

I believe, from motives of real modesty—to postpone the invitation, and issue instead a large number of special requests to individuals to attend from abroad the meeting of our association at Montreal. This duty fell to the local committee of Montreal in 1882. The large number of foreign visitors who came revived the hope that the British association could be induced to come over as a body. The matter was then independently taken up by the Canadians, and pushed generously and eagerly towards the great success which every one now anticipates for the gathering at Montreal. From the first it has been understood, that if the original enterprise, which was in many ways so full of difficulty, should be brought to a successful issue, then the still greater enterprise should be broached, and the foundation of a permanent international association be attempted.

It is hoped that the British association will take some action in the matter. It has been suggested that a committee with powers might be appointed to confer with the American association at Philadelphia. The organization of the latter body is such that no further official action on its part is possible until the time of meeting itself; but there can be no doubt as to the cordiality with which any proposal emanating from the British association will be received. At present no definite plans have been formed, as it has been felt that public discussion was necessary before making any decision; but, as it is advisable to gather as many suggestions beforehand as possible, I shall be glad to correspond with any one interested in the proposal.¹

CHARLES S. MINOT.

THE IMPLEMENTS OF THE IGLOO.

IN my former article on the igloo of the Inuit, published in *Science* last August and September, I said, in closing, "I should like to give a few brief descriptions of those appurtenances that might be strictly called igloo accessories, as the native stone lamp and kettle, the well to fresh water through the thick ice

beside the snow-hut, and many other minor items all growing out of the igloo itself; but this article has already grown to such dimensions that they must be laid aside." A letter from the editor, requesting to know more about the life of the Eskimos among whom I was thrown, has induced me to take up my abandoned subject as an appendix to my former article about the igloo itself.

The snow-stick, called by the Eskimos *ah-now'-tuk*, is a constant companion of the igloo, and is used to knock the snow off of the reindeer clothes or bedding, when by any chance it has gotten on them. After the igloos are built, when camping on a sledge-journey, the reindeer-skins that are to form the bedding are given a beating with the *ah-now-tuk* as they are taken from the sledge, before being put in the snow-house; and this beating must be very thorough if there has been a high wind with drifting snow during the day, or the sledge has upset, or any mishap has occurred to fill the hair with snow or ice. When a hunter comes into an igloo from the chase or a journey, he takes off his outer reindeer-coat (*coo'-le-tah*) and outer trousers (*kok'-liks*), both with their hair turned *outwards*; and, if there be any snow or ice on them, a few dexterous strokes with the snow-stick soon rids them of it, when they are carefully rolled up and put at the foot of the bed, or, if the native is going to retire for the night, under his head as a pillow. When severe exercise brings on profuse perspiration, this is taken up by the inner reindeer-clothes, with their hair turned *inwards*, in the shape of an evenly distributed moisture, which, in thick fur especially, seldom reaches to the skin itself; and, when these clothes are taken off for the night, this freezes into a hoar-frost-like covering, which is beaten off by the *ah-now-tuk* in the morning, before they are resumed. Sometimes it is impossible to thoroughly get rid of this sabulous ice, and nothing is more disagreeable to an explorer than to crawl out of a warm sleeping-bag in the morning, and crawl into this powdery ice still clinging to the fur of the inner clothes; but there is nothing to be done but to grin and bear it for the few short minutes it takes to warm the fur with the bare skin of the body.

The *ah-now-tuk* itself can be any sort of handy club that one can wield with the right hand, while the clothes, bedding, etc., are held in the left:¹ but there is usually a particular

¹ [Dr. Minot's address is 25 Mt. Vernon St., Boston, Mass. —ED.]

