

and will forfeit all claim to a prize by not doing so. The leewardmost ice-yacht must, however, tack at the same time as the one she hails, if she can do so without coming into contact.

RULE 11.—*Pushing.* Unfair pushing is strictly forbidden in any race for a prize; any ice-yacht infringing upon this Rule, in the opinion of the Regatta Committee, shall forfeit all claim to the prize.

RULE 12.—*Ballast.* No ice-yacht shall increase or diminish ballast during a race.

RULE 13.—*Time of Performance.* SECTION 1. In case the distance assigned for the race shall not have been performed in the time specified by the Regatta Committee, the race shall be repeated at such time as the Regatta Committee may appoint.

SEC. 2. If any ice-yacht, however, shall perform the distance in time specified for her class, it shall be deemed a race for that class.

SKATING.

BY

ARTHUR G. KEANE, M. D.

SKATING is one of the earliest of sports and it is one of which no one country or nation can claim a monopoly, for any climate sufficiently severe to form ice will turn out its share of people to indulge in this prince of winter pastimes, and even in countries in which ice rarely or never forms, artificial ice rinks are made upon which lovers of the graceful art may disport themselves. About 1905 artificial ice rinks became fashionable in Melbourne and other cities in Australia—and some of the most gorgeous fêtes, carnivals, and competitions there given have rivalled those of the Canadians themselves.

Few there are who are unable to enjoy its pleasures, for it is only those who are the victims of some physical disability who need be debarred from participating in this health-giving exercise.

Its history dates back for centuries, the people of the far North of Europe being probably the first to take advantage of the ice's slippery surface.

The skating implements of that age were of the most primitive form, being made of the bones of the various domestic animals. Those most frequently used were the metacarpal bones of the horse, ass, and ox. These were ground down and fastened to the feet by means of thongs passed through holes drilled in the bones for that purpose.

As can easily be imagined, it would be almost impossible to strike out on skates of this kind, and most historians unite in claiming that they were used merely as runners while the skater propelled himself by means of a spiked stick.

These skates have been found in Holland, Denmark, North Germany, and Switzerland. It is claimed that this same style is still in use in Iceland, and the British Museum now owns an Icelandic pair made from the metacarpals of the cow.

Since that time the skate has gone through many stages of improvement. The first blade skate was probably made some time in the fifteenth century, although some claim as early as the twelfth. Whichever is correct, it is certain that the first authentic description and picture date back to the fifteenth century. On the fiords of Scandinavia, in the fens of Lincolnshire, England, and on the large rivers and lakes of North America, the running or fen style, which is simply going straight ahead at the highest possible speed, is the favorite method; and in Holland, Denmark, and other places, large winter market traffic is carried on on skates. There the children go to and from school on skates, the housewives go shopping on skates, and skating is the chief means of progression from place to place during many months of the year. The streets of many of the cities being really canals, and the low-lying land being frequently covered with water, there are opportunities for skating such as exist almost nowhere else, and pretty and animated are the scenes which enliven the winter months, when fairs are held on the ice and the canals are illuminated for miles.

The modern skate is made entirely of metal, and of three general styles: racing, hockey, and the figure skate.

The racing pattern is usually made of aluminum, tubular in shape so as to lessen the weight, and the bottom of the blade is perfectly straight except for a very slight turn-up at the tip. The object of the straight blade is to provide for a better purchase on the ice, so that more power may be applied at every stroke than if it had a bearing surface of only two or three inches. The length of the blade varies from about fourteen to seventeen inches, the shorter being intended for use on a circular track and the longer for straight-away skating. Without a rear wind, the fastest skating time has been made in New York as well as the best running high jump on skates and the best running long jump.

The hockey skate resembles the racing variety in that it also has a straight blade, but the blade is wider and the whole skate is heavier in construction in order to stand the strain of the frequent startings and stoppings which are necessary in this game. The length of the blade varies with the size of the foot and is usually several inches longer than the shoe.

The figure skate is of many varieties, and is either screwed or clamped to the shoe. The up-to-date skate in this country is made of all steel, quite light in construction, and the bottom of the blade is the true arc of a circle. It has what is called a diamond-point, that is, the tip of the blade has a very sharp point, the object of which is to keep the skate from slipping on the ice when doing toe-spins, etc. In this skate also the length of the skate depends on the size of the foot. It should be of sufficient length to allow the blade to overhang the heel a little more than a quarter of an inch, and the tip to extend to a line dropped from the end of the sole. A mistake fre-

quently made is to have the tip of the skate project beyond the toe of the shoe. The best width of blade is 15-64 of an inch.

