

## Correspondence.

## Natural Grafts.

To the Editor of the Scientific American:

On reading the article in the SCIENTIFIC AMERICAN of February 10, on the "Forestry Exhibit at the Columbian Exposition," I am reminded that there is a similar case of what I suppose to be "natural graft" still standing green and growing near my native place, Mt. Vernon, Ohio.

Two white oaks, now large trees, have grown together and have been in this condition as far back as the memory of the oldest inhabitant can reach. They stand at the ground, as I recollect them, about fifteen or twenty feet apart, and at about thirty feet above the ground have grown together completely, very much as in your Fig. 1, the combined tree above being about twice the size of either below, showing that the union is complete. They stand upon a hill top, near the road side, a conspicuous object, quite alone, as though the woodman's ax, which has slaughtered so murderously our Western forests, had felt, or fancied, the sacredness of some such command as, "What God has joined together let not man put asunder."

W. T. COLVILLE.

Carbondale, Pa., February 9, 1894.

## Winter Fishing on Lake Erie.

BY EDWARD HALE BRUSH.

Fishing in the waters of Lake Erie is carried on in both winter and summer. It is an industry upon which thousands of families living upon both the American and Canadian shores of the lake are to some extent dependent. When the season of navigation closes, and freight and passenger steamers and sailing craft are no longer seen upon the bosom of this beautiful inland sea, there comes a time when, for a while, quiet reigns over the surface of the lake, and human life is a stranger to it. But as soon as the cold of winter congeals the waters, and the ice formed becomes thick enough to go upon, which usually happens early in the winter, a change comes over the lake again.

When the winter fishing season is at its height, so to speak, and on days when no fog is on the lake and it is not extremely cold, there are hundreds and even thousands of men and boys upon the lake engaged in fishing through the ice. The scenes presented by the groups which dot the frozen sea for many miles of its extent are always interesting and often picturesque. The men, muffled up to their eyes for protection against the intense cold and piercing wind, the dogs and the sleds and the bleak stretch of the icy plain for miles in every direction, give one the impression that he is in some frozen country of the far North.

The fisherman who would make the most of his opportunities must bestir himself at an early hour. If the morning is clear, usually the hardy men may be seen getting ready for the start out upon the ice about five or six o'clock. Sometimes, however, they make the start as early as four o'clock. They dress themselves in rubber boots that come up high on their limbs, and in headgear that comes down around the ears and neck, and leaves only the eyes and nose and mouth exposed to the sharp wind. Sometimes a man who has had his feet frozen will take the precaution to wear padded shoes of duck, to prevent their being frosted again. These make his feet appear twice their usual size, and the fisherman looks more than ever as if fitted out for an expedition to the North Pole. Thus attired, the men and boys place the baskets containing the tackle, and which will serve also to hold the fish, upon the sleds and start off upon their cold journey.

The sleds are provided with handles or pushers projecting from the rear, by which they are shoved along upon the ice. Sometimes dogs are harnessed to the sleds. Most fishermen have their dogs, and they would as soon think of parting with them as with their wives and children. Formerly dogs were more generally used than now. As the fisherman trudges along over the frozen lake, now jumping a crack, now steering out for an air-hole, he chews his tobacco vigorously, laments the luck of the day before or brags about it, as may be, and, all in all, is not a discontented man by any means, though his work is so full of hardship. Usually a trail across the field of ice is followed. This is marked by flags which the men put up at intervals of a few hundred feet. These tell them where the ice is safest, and also prove useful in case of fog in guiding the men to shore.

The fishermen do not stop until they get well out upon the lake. An amateur fisherman would not know where to go to strike the good fishing grounds, but with those who live by what they get out of the lake, it becomes second nature to know where the fish are. As a rule, the best fishing ground is where the water is deepest. The greater the depth, the warmer the water will be at the bottom. The fish seek the warm spots, just as animals who live on shore generally do. There is not much to be caught near shore. The depth of the water where the most fish are caught is from forty to sixty feet.