¹ I have spoken of the Inuit as *right-handed*. In connection with this remark, I think it would not be uninteresting to reproduce a small portion of my address before the New-York academy of sciences, Nov. 1, 1880, relating to the ambidexterity of the Inuit. I there said, "I have often been impressed with the

form made by the more industrious ones, that I have tried to represent in fig. 1; for, when ordinary sticks are used, it is in the most shiftless igloos and abject families, about whom nothing

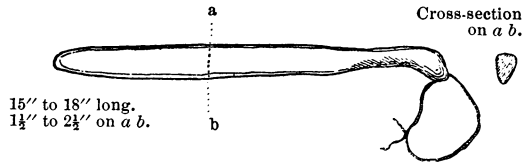


FIG. 1.

can be taken as typical. It is bluntly 'edged,' as shown in cross-section in fig. 1; and this facilitates the pounding-out of the snow where it has been deeply embedded by a strong wind, or ice which has frozen into the fur. They are generally made of hard wood (fig. 2), procured from the traders or whalers; but I understand, that, in intensely cold weather, oak or hickory is more liable to break than pine or spruce. When wood is very scarce, they are sometimes made of bone. Fig. 3 rudely represents one in the possession of the author, made by the Netschilluks in and around King William's Land, from the shin-bone of a reindeer, carved with grooves in the handle to fit the fingers. Oftentimes both wood and bone ah-now-tuks are carved into fanciful designs or figures, — an art for which the Innuits are so well celebrated. Sometimes, when the snow rests lightly on the garments to be cleaned, a glove is taken from the hand and used as an ah-now-tuk, especially where large, heavy bear-skin gloves are worn, — such as, I understand from Lieut. Ray, the Point Barrow natives use altogether. But it is easy to see

are clogged into the fur; for I have seen a reindeer-coat, soaked in water and covered with solid ice when frozen, rid of this so as to be no longer noticeable to the eye, by an Innuits' ap-

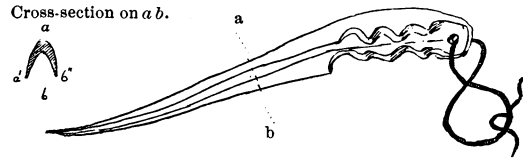


FIG. 3.

plication of the ah-now-tuk. It usually takes about two or three minutes to clean a coat; but, when the sledges have been out all day in a severe storm, half an hour is nothing unusual in cleaning every thing made of reindeer-skin. I have already hinted at one use of the snow-stick in my previous article, when the woman of the household would belabor the intruding dogs over the nose; and it is occasionally employed by the lords of creation in correcting their spouses, although I think I can say that such instances are more rare than among equally ignorant people of civilized countries.

The ice-chisel and ice-scoop, called by the Eskimos too'-oke and e'-lowt, are used in digging through the ice on a lake to get to fresh water. Going into camp near a lake or river, one or two persons, usually nearly grown boys, are sent out on the ice to dig a hole to get fresh water; for, if snow or ice have to be melted, a quantity of oil is consumed, and the warm meal is usually delayed about half or three-quarters of an hour thereby. The first thing to be done is to be sure and select

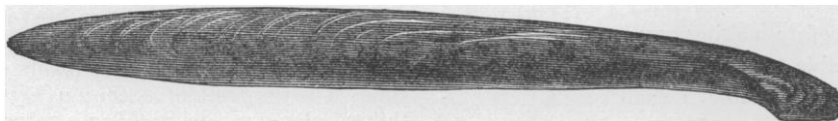


FIG. 2.—SNOW-STICK MADE FROM THE WOOD OF FRANKLIN'S SHIPS.

that they cannot compare in efficacy with the true snow-stick, especially where ice and snow

ambidexterity of the various Eskimo tribes with whom I have come in contact, those not possessing this functional symmetry being rare exceptions to a general rule; and even in those, the superiority of dexterity over *gaucherie* is not so well marked as in their more civilized brethren. They drive their dogs, using their whip indifferently with either hand. They shoot their game indifferently from either shoulder, skinning and carving their carcasses without regard to the particular hand employed. In the most delicate and complicated tasks that they undertake, the use of one hand only is imposed until it is fatigued, when it is freely exchanged for the other. Assuming the simple-minded Innuits to be low in the ethnological scale, these facts might support the theory, so ably advanced by Dr. Daniel Wilson of Toronto, that the primitive condition of man and other vertebrates was, as their early foetal condition still is, one of complete bilateral symmetry, not only structural, but also functional."

