

weighing five pounds, also a leg of mutton weighing four and one-half pounds, — being first punctured in a number of places, especially in the neighborhood of the bones, with an iron skewer, — were placed in two gallons of the viandine solution made up like the solution of July 5. The liquid was in a stone jar, and completely covered the meats.

July 20, the beef and mutton, which had remained in the viandine solution thirty-six hours, were removed, allowed to drain for two minutes, and placed on plates in the laboratory.

July 21, I was obliged to throw away the liver, the odor being very offensive. The veal had a disagreeable odor. A few mould-spots were removed, which had appeared on the steak. No odor, however, was perceptible. The mutton-chops and fish also smelled fresh. Placed steak and mutton in viandine solution for one half-hour.

July 24, it became necessary to throw away the veal. Beef-steak, mutton-chops, mackerel, roasting piece of beef, and leg of mutton appeared fresh.

July 25, the beef-steak and mutton-chops smelled slightly old.

July 26, I had the remaining half of the beef-steak which had been treated on July 5, and the mutton-chops which had been treated on July 7, cooked for dinner. No odor was noticeable; but they had a very high taste, so much so as to be unpalatable, save to a starving man. The roasting piece of beef and the leg of mutton smelled slightly. The mackerel appeared and smelled fresh.

July 27, the mackerel, which had remained in the laboratory since July 5, was cooked for breakfast. It was fresh and fairly good, like mackerel that are served at the average hotel table. There was no taste of borax. The roasting piece of beef was to be served for dinner. On cooking, a very offensive odor was given off. An examination showed a small piece near the bone that had become decayed. The rest of the beef appeared good; but pieces cut from different parts all had a strong odor of putrefaction. The mutton in the laboratory had a perceptible odor.

July 28, the mutton was cooked for dinner; but, when placed on the table, the odor was so strong that I could not remain in the room.

The results obtained from the above experiments seem to show, that pieces of meat having large surfaces in comparison to their thickness, as steaks and chops, and also small fish, can be kept a considerable length of time, although with some deterioration in taste, by

the use of the viandine brand of Rex magnus. In the case of larger pieces, such as a roasting piece of beef, or leg of mutton, having tried only two experiments, I do not care at this time to speak positively. I can, however, state, that I should have some hesitation in again allowing to be cooked in the house large pieces of beef and mutton that had been kept in a warm room for ten days after treatment with the solution of viandine.

LEONARD P. KINNICUTT.

Worcester free institute, July 28, 1883.

### THE IGLOO OF THE INNUIT.<sup>1</sup>—V.

As the spring wears on, and thawing weather comes, the igloo falls into a decline; and when an exposed place can be found to pitch the seal-skin tent, it is abandoned. Before this can be found, however, the igloo assumes a new combination phase, which must be described. When several igloos have fallen in and buried their contents (the women, babies, and puppies managing to wriggle out, and a good share of the things being lost in the *débris* of snow-banks), the Innuits cease to build any thing more than the walls of snow, using the prospective tent for a roof; this being the same as the autumn igloo, excepting the body, which is of snow, and not of ice. This phase of the igloo is so well shown in the illustration on the next page, taken from the German book of a member of my party, Mr. Klutschak, entitled '*Als Eskimo unter den Eskimos*,' that I transfer it to this article. His sketch of our spring igloos was taken on Cape Herschel, King William's Land, on the 16th of June, 1879, — the day before we abandoned them for the summer, and moved into tents.

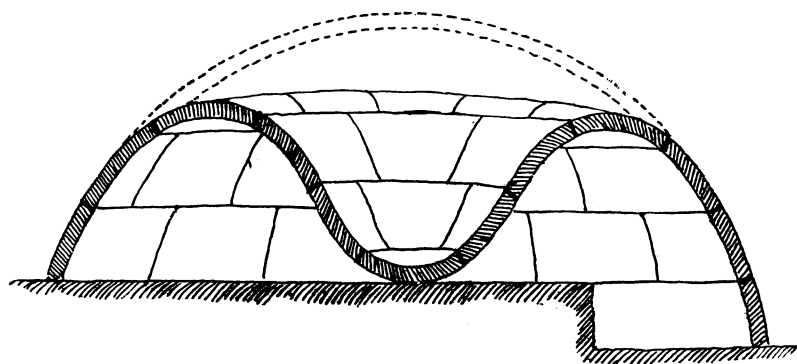
The tenacity of some igloos, however, before they tumble in, is truly wonderful. They always give ample warning by slowly sinking on the top and side towards the sun or warm wind; and this the inhabitants counteract by thrusting a pole from the inside through the dome at its most threatening point, and there firmly lashing several small cross-pieces to prevent further sinking, which it will do if not too warm, or some small dog with bone in mouth, and pursued by a larger, does not take refuge on top, as is their wont, — when the snow-dome, dogs and all, come tumbling in on the heads of the hyperboreans. The foot of this pole rests on the floor, hardened by tramping, or a board is put under it to give it support. I have, however, seen a high-domed, abandoned

