

ICE YACHTING.

[SEE FRONTISPIECE.]

There is no sport, the excitement of which is so thrilling and whose records of speed so wonderful as that of ice yachting. Ice boats are to be found on the lakes and rivers of our Northern States, but their favorite cruising ground is on those great expanses of ice on the upper and middle Hudson. Here the principal ice yacht clubs are located, and the traveler often may catch glimpses of them from his car window as far south as Nyack and Tarrytown.

The ice boat, like the catamaran, is a racing machine, pure and simple. Its hull (if the few timbers forming that spider-like structure can be so called) is put together in such a manner as to obtain the greatest possible strength consistent with lightness.

Every village along the great river appears to have a few of these boats, but whether made by the boys, who nail a few boards together, with a bean pole for a mast and a blanket for a sail, to the gentleman whose mighty flier rejoices in plated hand rails, inlaid cockpit, and buffalo robes, the same principle of construction prevails, namely, a triangular frame with two widely extended runners abreast of the mast, and one astern which does duty as rudder. Some use the plain cat rig, some the sloop, with short, low, slanting gaff and long boom, and the single yard lateen has also been tried.

The season for the sport rarely lasts over thirty days, and some winters afford but a week of good racing weather. Of course there are many fine days scattered through the season, which the individual ice boat enthusiast watches for and takes prompt advantage of. The main obstacles to the sport are light winds, rough ice, and snow, and it is a delightful sight after a spell of bad weather to see the eagerness with which the devotees to the sport launch their fairy craft and fly over the river with their snowy wings. On pleasant afternoons, when the wind is not too strong, one can often see many a family party out for an airing on the dainty craft, which glides smoothly along as if conscious of the necessity of extreme caution in all its movements; but when the whistling west wind whittles down the mountain side and sweeps across the bay, what a change is there in the actions of that same craft! How she darts about like a frightened bird, shivering and trembling up into the wind, now paying off and darting away again, seeming to leave the ice, then fading away and dropping out of sight like a feather on the gale! And when with wind abeam, and in a race, with her competitor close at hand, how madly she rears and holds trembling aloft the man perched upon her windward runner, as if intent upon shaking clear of her burden and flying into the air!

Nevertheless, accidents are rare, and it is seldom that any more serious harm comes to the sportsman than a thorough ducking or a frost bitten hand or nose. The most serious accidents occur from collisions where the boats meet on opposite tacks, or when one, stopped suddenly by some unforeseen obstruction, is run into by another too closely following its course. Ladies are often keen participants in the sport, and take their share of its dangers, as in a recent instance off Poughkeepsie, where two were riding, one on each runner, when the ice suddenly gave way and precipitated one of them into the river. The accident happily resulted in nothing serious.

The authentic runs of some of these boats are really marvelous. The swiftest express trains are frequently overtaken and passed as if they were at rest. A mile a minute is often made by the fliers. Longer distances at this rate are not often recorded, on account of the fitfulness of the wind and the impossibility of getting perfectly smooth ice for a long distance. Under perfectly favorable circumstances and for short stretches these boats have probably flown at a rate as high as ninety or a hundred miles an hour. The distance between Poughkeepsie and New Hamburg is nine miles. The Snow Flake, 44 ft. 10 in. length, owned by Mr. Rogers, has made the distance in seven minutes. In 1873 the yachts Haze, Snow Flake, and Snow Squall sailed to Albany on one day and returned the next. In 1882 the Haze made nine miles in seven minutes, at times making two miles a minute. In 1879 the Comet, Phantom, Zephyr, and Magic sailed together ten miles in ten minutes, and most of the time the gale hurled the boats till their windward runners were at an angle of 45°.

A gentleman of Poughkeepsie wishing to speak to his brother (who had started on a train for New York) concerning some business of importance, jumped on his ice boat, caught up with and passed the train, and reached the depot at Newburg in time to meet and accomplish his object. The winning boats since 1869 bear such speed suggesting and wintry names as Haze, Arctic, Hail, Restless, Snow Bird, Æolus, Phantom, Avalanche, Jack Frost, Zig-Zag, Whiz, and Icicle. The latter is the largest ice boat on the river. She is owned by Commodore John A. Roosevelt. Her dimensions are as follows: Extreme length from end of bowsprit to main boom, 68 ft. 11 in.; length of frame, 29 ft. 3 in.; width between runners, 25 ft. 7 in.; area of sail, 1,070 square feet; hoist of main sail, 22 ft.; length of boom, 42 ft.; gaff, 42 ft. 9 in.; hoist of jib, 28 ft.; on jib boom, 23 ft. 6 in.; on stay, 23 ft.; total weight of yacht, 2,360 lb.