a place that is not frozen to the bottom. In a hilly country, with steep granitic, trap, or similar banks to the lakes or rivers, any place will do. Wherever sedimentary deposits occur, more caution is needed. In a river the native is not a bad judge of the places where he will find the swiftest currents even under the ice, and here he knows that the glacial covering is the thinnest. Any snow banks or drifts that have been formed by the wind before the temperature in the winter reached its minimum, will give thinner ice, and consequently less work; for the snow can be shov-

elled off in two or three minutes, even from the deepest drifts. If these drifts should be covered with a crust, the native at once knows

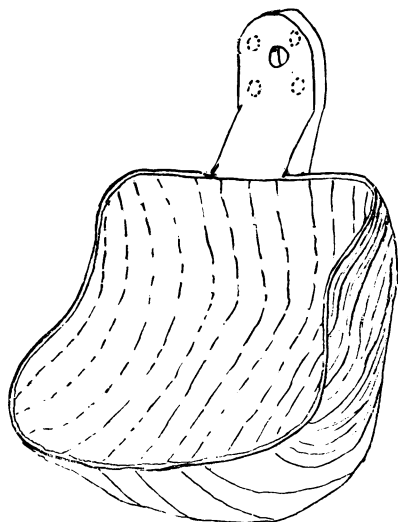


FIG. 4.

that they were formed during the October or November thaw, before the ice could have been very thick; and a couple of feet of drift will save him digging through nearly double

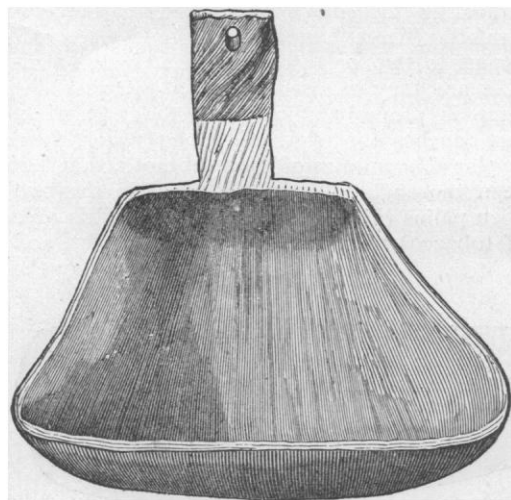


FIG. 5.

that amount of ice. And with many of those savage traits bordering on instinct, he can closely judge about the age of the drift; for, if made since the coldest weather, it has been no protection to the ice-covering, and only adds

the labor of removing it, slight as it is. Where there is no covering to the clear blue ice, you will often see them extended full length, their little pug noses pressed against it; for they can, by varying peculiarities of the hues, tell if it be frozen to the bottom, or not. The site selected by all these conditions duly weighed, the operation is commenced by starting a hole about a foot and a half in diameter, and probably a foot deep, with the ice-chisel. In cutting with this, the ice has been broken up into small fragments; and these are taken out with the ice-scoop, and this alternation kept up until water is reached. The ice-scoop is the native ladle of musk-ox horn, firmly attached to a pole from eight to ten feet long (fig. 6, *b*). This ladle is made from the splayed base of the horn of the musk-ox. Fig. 4 represents one in the author's possession. Fig. 5 is taken from Hall's 'Narrative of the second arctic expedition.' Ordinarily they subserve the purpose of a tin cup, or similar utensil, and hold from a pint to nearly two quarts. When used for an e-lowt, four holes are bored in the heavy handle (as shown in fig. 4), and through these the ladle is lashed to the pole by sinew (fig. 7).

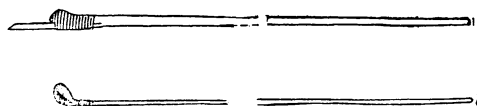


FIG. 6.