There has been a wonderful advance in the skating ability of the general public in the last decade, especially that portion residing in the larger cities. This improvement is partly due to men and women alike who are now indulging in the numerous branches of outdoor exercise, but can be more especially attributed to the better facilities offered by the presence, in many of the cities, of rinks of artificial ice. Rinks of this character were introduced in New York in the winter of 1895, and there has been a perceptible advancement in skating ability from year to year since that time.

The game of ice-polo, which was scarcely more than the old-fashioned game of shinny, was introduced in the winter of 1895-1896, but was short-lived, being superseded by the more exciting and far more scientific game of hockey, which was brought to us across the border by our Canadian cousins.*

The New England colleges also recognized the merits of the game and were not slow to adopt it. Other colleges soon followed their example, and the result is the Intercollegiate Hockey Association. As in all other sports, the preparatory schools throughout the country followed the lead of the larger institutions of learning, and some of the most exciting contests of the season are those of the Interscholastic League.

While hockey and speed skating have their horde of followers, figure-skating, improperly called fancy-skating, is equally deserving of its place when treating of this glorious winter pastime. It has been truly termed "The Poetry of Motion," and ranks among the fine arts, for what can be more graceful than an expert skater skimming over the surface of the ice without apparent effort, as if propelled by some magic or unseen power? This is indeed symmetry of motion. Not only are the movements graceful, but the figures inscribed on the ice are as true as those cut by the engraver's tool.

No one who has not enjoyed its charms can fully appreciate the pleasures and delights of figure-skating. Its charms increase as proficiency is attained, and the number of figures that can be executed is unlimited. There is a fascination, and a satisfaction, too, in being able to conceive a figure and, with practice, execute it on the ice. If young people knew the joys of figure-skating there would be as many figure-skates in evidence as there are now hockey-blades.

As with everything else worth obtaining, proficiency in this branch of skating entails practice, patience, and perseverance, but the results well repay the effort. Not only is proficiency in the art acquired, but an abundance of wholesome exercise and fresh air is obtained thereby.

As in piano playing the pupil must learn his fingering, scales, and chords before he can properly play his piece, so in figure-skating the beginner must practise the simple movements—the foundation of

* See *ante*; article on, and Rules of Hockey.

figure-skating—before he can hope to properly execute the more difficult figures and designs. Learn to do the plain edges; rolls, and threes, and the other figures will come in good time.

There are some good books on the subject of figure-skating, but the *best* way to learn the proper method, style, and grace, is to watch and copy some expert.

My parting advice to the beginner, as well as the more expert, is to never learn to execute a movement or figure on one foot at the expense of the other. If you can skate a figure on the right foot, learn to do it equally well on the left.

Roller skating was invented by Jas. L. Plimpton, in New York, in 1869. It had a fierce vogue for many years and then became less popular. Recently, however, it has been revived, the skates have been improved, and the pastime has regained some of its old popularity. It is, however, a poor substitute for the real thing, and many of the best authorities on physical training object to indoor roller skating, principally on account of the unhygienic conditions in which it is too often practised.

HINTS ON SKATING.

The Start.

The skates fastened on and the novice standing on his feet, on a well-selected piece of ice, neither so smooth as to increase the difficulty he will find in keeping his feet, nor so rough as to trip him up, he should start at once. Inclining his body a little forward toward the right leg, he slides forward, with his whole weight on the right foot, which must be slightly turned outward, his other foot being slightly raised off the ice, and kept behind the right. He then brings the left foot forward, in its turn, and slides a yard or two on that foot, and so on alternately. He may, at first, make use of his hands to maintain his balance, raising or depressing them with the fingers turned upwards. He should, however, aim at skating, after a short time, entirely without the use of his arms, which look much better hanging carelessly by the side, than flung wildly about in wind-mill fashion. Some learners make use of a stick at first starting. It is better to have a companion who can skate, and, by degrees, he may leave you to your own exertions. The learner should proceed patiently, and with caution, at first, and be content to increase his speed gradually with his knowledge; the opposite extreme, however, must also be avoided, for no one ever becomes a good skater who is afraid of a fall. When the inside edge movement has once been learned, the skater will find that his progress is greatly hastened by a push given to the ice with the left skate, as he starts with the right foot, and *vice versa*; but, above all things, let him thoroughly understand "inside edge," and be confident of his own powers, before he begins practising the feats we will now describe. But first the skater must be taught.