A ride on one of these boats at full speed is most exhilarating, producing a sensation as of flying through space, a feeling as of delightful buoyancy, once experienced always to be remembered.

ONE of the surest remedies for destroying buffalo carpet bugs is benzine, if thoroughly applied.

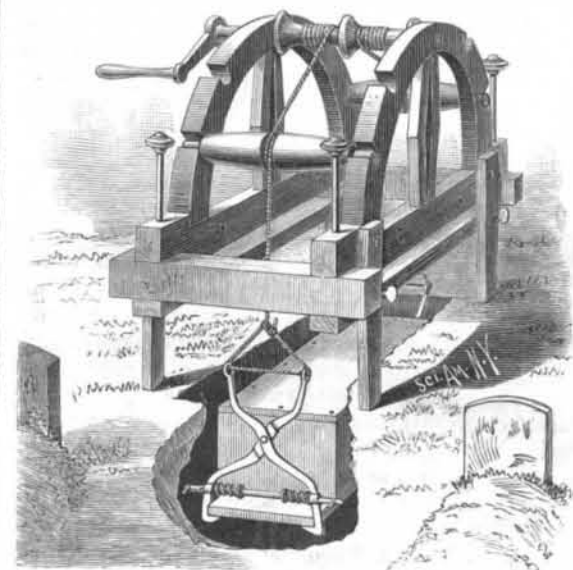
Pleasing Experiments with Glass Tubes.

A most remarkable phenomenon is produced in glass tubes placed in certain circumstances. When these are laid before a fire in a horizontal position, having their extremities properly supported, they acquire a rotary motion round their axis, and also a progressive motion toward the fire, even when their supports are declining from the fire, so that the tubes will move a little way upward to the fire. When the progressive motion of the tubes toward the fire is stopped by any obstacle, their rotation still continues. When the tubes are placed in a nearly upright posture, leaning to the right hand, the motion will be from east to west; but if they lean to the left hand, the motion will be from west to east, and the nearer they are placed to the upright posture the less will the motion be either way. If the tube be placed horizontally on a glass plane, the fragment, for instance, of coach window glass, instead of moving toward the fire it will move from it and about its axis in a contrary direction to what it had done before; nay, it will recede from the fire, and move a little upward when the plane inclines toward the fire.

These experiments succeed best with tubes about 20 to 22 inches long, which have in each end a pretty strong pin fixed in cork for their axis.

IMPROVED BURIAL WINDLASS.

A strong bench, of longer and wider dimensions than the horizontal measurements of a grave of the largest size, has four legs pivoted to the frame so as to fold up against the sides when the bench is being carried about or stored away. The legs are provided with thumbscrews, which hold them in either a folded or open position. On the top of the bench is an arch-shaped frame of two parallel beams spanning the frame from end to end and suitably connected to it. At the crown of the arch is a rope drum, having a crank for turning it, and having cords extending each way from its respective sides along the arch and over rollers mounted on the outer sides of the arch, to guide the ropes for being raised



MCDONALD'S BURIAL WINDLASS.

and lowered at the ends of the grave. From the cords are suspended grappling tongs, so pivoted and connected to the cords that the weight causes the hooks to gripe firmly. The board on which the coffin rests is grasped by the hooks. When the coffin has come to rest on the bottom of the grave, the tongs are disconnected by springs placed on a bar passing through each leg, which press the legs apart. Until the coffin is ready to be lowered the legs are kept a certain distance apart by means of pins which are passed through the bar outside of the legs. The pins are then shifted to other holes in the bar, sufficiently distant from the hooks to allow them to escape from the board by the pressure of the springs when relieved of the weight of the coffin. Series of bearings are made in the arch, so that the rollers can be shifted from one position to another, according to the length of the grave. The construction of the windlass and tongs and the arrangement of the rope will be readily understood from the engraving.

This invention has been recently patented by Mr. John P. McDonald, of Litchfield, Illinois.

Color in Electro Gilding.

It is of the greatest importance to possess a knowledge of the art of regulating the current and general working of hot electro gilding liquids, so as to make the process useful in producing not only deposits of gold, but those of any desired color.

As a general rule, it will be found best to obtain any excessive color by additions to the bath, and not by attempting to work it up to this by the current or temperature. Thus, to obtain red or green gold of decided color, it will be necessary to make additions of acetate of copper and nitrate of silver. But if it is not required to perpetually gild in this color, or at least until all the added metal is worked off, the bath will be spoiled for ordinary gilding. It is, therefore, always wiser, when excessive color is required, to either make up a separate solution for that particular color, or to make the main bath up in that manner if the work is always to be carried on.