The ice-chisel (fig. 6, *a*) is any cutting instrument, like a bayonet, sabre-point, or sharpened iron, a mortising-chisel being the best, on a similar pole to that of the scoop. The Ookjooliks and Netschilluks used iron spikes from Sir John Franklin's ships. Usually it swells out near the butt, where it is lashed to the chisel; and the main object of this, besides giving securer lashings, is when the last few strokes are made, that let the water from beneath into the ice-well, with four or five as powerful and rapid thrusts as the digger can make. This projection knocks the lower rim of ice off, and keeps the well a uniform width throughout, — an important item, for through this hole many a meal of salmon may be caught. These last strokes must be very rapid;



FIG. 7.

for, when the water starts into the well from such a depth, it comes apparently with the force of a fire-engine; and, once a foot or two deep,

the ice-chisel can no longer be worked. I have often seen the water come up the well with such impetuosity that it would overflow the ice where the ice-digger was standing, then sink a couple of feet in the well, and keep pulsating for five or ten minutes before coming to an equilibrium, generally about two to three inches from the upper ice-level. Besides the purpose of fresh water for cooking and drinking at a camp, the native sledgeman, if the ice be ripped from his sledge-runner by stones or ice while on a journey, will stop and dig through six or seven feet of ice to re-ice this part of his sledge—so important is it, if his vehicle be heavily loaded, or only dragged by a few dogs.

The average ice-wells are about six or seven feet deep. The thickest we had to dig on our King William Land sledge-journey was eight feet four inches; and I very seriously doubt if it ever gets more than a foot or a foot and a half deeper than this on fresh water, in any part of the arctic, where all the ice is melted in the summer. This distance, the natives told me, was the deepest they had ever seen. Of course their judgment can only be approximation, but nevertheless moderately reliable. A six-foot ice-well will be dug usually in about forty to forty-five minutes, although the more active may do it in half that time. If the ice has been much permeated by cracks, by digging on one of these, and especially where two of them cross, one may greatly lessen the time. Another use to which these two instruments are put, extraneous to their usual purpose, is to stick them upright in the snow at a camping-igloo, and on their tops the dog-harnesses, which, if made of seal-skin or any kind of skin, are liable to be devoured by their wearers when unusually hungry; and this position, eight or ten feet in the air, is a very safe place for them for the night. A native sledgeman, driving through rough, hummocky ice, often uses the ice-chisel to clear his way, and will make the angular ice in front of him disappear in a manner most astonishing. When one ice-well has been unsuccessful (that is, when the ice extends to the bottom), they may melt ice if they have plenty of oil: for by that time the igloo may be completed, and the lamp burning, although generally they can and do dig two by that time; and I have known cases where they were extremely anxious to economize oil, and six or seven wells were dug be-

fore they gave it up or were successful. It is very astonishing how soon they can tell whether the well is going to be a failure; the merest pinch of earth, way down in its depth of five or six feet, instantly arresting their eye, when the same would hardly be distinguishable on the surface, to the ordinary eye. That very instant they stop digging; for many of them are as careful of the edges of their ice-chisels as a man is of his razor.

The implements used in the construction of the igloo, the snow-knife and snow-shovel, have already been described in the article on the igloo.

The cooking-implements consist of the stone kettle (*oo-quee'-sik*) and stone lamp (*kood'-lik*), so often described by arctic travellers; and for that reason I will only dwell upon them briefly. They are described by Surgeon Fisher, of Parry's first expedition, as made of *lapis*

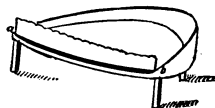


FIG. 8.

allaris, or pot-stone. Dr. Hayes not inaptly compares the lamp, in shape, to a clam-shell; and, if the shell only had a slightly straighter edge, the comparison would be very good. Fig. 8 represents an outline view of one standing on the usual three sticks stuck in the snow-platform in front of the snow-bed, *a b* indicating the edge along which the flame is lighted. These lamps usually hold from half a pint to two or three quarts of oil, so variable are they in size; and this oil, when the lamp is properly adjusted by the rear stick, just touches the edge *a b*, along which there is placed a species of compact moss, that has been thoroughly dried, and rolled in the two open palms (as a sailor would prepare his pipe of tobacco) with a small quantity of fat, and lighted. This moss must be kept dense, or the



FIG. 9.

