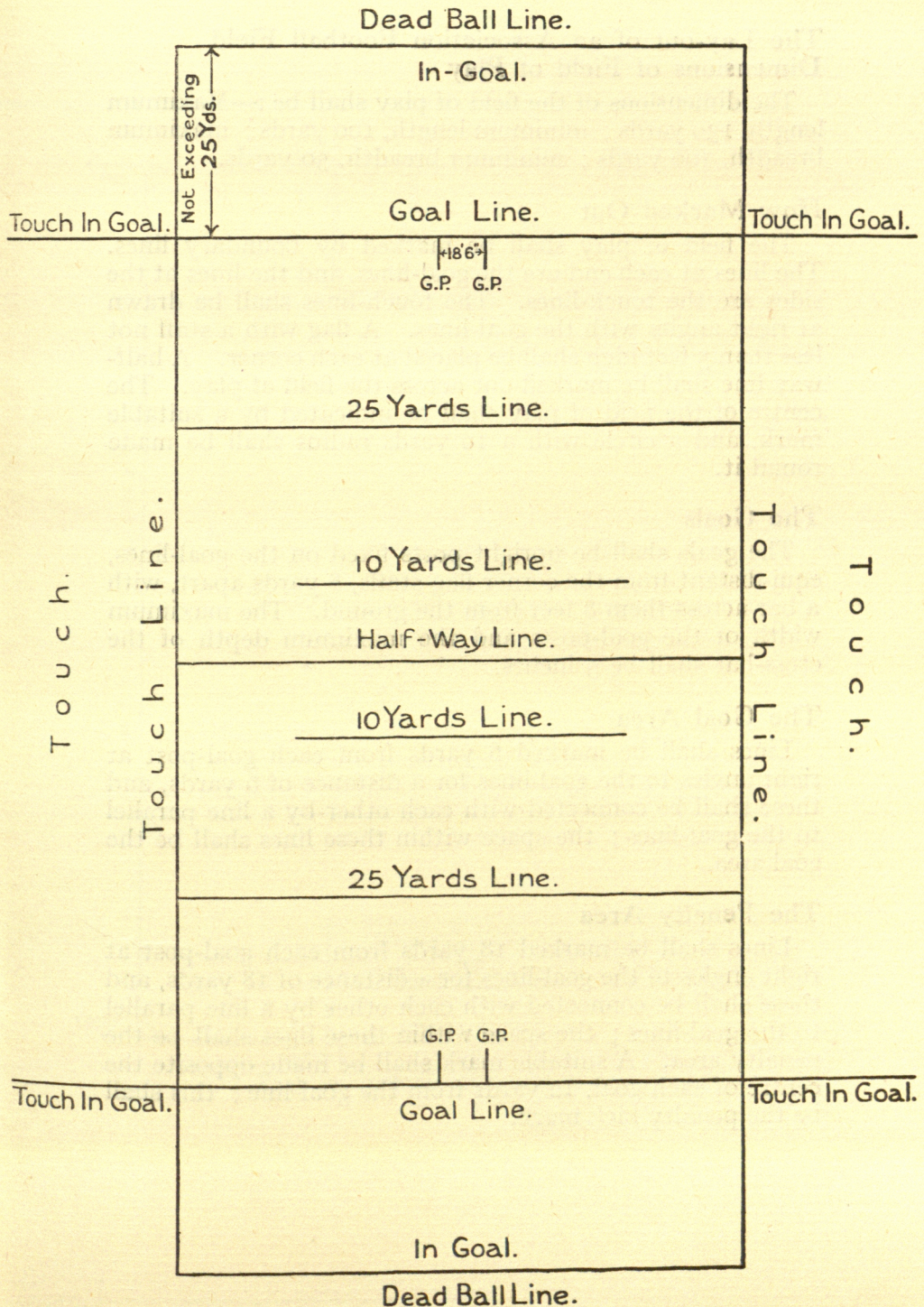
The Lay-out of a Rugby Football Field

The field-of-play shall not exceed 110 yards in length, nor 75 in breadth, and shall be as near these dimensions as practicable. The lines defining the boundary of the field of play shall be suitably marked, and shall be called the goal-lines at the ends and the touch-lines at the sides. On each goal-line and equi-distant from the touch-lines shall be two upright posts, called goal-posts, exceeding 11 feet in height, and placed 18 feet 6 inches apart, and joined by a cross-bar 10 feet from the ground.