How to Stop.

Bring the second foot down upon the ice, and glide forward, with both feet pointed in front of you, and parallel to each other, like the irons of a sledge. Bend the body forward, and throw all the weight upon the heels of the skates. Those who wear the skates with rounded heels cannot, of course, stop in this way, as the rounded irons, instead of sticking into the ice, would trip their wearer up; he puts the second foot to the ground, at right angles with the other, pointed entirely sideways, which immediately stops his career.

How to Perform the Various Evolutions.

Before the skater attempts to cut figures and other devices, he must be able to skate on the outside edge of the skate, to skate backward, and to turn round. The *outside edge* implies what it is by its name; when acquired, it sends you exactly in opposite directions, on both sides, from what the *inside edge* does. In explanation: Suppose that you are skating on the *right* foot, it is easy to turn to the left, and not so to the right, to effect which you must use the *outside edge* by striking out upon it either foot, inclining, at the same time, the skate, the leg, the body, and the head toward whichever side you are skating, holding the other foot raised up behind, and rounding the arms. The most difficult forward movement is the cross outside edge, which is done by passing one leg

across the other, and striking out with the foot as it comes down on the ice. As the foot on which you first rest disengages itself (which it will do as you proceed) from the crossed-leg position, throw that leg over the other, and, by continuing this, you will soon learn to sweep round on either side with ease. This is called the Mercury figure.

The salute in a right line is not easy of execution. Having first struck out, you must place the feet in a horizontal line, elevating and rounding the arms. Continue the movement as long as you can, or think fit to do so. This attitude, though difficult, is frequently practised by good skaters.

The salute in a curved line is much easier. Having started, you put your feet in the position you would adopt to describe the salute in a right line, only less horizontally. The head and body must be upright, the arms rounded, the hands placed on the haunches; in this position you describe a circle. You then draw yourself up, the knees having become slightly bent, and, raising the right or left foot, prepare for another evolution; as either striking out straight forward, or toward one side.

To describe circles and curves will be found the most graceful and useful of evolutions. To describe a curve on the outside edge forward, fix on some point as a centre, and take a run proportioned to the number of curves you propose describing. Strike out on the outward edge, turning in a curve round the centre fixed upon. Your eyes must look toward the shoulder opposite that which directs the general movement of the side on which you turn. The hips must be kept in, and the leg on which you are propelled bent slightly at the knee-joint; the opposite leg must also be bent, and thrown backward, to modify, by its weight and position, the impulse forward, and to insure your equilibrium.

To describe a curve, or circle, on the inside edge forward, you must select a small piece of cork, or any other light body, as a centre, take a sufficient run, and strike out on the inward edge. Your head and body must be in the position described for outward curves, only the leg on which you skate must not be bent. The opposite leg should be almost stiff, and the foot about eighteen inches distant from the one you rest upon. Curves on the inside edge are terminated by stopping in the usual manner; but if you desire to *pirouette*, or turn round, you throw the foot on which you do not skate over that on which you do, and, from the impulse given to your body, in order to describe the curve, you spin round on the middle of the skate, as on a pivot. After having done this a few times, you bring down the foot you are not revolving on, and proceed to other evolutions.

To skate backward, you must incline the head and body slightly forward, in order not to lose the centre of gravity. Strike out behind on each foot alternately, and raise the heel of the skate slightly up from the ice; by this operation each foot will describe an arc or segment of a circle. Should you feel to be losing your equilibrium, bring both skates together upon the ice.

This evolution is performed sometimes on one foot, sometimes on the other, and occasionally on both together, by the help of a slight motion of the hips.

Retrograde or backward curves differ from ordinary curves by their direction only; and at first sight appear difficult, because a person cannot move backward with the same facility that he can go forward. When, however, you are used to this manner of skating, it will appear natural and tolerably easy of execution. The backward curve is of equal importance with the ordinary curve on the outside edge, and constitutes the base of all retrograde or backward figures. In this evolution the position of the arms and head is not the same as for the ordinary curve on the outside edge. When executing the outward retrograde curve, your face must be turned toward the left shoulder. The backward curve may be extended to circles, spiral rings, and be finally concluded by the *pirouette*.

The oblique stop is the most proper to adopt when you are skating backward. In order to perform it, when engaged in a retrograde movement, you bring down on the ice in an oblique and transverse position the skate on which you are not resting, stiffening at the same time the leg you thus bring down. The effect of this manœuvre is prompt and certain, and the only variation it admits of is, that it can be performed on either foot.