lamp, with its six to thirty inches of flame along this edge, will smoke beyond endurance; and this is done with a small stick of hard wood a little larger than a pencil. This 'trimming' of the lamps is quite an accomplishment,

and only reaches perfection in the old women of the tribe, some of whom can prepare a lamp so that it will give a good steady flame for several hours, while usually half an hour is the best that can be expected. They are constantly broken; and those I saw thus injured were cemented with a mixture of blood, clay, and hair, according to the Innuits, although I

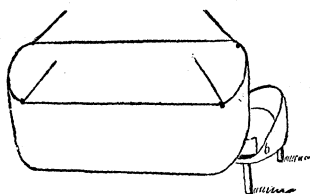


FIG. 10.

could not verify the mixture by watching the operation. Fig. 9 is a good view of a lamp (from Hall's 'Narrative of the second arctic expedition') that has been broken, and repaired by sinew; and, although I do not now recall any such mending, I should think it better than the other, although, as far as I could see, the first way was so perfect that new cracks would form directly beside the old, but not in it; and I suppose that the one mentioned by Hall may have had this cement in addition to the sewing, in order that it should hold oil. Heavy as it is, the natives carry it with them everywhere; and I hardly know of any thing in civilization that could effectually replace it, were they even inclined to do so. Its constant companion is the stone kettle, which is nothing more nor

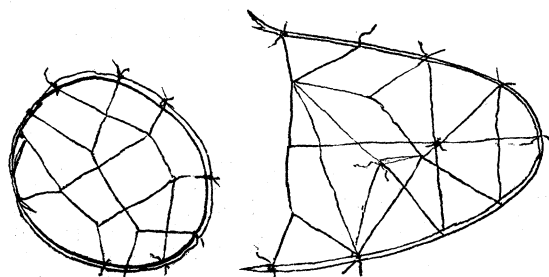


FIG. 11.

less than a rectangular vessel (fig. 10), holding from a quart to a gallon, whose flat bottom is a little shorter than the flame of the lamp directly over which it swings, so that the flame just touches its bottom. It is superior, for their use, to brass, copper, or sheet-iron vessels of any shape, and has seldom been

replaced by them, even when these could be readily had; and the few cases I know have been unwilling ones. It suffers the same mishaps in breakage, mendings, and journeys, as its constant fellow the lamp, to which it is suited in size, and from which it is seldom parted. Over a framework of long wooden sticks, thrust through the side of the igloo if horizontal, or into the snow-platform if perpendicular, is laid a bent piece of wood or a barrel-hoop (fig. 11), across which is woven in rough design a number of sinew strings, forming a network; and on this net are laid the reindeer stockings and gloves, and every thing, in fact, that is required to be warmed or dried. This net can always be found in every igloo, and hanging from every sledge that is transporting household effects.

The seal-skin bucket (fig. 12) holds from two quarts to double as many gallons, and is generally made large, so that its contents will not freeze solid during the night. It is made of seal-skin (the smaller hair-seal), tanned so as to be deprived of the hair, and furnished with a handle of the same material sewed on. It always bulges out on one side into a sort of spout, where, by constant use in drinking from this place, they have produced it. When empty of water, and clogged with ice (as it usually is when they start to the ice-well to refill it), it is given a vigorous beating over a sledge, a hard snow-drift, or, if in a sportive mood, over a dog's head, the broken ice-splinters flying in every direction, leaving it as limber as a piece of canvas. The im-moo'-sik, or musk-ox ladle, already described as subserving another purpose, and seal-skin bucket, are slowly giving way to the utensils of a similar character of civilization.

The reindeer bedding can hardly be treated under this title, and the snow-knife and snow-shovel were described in my former article. The sum total of 'igloo implements' shows them, therefore, to agree in simplicity and small numbers with all other implements with which the people wrest an existence from a niggardly nature.

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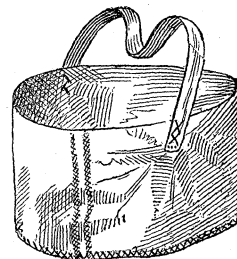


FIG. 12.