<sup>1</sup> Concluded from No. 31.



LIEUT. SCHWATKA'S PARTY, ENCAMPED IN SPRING IGLOOS, IN KING WILLIAM'S LAND, JUNE 16, 1879.

igloo, which had been well chinked and lightly banked (the whole mass nearly homogeneous from long use), slowly subsided from the top until this touched the floor, and so remain without tumbling in, the igloo being actually inverted in its upper half or two-thirds. Here



it would remain for a few days before warm weather would cause it to fall to pieces. I have tried to show a cross-section through such an igloo, the broken line showing its original position.

When food is readily procured without much effort, as in seasons of great plenty, the natives do not wholly abandon the necessary exercise to keep them in good muscle and bodily health, as is the general opinion respecting these people, but have been known to keep it up by various gymnastic devices, one of which (tight-ropes made of thongs of walrus-hide neatly and strongly lashed within an empty igloo) is well portrayed by Capt. Hall in the illustration.

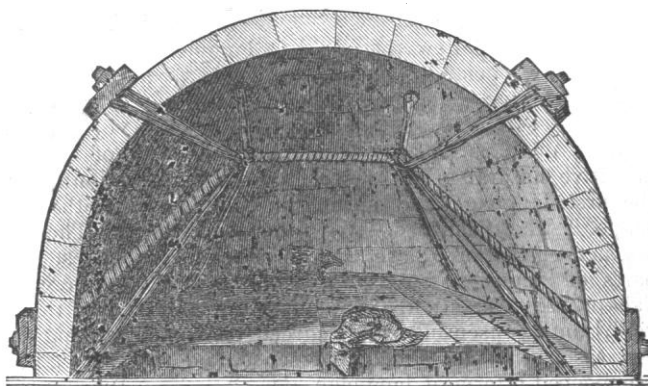
I should like to give a few brief descriptions of those appurtenances that might be strictly called igloo accessories, as the native stone lamp and kettle, the well to fresh water through the thick ice, beside the snow-hut and many other minor items all growing out of the igloo itself; but this article has already grown to such dimensions that they must be laid aside.

The utility of the igloo cannot be exaggerated. Habituated as my little party of white men were, during our two winters in these desolate zones, to a constant life in these simple habitations, and the many comforts accruing therefrom, I have often marvelled how white men could stand the hardships and

privations of a spring tent-life in the many expeditions wherein they were used, and under circumstances that would have been absolute pleasure to my party. I have read so often of their sufferings while journeying in tents, and the discomforts and even dangers they risked

while living in ships and other unsuitable arctic abodes, during short journeys from these places, under such intensely low temperatures as  $-50^{\circ}$ ,  $-60^{\circ}$ , or even  $-70^{\circ}$  F., when under almost the same conditions my party was prosecuting a comfortable sledge-journey four hundred to five hundred miles from its base of supplies,

with no provisos except such game as was killed from day to day, that the conviction becomes two-edged that the accessories of igloos, and their constant companion of the cold, the reindeer clothing, are absolutely essential to a well-managed arctic sledge-journey. With their help, strange as it may seem, the subject of temperature becomes entirely of secondary importance, if it enters the arctic travelling problem at all; and, were it not for the long dark night which accompanies these thermometrical depressions, I



INNUIT TIGHT-ROPE.

believe that a protracted sledge-journey could be carried successfully forward in the continuous cold of the lowest recorded temperature, all other things being favorable.

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Lieut. U. S. Army.