Touch-in-Goal

Those portions of the ground immediately at the four corners of the field-of-play, and between the goal and touch-lines, if respectively extended, are called Touch-in-Goal. The corner posts and flags are in Touch-in-Goal.

The 10 and 25 yards lines shall be marked as in the plan



PLAN OF A RUGBY FOOTBALL FIELD

The Lay-out of an Association Football Field

Dimensions of Field of Play

The dimensions of the field of play shall be :—Maximum length, 130 yards ; minimum length, 100 yards ; maximum breadth, 100 yards ; minimum breadth, 50 yards.

How Marked Out

The field of play shall be marked by boundary lines. The lines at each end are the goal-lines, and the lines at the sides are the touch-lines. The touch-lines shall be drawn at right angles with the goal-lines. A flag with a staff not less than 5 feet high shall be placed at each corner. A half-way line shall be marked out across the field of play. The centre of the field of play shall be indicated by a suitable mark, and a circle with a 10 yards radius shall be made round it.

The Goals

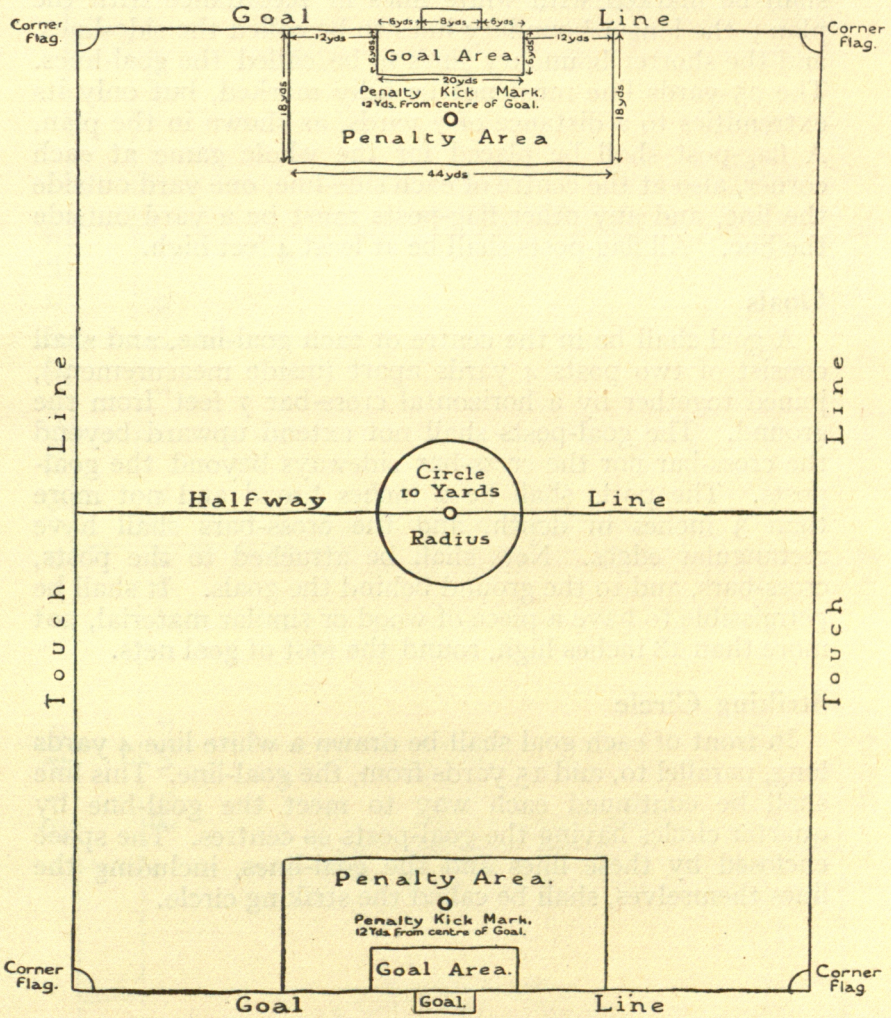
The goals shall be upright posts fixed on the goal-lines, equi-distant from the corner flag-staffs, 8 yards apart, with a bar across them 8 feet from the ground. The maximum width of the goal-posts and the maximum depth of the cross-bar shall be 5 inches.

