NOTES AND EXTRACTS.

[From Nature, March 10, 1881.]

Siberian Meteorology.—Up to the present time Yakutsk, in Northeast Siberia, has often been cited as the place of our earth where the winter is coldest, while the minima observed during Arctic expeditions are believed to be the lowest known. Neither the one nor the other is true. In Maak's book, "Olekminski Okrug," I find many data which prove that the coldest winter as well as the lowest well authenticated minima were observed at Werkhojansk, to the northeast of Yakutsk. The name of the author gives us some guarantee that the observations are trustworthy. I give below the minima at some places cited by Maak, and compare them with those observed in Central and Western Siberia, and the Arctic Archipelago of America:

Northeast Siberia.

Serdze-Kamen	67°	N. 173° E. (Nordenskjöld)	—50.8 F.
Yakutsk	62°	N. 130° E. (Maak)	—77.3 F
Wiljuisk	64°	N. 122° E. (Maak)	—76.3 F.
Werkhojansk	67½°	N. 134° E. (Maak)	—81.0 F.

Central and West Siberia.

Yenisseisk	58⅛°	N. 92° E.	—73.5 F.
Barnaul	53⅜°	N. 84° E.	—61.4 F.

Arctic Archipelago.

British expeditions, 1875-76.	83⅛°	N. Floeberg Beach (Nares)	—73.7 F.
	81½°	N. Discovery Bay (Nares)	—70.7 F.

The temperatures at Werkhojansk are the lowest of all given here, and it must be borne in mind that the observations lasted but one year, while we have more than thirty-five years at Yakutsk, and eight and a half at Yenisseisk. The mean temperatures are as follows:

	Year.	July.	Nov.	Dec.	Jan.	Feb.	March.
Serdze Kamen, 1 year	.....	.....	2.1	— 9.0	—13.1	—13.2	— 6.9
Ustjansk, 2 years	2.8	52.7	— 2.2	—33.0	—38.9	—36.9	—17.5
Werkhojansk, 1 year	4.3	60.1	—29.2	—46.8	—55.5	—54.5	—29.0
Yakutsk, 10 years*	12.2	66.5	—20.5	—41.9	—46.8	—37.7	— 9.0
Yakutsk 24 years†.	12.4	63.3	—19.1	—37.8	—41.4	—30.8	— 8.7
Floeberg Beach, 1 year.	— 3.5	38.3	—16.8	—22.2	—33.0	—38.0	—39.8
Discovery Bay, 1 year.	—4.2	37.2	—18.4	—24.5	—40.7	—35.0	—37.4

* According to Maak † O'd series of Neverof, (1829–54.)

Though the observations were made only during one year at Werkhojansk, it is probable that it would have the coldest winter of all observed till now, as even at Yakutsk, which is the next coldest, January and February were in no single year colder than at Werkhojansk in 1869. From a comparison with the other stations of Northeast Siberia it is probable that here in 1869 February was too cold and December too warm.

Now as to the reason why the winter should be colder in Northeast Siberia than on the North American Archipelago farther to the north, it is to be found in the extent of the continent, the distance from any sea open in winter, and the prevailing calms. How important is the last reason is best seen by the comparison of the December and January temperatures of the last British expedition. The more northerly Floeberg Beach is warmer, because more exposed to winds. Now in Eastern Siberia calms prevail to a large extent in winter, except near the coast.

There is a phenomenon to be considered, which is noticed everywhere in winter in high latitudes: during calms with clear sky the valleys are colder than the surrounding hills and slopes, because the cold air sinks downward and stagnates there. This is confined to the night where the mid-day sun rises high enough, but in high latitudes during some months the mid-day heat of the sun is too small and the day too short to interfere much with the equilibrium of the strata of air established during the night. Even in middle latitudes, (45°–50°,) when calms and clear weather prevail very largely in December, the valleys are regularly colder than the hills. So it was felt in December, 1879, in Central Europe. What is an exception here is a rule in Northeast Siberia, because calms and clear sky are the rule in winter; the valleys are much colder than the hills. On this account the exceedingly low temperature of Werkhojansk in winter is probably not common to the whole surrounding country, and especially in the mountains rising to a short distance south, we may expect a much higher temperature. The more we consider the conditions of the winter temperature of Northeast Siberia, the more difficult it seems to draw isotherms. We know that plains and valleys there, are much colder than hills and mountain-slopes, but how much, and what conditions are most favorable to that so-called interversion of temperature? I consider it as highly probable that both at Yakutsk and at Werkhojansk the local topographical conditions are very favorable to winter cold. This being the case, it is quite natural that the latter place is colder in winter than the former, being situated 5° farther to the north, and yet far enough from the west to have a continental climate.

A. WOEIKOF.

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