The first thing the angler through the ice does when

he reaches the spot on the ice where he is to halt for the day is to set up his "wind-break." This is a sheet of canvas attached to poles which are set up vertically in the ice. When the fisherman gets under the lee of his wind-break he may not be as warm as though he were in front of a toasting fire, but he is much better off than if he got the full force of the breeze which comes sweeping over the frozen plain, and the snow storm which often accompanies it. Much of the time the middle of the lake presents the appearance of a continuous snow squall. It may not be snowing at all on shore, but out upon the ice the wind, which blows a miniature hurricane a large portion of the time, carries the loose-lying snow with it, and often the storm is so blinding that one can see but a short distance ahead.

When the wind-breaks are up, each man takes an iron chisel and digs from three to five holes in the ice, about five or six inches square, through which to fish. For fishing through the ice the angler uses what he calls a "tip-up." It is made of two sticks joined together in the form of a cross. The line is attached to the head of the cross, and the latter is laid flat upon the ice, so that the head comes directly over the hole that has been made. When there is a bite, the head of the tip-up is drawn down and the other end flies up, and the arms prevent its going through the hole into the lake. To each line is attached a sinker, from which are suspended by a wire two hooks. Thus each fisherman tends from three to five lines and from six to ten hooks, and when the fish bite well it is all he wants to do to keep track of the series. To prevent the holes from freezing up he has to keep baling out with a ladle the ice which forms.

The fish most often caught through the ice are herring, perch, and yellow pike. Now and then a sturgeon will be hooked. Minnows are used for bait, and care must be taken always to have fresh bait, for the fish do not like stale food any more than men do. Often it is bitter cold work taking the fish. The water almost freezes on the hands, the garments of the anglers become stiff with snow and ice, and their beards become icicles depending from their chins. But usually the well-toughened men do not mind it if the fish bite well. Now and then, however, the cold becomes so intense that it drives the men ashore, for at such times they know too well that there is danger lest they may freeze to death. Such a fate sometimes overtakes the unwary.

What provokes the fishermen more than the cold is to have the bait taken from the hooks. This is done a great deal by the lizards—"lisses," the fisherman calls them. The black lizard is a little animal from four to six inches in length, and the fishermen are not particularly fond of him as a rule, for the reason that he is good for nothing for food—though the Indians used to eat him—and causes them so much annoyance.

The most exciting event of the day often comes when the morning's hard toil is over. By noon, or early afternoon, the men are usually ready to leave for shore. Gathering up their implements, after setting the lines for the night, and tying the baskets containing the fish securely to the sleds, they start off, pushing the sleds before them; or, if they have dogs, they call them, and the faithful animals obediently assume the harness by which they are to pull the morning's catch ashore. Oftentimes the fisherman gets on the sled, too, and allows his dogs to pull him as well as the fish. The wind-breaks are shipped from their moorings in the ice, and if the wind chances to be in the right direction, sailing rigs are made of them for the sleds. Then the dogs, instead of pulling the loads, run behind and try to keep up with them, or perhaps they are taken on the sleds. If the wind is stiff, the ride over the ice is made at almost the speed of a railroad train. The excitement is intense, and makes the rider almost forget the terribly cold air and the danger lest at any second some ice-jam will throw the sled over, and its occupants will go scudding along into an air-hole or a crack in the ice. It takes but a few minutes of this kind of traveling to cover the distance which perhaps it required an hour or more to walk in the morning.

If one looks around when the fishermen are making their preparations to leave the fishing ground, he will almost always see a flock of gulls hovering somewhere near. These birds are very intelligent about understanding the movements of the fishermen. They know as well as the men themselves do when everything is ready for the homeward start. The signal for departure is the signal to the birds to come to supper, and they are unfailing in their readiness to obey it. Scarcely will the fishermen have started on their homeward trip before the gulls will have swooped down on the ice where the men have lately been; and then a struggle begins over the remains of stale minnows, small fish, and lizards which the fishermen may have left. Often there will be enough of the refuse to afford a respectable meal for the birds. Sometimes the fishermen will purposely leave but little for them. Sometimes, too, they play tricks on them. They will leave a hook in one of the lizards and fasten the line to something upon the ice. Then some bird is likely to be caught; but often the gulls are smart enough to eat all the li-

ards but the one containing the hook and leave that one.