The Goal Area

Lines shall be marked 6 yards from each goal-post at right angles to the goal-lines for a distance of 6 yards, and these shall be connected with each other by a line parallel to the goal-lines ; the space within these lines shall be the goal area.

The Penalty Area

Lines shall be marked 18 yards from each goal-post at right angles to the goal-lines for a distance of 18 yards, and these shall be connected with each other by a line parallel to the goal-lines ; the space within these lines shall be the penalty area. A suitable mark shall be made opposite the centre of each goal, 12 yards from the goal-line ; this shall be the penalty kick mark.



PLAN OF AN ASSOCIATION FOOTBALL FIELD

The Lay-out of a Hockey Ground

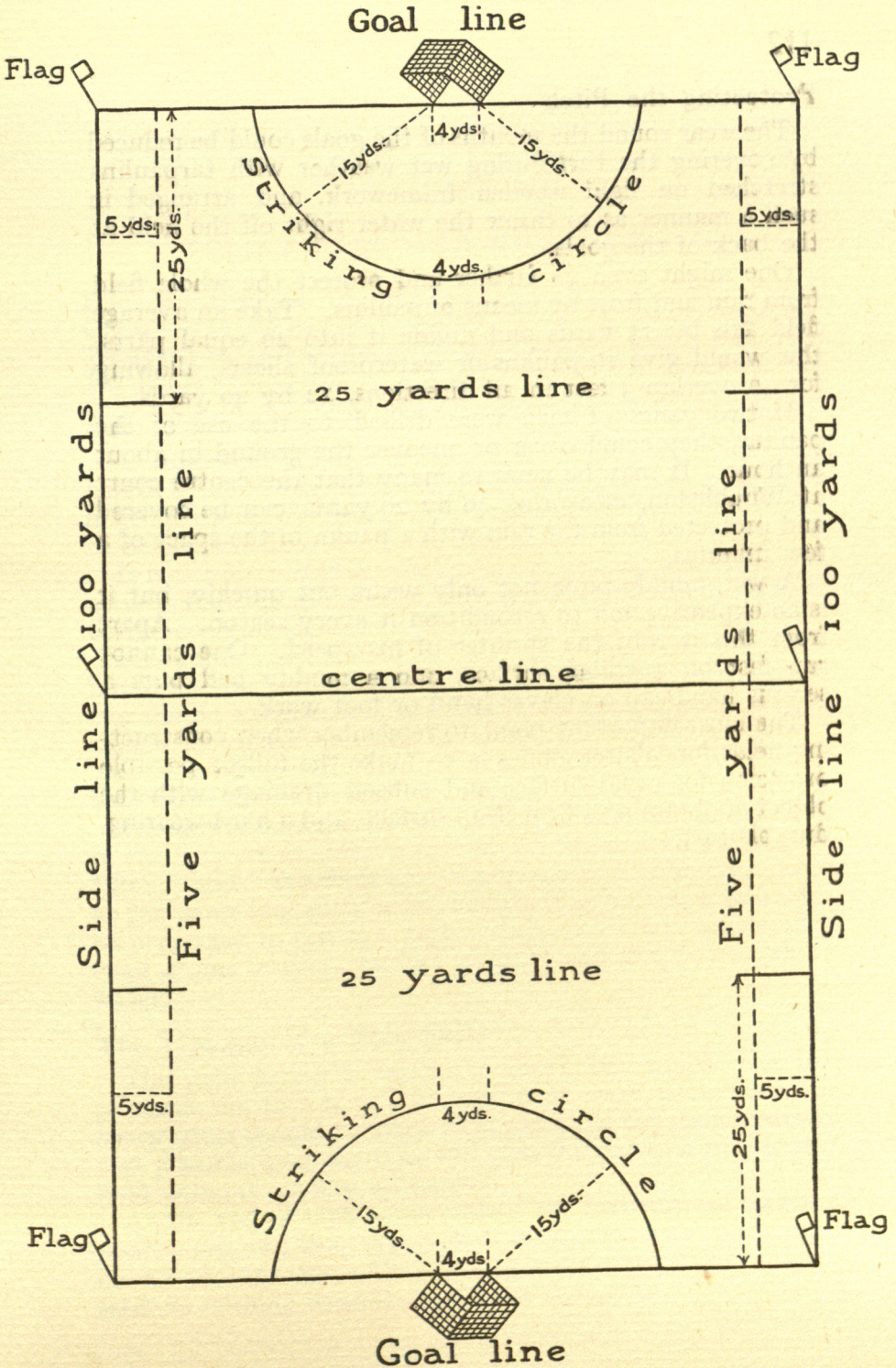
The ground shall be rectangular, 100 yards long and not more than 60 yards nor less than 55 yards wide. The ground shall be marked with white lines in accordance with the plan ; the longer boundary lines to be called the side-lines, and the shorter boundary lines to be called the goal-lines. The 25 yards line must not be fully marked, but only its extremities to a distance of 7 yards, as shown in the plan. A flag-post shall be placed for the whole game at each corner, also at the centre of each side-line, one yard outside the line, and any other flag-posts must be a yard outside the line. All flag-posts shall be at least 4 feet high.

