

In glacial times the mountain plants of the arctic zone descended to the valleys, and were distributed with the glaciers toward the south. That this migration radiated from the north is shown by the fact that not only do arctic species form almost half of the plants in the snowy region of the Alps; but also the mountains of America, as well as of the Altai and Himalayas, possess a large number of arctic forms common also to the Swiss Alps. It is known that in the tertiary and in the upper cretaceous periods a number of species can be traced from Greenland as far as Nebraska in America, and as far as Bohemia and Moravia and southern Europe on the other side. Similarly in the cretaceous period, in the tertiary, and at the present time, Europe and North America have in common a number of species which also existed at that time in the arctic zone, and very evidently had their origin there; and hence the flora of the far north has at all times exerted a great influence on that of Europe.

The endemic flora of the nival region originated in the Alps, especially in the Monte Rosa chain. It possessed its present features at the beginning of the quaternary, and was distributed by means of the glaciers into the valleys and the neighboring mountain regions.

THE DANISH INTERNATIONAL POLAR STATION.

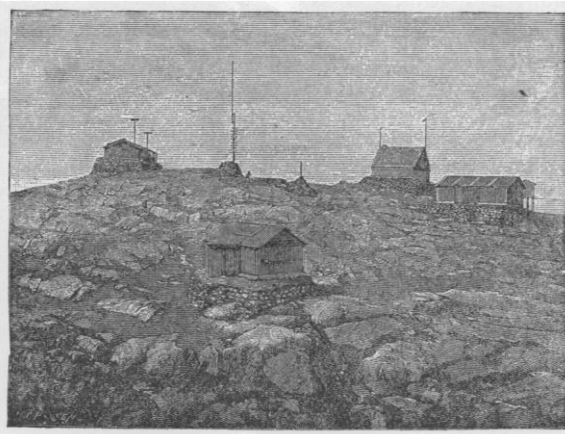
THE Danish polar station was at Godthaab, Greenland, — a little colony situated at the extremity of a peninsula which separates the two large parallel fiords, of Godthaab, and that, farther south, of Ameralik. The station was erected on a little hill of almost pure gneiss, twenty-six metres above the level of the surrounding water. This place was chosen both because it was the highest elevation in the immediate neighborhood and because the gneiss appeared free from iron ores.

There were, in all, five buildings. The one farthest to the south had two apartments, of which that to the east contained the telescope and the astronomical apparatus. In the other room were a Robinson anemometer and a recording anemoscope. North-east of this building were two for the study of magnetic variations. East of this building was a smaller one for the absolute determination of terrestrial magnetism. The building farthest north was the office; and there the barometers and the Hagemann anemometer were placed, as well as a Mas-

cart electrometer. Besides these, there was in the open space a Wild shelter, covering the thermometers to determine the temperature and humidity of the air, a delicate hygrometer, and a Wild evaporimeter. Three thermometers were placed vertically in holes in the rock, at depths of sixteen, thirty-one, and sixty-three centimetres. At the edge of the holes were small iron pipes to prevent infiltration. The thermometers were sheathed in wooden rods having the same diameter as the holes. At the bottom of each hole was a little mercury, which could penetrate to the thermometer-bulbs through perforations made in the lower part of the rods. Behind the shelter of the thermometers were placed two thermometers whose bulbs were buried fifteen and thirty-seven centimetres respectively beneath the surface of the ground. At some distance from the foot of the hill, two Hamberg thermometers were placed at depths of one metre and one and five-tenths metres. Besides the proposed observations, the parallaxes of a large number of auroras were measured, the electricity of the air was studied, and the temperature of the rocks, the soil, and the water of the fiord, noted.

In the early part of the autumn of 1882 the weather was comparatively mild, south winds prevailing. It was not till the last of September that it was cold enough for a slight frost; but the weather again moderated under the influence of the south winds, which lasted until the first days of October. From the 11th of October the cold was maintained, almost without interruption, until the 5th of March, 1883. During all that interval the thermometer remained constantly below 0° C., except for some isolated days, and then only for a short time. From the 23d of January to the 13th of February the cold was the most intense and persistent; so that even the south winds, and the

very low barometrical pressure during that period, were powerless to produce a change. The greatest cold was observed on the 9th of February, with 24°·4 upon a slight elevation; but at the same time it was found to be 26°·7 in the low lands. During the first part of March the cold became again very severe; but after the 5th of the month the weather moderated, and became more variable. It was only after the middle of June that the weather grew mild-



er. In July the heat was normal, and the winds from the south; but by the end of August frost appeared again during the night. The greatest heat of 14°·5 was observed on the 22d of June, during a tempest from the south, at the same time that the thermometer on the low lands attained 17° C.