To make up a bath for red gilding, grind a little of the acetate of copper (crystallized) to powder, dissolve in water, and add to the bath, with stirring, every evening as much as may be required. In a new bath, where there will be no troublesome sediment to disturb, the addition may be made at any time, and the quantity augmented if the color is not sufficiently deep. It must not be forgotten, however, that gold so colored is not so fine as a yellow gold. Attention should be given to some of the directions which follow, so that the battery power and temperature may be regulated to assist in the production of deep color, it being important that too many foreign substances be avoided in a good bath.

To obtain green and white gilding the addition is a solution of the crystallized nitrate of silver. This is added in the same way as the copper. A very little (a few drops) will generally produce green gilding, and a little more, white.

To deposit a gold of pink appearance is a more troublesome matter. The surface is first coated yellow, then thinly red, and over this is produced an exceedingly thin coat of silver in a silvery solution. Such surfaces are very lasting, and should be burnished.

A good cyanide gilding solution should be of sufficient strength to allow of its producing from a pale and poor looking deposit to a deep and nearly red rich gold. For such purposes the solution may even contain as much as 1½ ounces of gold per gallon, but over this it is not advisable to go, for the reason that the paler tints are not readily obtainable. The poorer solutions will produce fairly pleasing tints when the current is strong and the temperature high, but the darker shades are very apt to have a dingy appearance, instead of that mellow and clear surface which is the chief aim of the practiced gilder.

A dead gilding will be produced by the addition of a little of the fulminate of gold in solution to the bath immediately before gilding, or dip the articles (brass and copper) before gilding in a mixture of sulphuric and nitric acids.—*Watchmaker.*

The Old Mohawk and Hudson Railroad.

Some interesting particulars of this road are contributed to the *New York Times* by W. W. Crannell, of Albany, N. Y.

The first railroad constructed in this part of the country was the Mohawk and Hudson Railroad, extending from Albany to Schenectady. The work on the road was commenced in 1830 and completed in 1833. It was constructed with an inclined plane at each end of the road; the one at Albany a little more than half a mile in length, and both of them having a rise of 1 foot in 18. The road was laid out about 16 miles in length, 6 of which were at a level, and the rest of it, with the exception of the two inclined planes, had an ascending grade of about 1 foot in 250. The width of the excavations was 36 feet, that of the embankments 26 feet. The deepest excavation was 47 feet, the highest embankment 44 feet, and the greatest altitude above tide water at this city, 353 feet.

Stone blocks laid on broken stone were placed 3 feet apart, from center to center, and cross sleepers of wood, 7 inches in diameter and 8 feet long, rested upon them, supporting the timber rails, on which were placed iron bars, $\frac{3}{4}$ by 2½ inches, with the upper corners rounded to 1½ inches in width. The width between the rails was 4 feet 9 inches. The capital stock was fixed at \$300,000, with permission to increase the same to \$500,000. When the road was completed it was found to have cost \$1,100,000.

In July, 1831, the locomotive De Witt Clinton arrived, at which time the road was completed for 12½ miles. Although the locomotive was found to be defective, it made the run over the completed road in one hour and forty-five minutes. An English locomotive, called the Robert Fulton, of double the power and weight of the American engine, was procured in September. The vehicles for passengers were built at the factory of James Gould, in this city, and were mere stage coach bodies placed upon trucks and supported upon thorough-braces, in the manner of stages, and capable of carrying about fifteen passengers each.

The time when the directors of the road felt prepared to crown the success of their labors by a grand excursion was on September 24, 1831. The Governor of the State, the mayor of the city, the editor of the *Journal*, the editor of the *Argus*, Billy Winne, the old penny post, and other distinguished and representative citizens were invited to celebrate the great event. There were five cars crowded with guests, and there was a crowd of spectators to see them off.

The greatest man on the train, in his own opinion, was the English engineer; but, alas! the English engine balked; there was some trouble with the feed pipe. The editor of the *Journal* suggested to the editor of the *Argus* that they borrow a horse whose feed pipe was in order. A man in the crowd shouted, "Give 'er a peck of oats, boss;" another cried, "Twist her tail;" and still another suggested that they "turn the wheels to start her off." After waiting until noon, the De Witt Clinton was substituted, and started off with a train of three cars, the remainder of the party following in the two other cars drawn by horses. After partaking of a late dinner in Schenectady, the locomotive returned with the entire train of five cars in thirty-five minutes. The American was now called the Brother Jonathan and the English engine the John Bull, and great was the talk of the superiority of American over British mechanism.