Goals

A goal shall be in the centre of each goal-line, and shall consist of two posts 4 yards apart (inside measurement), joined together by a horizontal cross-bar 7 feet from the ground. The goal-posts shall not extend upward beyond the cross-bar nor the cross-bar sideways beyond the goal-posts. The posts shall be 2 inches broad and not more than 3 inches in depth, and the cross-bars shall have rectangular edges. Nets shall be attached to the posts, cross-bars, and to the ground behind the goals. It shall be permissible to have a piece of wood or similar material, not more than 18 inches high, round the foot of goal nets.

Striking Circle

In front of each goal shall be drawn a white line 4 yards long, parallel to, and 15 yards from, the goal-line. This line shall be continued each way to meet the goal-line by quarter circles having the goal-posts as centres. The space enclosed by these lines and the goal-lines, including the lines themselves, shall be called the striking circle.



Goal line
PLAN OF A HOCKEY FIELD

Protecting the Pitch

The wear round the mouths of the goals could be reduced by covering the turf during wet weather with tarpaulins stretched on light wooden framework, and arranged in such a manner as to throw the water right off the field at the back of the goals.

One might even go farther and protect the whole field from rain and frost by means of paulins. Take an average field 110 by 75 yards and divide it into 20 equal parts, this would give 20 paulins or waterproof sheets, allowing for an overlap 3 feet in all directions, 12 by 40 yards.

If two gangs of men were drilled to the use of the paulins, they could cover or uncover the ground in about an hour. It may be news to many that the centre court at Wimbledon, measuring 40 by 20 yards, can be covered and protected from the rain with a paulin in the space of a few minutes.

A wet, muddy pitch not only wears out quickly, but it is an expensive job to recondition it every season. Apart from this it robs the sprinter of his speed. One cannot run fast on a giving surface, and a muddy ball puts a serious handicap on clever hand or foot work.

The most important point to remember when constructing fields for Winter games is to make the fullest possible provision for rapid surface and subsoil drainage with the object of obtaining a firm clean surface, and a hard-wearing durable turf.