The fish, after being caught and taken from the water, freeze stiff in a remarkably short time. In this condition they are packed and shipped to New York and other points. The frozen fish make a pretty sight as they lie dumped together in piles on the shore. But it is their market value rather than their beauty which appeals to the fisherman, and there are few better satisfied men in the world than he when he can sell for six cents a pound a big morning's catch of from one hundred to one hundred and fifty pounds. It is only on lucky days that he makes a catch of this size. Fifty or sixty pounds of fish is counted a good average morning's catch.

Now and then a fog comes over the lake. Sometimes it remains for several days. When the fisherman rises at daybreak and, peering out of his cottage window, finds the lake hidden by a white mist, he goes back to his warm bed, for he knows that there will be no fishing for him that morning. There is nothing of which a fisherman is so much afraid in the winter as a fog. If he gets lost in it out on the ice without a compass, he may wander for days without reaching land, if he does not freeze to death; or he may run upon thin ice or into air-holes, for the fog is often so thick over the surface of the lake that it is impossible to see for even a short distance ahead. There is a terrible possibility that is calculated to make the fisherman shudder with apprehension in case he gets caught out in a fog. It is that he may wander off upon the edge of the ice and perhaps get upon a piece which will separate from the main mass, and, carried along by the resistless current of the Niagara River, take him, still hidden in the impenetrable fog, far down the mighty stream, and, perchance, to the brink of the awful falls themselves, before breaking into fragments and plunging him into the icy waters of the rushing river.—*The Outlook*.

## The Salton Sea.

The climatic changes which will result from the lake so recently formed in the deserts of Southern California have been the subject of much popular discussion, and correspondents have given full play to a lively imagination in their surmises regarding the changes which are imminent. It is a fact that on the coast adjacent to this lake there has been an unusual, and, according to the oldest inhabitant, an unprecedented rainfall; but whether this is merely a coincidence or the direct result is not easy to determine. Our knowledge of summer storms, and ability to predict them, is not an exact science. It is well known that the showers occasionally falling in summer are not connected with general cyclonic disturbances, but are due rather to local causes. Lieutenant Finley seems to attribute but little influence to the lake so recently formed, and regards the heavy rainfall in the country adjacent as mere coincidences, nor does he believe that there will be any climatic change, even should there be formed a permanent inland sea, basing his opinion on the fact that in many portions of California, Nevada, and Oregon, in regions equally arid, there are lakes of large extent, and that they do not materially modify or differ from the climates prevailing elsewhere. When it is remembered, however, that this lake covers some 1,700 square miles, and that at a moderate calculation from each square mile some fifty millions of inches of water are daily absorbed, there must be an increase of aqueous vapor in the surrounding air, and if the circumstances were such as to be favorable to condensation, a greater precipitation could easily result. It is claimed that the topographical features of the country strongly favor such condensation, there being in close proximity an elevated mountain chain, beyond which the cool breezes from the ocean render the air along the western slope decidedly colder. It is in these mountains that the recent cloudbursts occurred. There has been a series of storms, and so far, no more plausible explanation of such precipitation has been offered.

It would seem that this region would be a far better field for the experiments now being conducted by the government in its effort to produce artificial precipitation than the places so far selected. Granting that the hypothesis on which these experiments are being conducted is true, in order for them to succeed there should be a large amount of aqueous vapor in the air. Certainly the conditions surrounding Salton Lake in this respect would be extremely favorable for such experimentation.—*Occidental Medical Times*.

THE Folsom Telegraph learns that the big log chute which has been under course of construction by the American River Land and Lumber Company during the past year is nearing completion rapidly. The chute is 3,000 feet long, and the top of the same is 1,200 feet higher than it is at the bottom. Logs 30 inches thick are used in its construction. There are seven of them—one used forming the bottom and three on each side, making a V-shaped flume of it. Among the cribbing that has been built is one place over Slab Creek, 200 feet long and 50 feet high. This is built up of solid logs, placed one on top of the other.