To turn round, bring either heel behind the other, and you turn as a matter of course.

By carefully attending to the above directions, with practice, you will be able to cut the numerical figures, or any device that you may wish. The figure 8 is the best practice, and is described by completing the circle on the outside edge forward. This is performed by crossing the legs, and striking from the outside instead of the inside edge. To cross the legs, the skater, as he draws to the close of the stroke on his right leg, must throw the left quite across it, which will cause him to press hard on the outside of the right skate, from which he must immediately strike, throwing back the left arm and looking simultaneously over the left shoulder, so as to bring him well up on the outside edge of the left skate. The 8 is formed by completing a perfect circle, in the manner described, on each leg, before changing the foot. The figure 3, which is performed on the inside edge backwards, may next be practised.

No pains should be spared upon this figure, as it is a most elegant one, and is, besides, the key to all figures. When the 3 is once mastered, other figures become quite easy. The mode of doing it is this: Start on the right foot as if going to make an 8, but do it as gently as possible. But, instead of swinging the foot round so as to make a circle, let it remain at least a foot behind the

right foot. The consequence of doing so is, that when three-fourths of the circle is completed, the off-foot gives a furious sway to the body, and the skater spins round on his right foot, changing at the same time from the outside to the inside edge, and cuts the second half of the 3 backwards. When the skater can do this easily with the right foot, he should practise it with the left; and when he can cut the 3 with equal ease with either foot, he should cut two together. He begins with the left-hand 3, starting with his left foot on the outside edge; when he gets to the twist of the 3 he spins round, and finishes the figure (still with the left foot) *on the inside edge backward.* His right foot is now at liberty to pass to the top of the right-hand 3, which he cuts in like manner. Especial care must be taken to keep the knees straight, and to preserve a graceful carriage of the body. If the skater should be so far off his balance as to find any difficulty in spinning round, he will gain his object by throwing his weight a very little toward the toe of the skate. The reason why the skater curves round in this twist is, that the steel of the skate has a curved form; and when for a moment the body is quite upright, the whole skate spins round on its centre, as on a pivot.

GENERAL DIRECTIONS FOR PERSONS LEARNING TO SKATE.

1. Let your dress fit closely, but at the same time be of sufficient ease to insure freedom of motion. Neither skirts to coats nor full trousers should be worn. Knickerbockers and stockings are best.

2. Let flannel be worn next the skin by the delicate, and an extra undergarment by the robust. Let the chest be well defended against the cold. A piece of brown paper laid between the waistcoat and shirt is one of the best chest protectors.

3. Be careful in venturing upon the ice, unless it be sufficiently strong to bear the weight of the number that flock to it; and watch for the increase of numbers, that you may retire before danger ensues.

4. Avoid rough and very smooth ice, and look carefully out for obstructions thereon; such as small twigs of trees, stones, or "hobbles;" as well as for rotten ice, cracks where the ice has risen higher on one side than the other, or holes. Should you suddenly come upon rotten ice, do not stop, but pass over it as rapidly as possible. Should you fall down upon it roll lengthwise toward the firmer part, without attempting to stand or walk upon it.

5. Should the skater fall into a hole, he should extend his arms horizontally across the edges of the ice, till a rope can be thrown to him.

6. After an unlucky immersion in the water, the unfortunate skater should immediately take off his skates, and, if able, run home as quickly as he can.

He should then pull off all his wet clothes, rub himself thoroughly with dry towels, and go to bed.

A FEW FACTS ABOUT SWIMMING.

BY

C. M. DANIELS, NEW YORK ATHLETIC CLUB.

THE art of natation has been known for many hundred years, in fact, dating back to 880 B. C., the date found on several pieces of Assyrian sculptured work, representing human figures swimming, which are now in the British Museum.

It was not until lately, however, that the sport was seriously recognized as a means of exercise and competition. Thirty years ago we find all swimmers were using the breast stroke, such as is taught to all beginners. Later the side or English racing stroke was used, but it was to Col. Trudgeon that all credit is due in regard to the discovery and perfection of the trudgeon, the stroke used by all speed swimmers for all distances; the improvement over the old side-stroke being in the less resistance offered by the air in bringing the arms forward than by the water.

People began to say then that the limit had been reached; the time taken by the fastest swimmers to cover 100 yards was about one