

to a less extent, of maples; but the oak, ash, poplar, and pine stand sturdily erect. I believe the leaning of the elastic-fibred elms is due to the prevailing winds, which are from the west and north-west, these winds being also the strongest and coldest. At the office of the U. S. signal-service in Boston, observations are taken three times a day. In 1882, out of 1,095 observations taken, 298 showed the wind to be in the west, and 225 showed it to be in the north-west: in other words, about half (or forty-seven per cent) of the observations showed the wind to be somewhere between west and north-west. For the other five years the record is as follows:—

1877.	1878.	1879.	1880.	1881.
247 W.	229 W.	273 W.	301 W.	278 W.
169 N.W.	231 N.W.	257 N.W.	153 N.W.	175 N.W.

So much for the prevailing direction of the wind. There seems to be no other cause than this, to which we can assign the phenomenon of growth in question. All the many exceptions to the rule are to be explained, doubtless, by local causes, — shelter, neighborhood of other trees, and other more occult conditions of fibre. The works on forestry and botany seem not to notice the fact of asymmetry in tree-growth. It is only a repetition, on a larger scale, of the graceful deviation from monotonous symmetry which characterizes all leaf and branch structure.

W. S. KENNEDY.

#### Importance of lime-juice in the pemmican for arctic expeditions.

The recent failure to relieve the party under Lieut. A. W. Greeley at Lady Franklin Bay leads us to recur to the repeated difficulties which have marked the history of former arctic expeditions. We have re-examined the accounts of the English expedition of the Alert and the Discovery, under Nares and Stephenson, which left England, May 29, 1875. It was the first English arctic expedition which had orders to endeavor to reach the North Pole. It had the advantage of the advice of experienced arctic navigators, its commander Nares having been a member of several such expeditions.

Thus it surprises the reader, that more thorough precautions were not made against the scurvy. The *London quarterly review* for January, 1877, has the fullest account of the ravages committed by that disease with the sledge-parties sent out by Nares. Of the sledge-party under Commander Parr it says,—

"Of seventeen of the finest men of the navy, who composed the original party, but five were (on return) able to walk along-side. One was dead, and the remainder in the last extremity of illness."

It gives a minute account of the prostration by scurvy of the two other sledge-parties, — one under Commander Beaumont, and one under Commander Aldrich. Concerning the latter, the *Review* says, —

"To quote from the journal of Commander Aldrich, who led the western division, would be to repeat the same dreadful details. The party broke down, and were supported by the same pluck, and brought back alive — that is all one can say — by the help of God and the same determined courage. Surely, nothing finer was ever recorded than this advance of three sledges, — one to the north, another to the east, a third to the west, — laden down with sick and dying men, in obedience to an order to do their best, each in their separate direction. It is the old story, — too common in English annals, — the organization broke down, and individual heroism stepped in to save the honor of the day. But at what a cost!"

All this was because the parties had no lime-juice. And Capt. Nares, "with a chivalry and candor which do him honor, whether he has failed in judgment or not, declared that such was the fact, and that the omission was made by his orders and on his responsibility." He said, —

"Acting on my lights and experience at the time, I followed the example of such men as M'Clintock, Richards, Michan, and McClure, of the Investigator, and started off our sledges with as nearly as possible the same rations as had proved fairly successful on all previous occasions; that is, without lime-juice for issue as a ration, a small quantity for use as a medicine being carried by the sledges, which were not expected to be able to obtain game. . . . Up to the middle of May the lime-juice remains as solid as a rock. No sledge-party employed in the arctic regions in the cold month of April has ever been able to issue a regular ration of lime-juice. In addition to the extra weight to be dragged, that its carriage would entail, there is the even more serious consideration of the time necessary in order to melt sufficient snow."

He added, —

"Of course, hereafter, lime-juice in some shape or other must be carried in all sledging journeys; and we earnestly trust that some means will be found to make it in a lozenge, for, as a fluid, there is, and will always be, extreme difficulty in using it in cold weather, unless arctic travelling is considerably curtailed."

The *Quarterly review*, in quoting these manly remarks of Capt. Nares at Guildhall, says, —

"Even if it should be found that Sir George failed in judgment in this matter, he has in our opinion shown the finer form of fitness for command, in his readiness to assume the responsibility of his acts."

His frankness and manliness in assuming the whole blame to himself have evidently, in great measure, disarmed criticism.

But this brings us to the main object in this letter; and that is, to recur to the remedies which this story has suggested. If lozenges of lime-juice in a shape for arctic exploration have not been manufactured, they certainly can at least now be found at the druggists in a shape to be used as troches for colds.

But the efficient remedy is to have pemmican made which is permeated with lime-juice, as recommended in the 'Report of the surgeon-general of the navy for 1880' (see p. 356). Gen. P. S. Wales said, —

"The indispensable necessity of lime-juice in the sledging-parties, and the difficulties of carrying it, and preparing it for use, induced me to suggest the propriety of combining the juice and pemmican in the proportion of one ounce to the pound of the latter. The pemmican is greatly improved in taste and flavor, and will, I believe, be more assimilable. This is an important modification, as there are persons who cannot eat the ordinary article."

The article was prepared as proposed, and tried in Washington, and pronounced to be very palatable.

Gen. George H. Thomas, in preparing for one of his battles, issued a general order, enjoining upon his whole army strict attention to minutiae, saying that "the loss of a battle might be due to one missing linchpin."

In recurring to this recommendation from the office of the surgeon-general of the navy, we have thought that it may be considered opportune, when the minds of many are now turned upon the arctic expeditions. We think that recommendation was followed, so far as the preparations of the Jeannette and the Rodgers were concerned; but, alas! they never got so far as to turn their attention to fitting out explorations with sledge-parties.

BENJAMIN ALVORD.

#### Rensselaeria from the Hamilton group of Pennsylvania.

Will you kindly afford me a small space to correct an error in your report of the discussion which followed the reading of my paper at Minneapolis? On p. 327 of your issue for Sept. 7 occur the following sentences: —