

Arctic Region.

This is regarded by general consent as including the treeless region along the northern mainland of Canada usually known as the "Arctic Prairies", together with the numerous islands forming the archipelago still farther north. One of the most outstanding climatic features of this region is the shortness of the season in summer during which the temperature is sufficiently high for the activity of plant life. But, although the mean temperature of the summer months remains comparatively low, a compensating factor is the prolonged period of daylight. North of the Arctic Circle there are a considerable number of days during which the sun never goes below the horizon. Even at Fort Rae in latitude $62^{\circ} 40'$ the average daily duration of daylight is 19.8 hours in June and 18.9 hours during July.

Another feature of this region, important in its bearing on plant life, is the fact that the lower layers of the soil remain permanently frozen and only a few feet on the surface thaw out in summer. Thus, as an example, along the northern edge of the Transcontinental Region, according to figures quoted by Koeppé,¹¹ at Fort McPherson near the mouth of the Mackenzie river the frost penetrates to a depth of 52 feet and the ground on the surface thaws to a depth of only 3.5 feet, while at York Factory near the mouth of the Nelson river on Hudson bay the ground freezes to a depth of 19.8 feet and thaws out to a depth of 2.3 feet.

As an indication of the climatic conditions of temperature and precipitation likely to govern plant life in the Arctic Region, meteorological data are given below for three representative places. Unfortunately data on sunlight are not available. The records summarized here cover only 3 years in the cases of Coppermine and Pangnirtung and 5 years at Chesterfield.

METEOROLOGICAL RECORDS IN THE ARCTIC REGION.

Place.	Absolute Minimum Range.	Mean Temperature.		Average Rain, June to Sept.
		January.	July.	
	°F.	°F.	°F.	in.
Coppermine.....	-54 to -42	-23.4	52.0	3.86
Chesterfield.....	-60 to -47	-26.6	48.0	6.96
Pangnirtung.....	-46 to -38	-17.8	46.5	6.33

For a much fuller discussion of the climate of this region, reference should be made to Koeppé's work¹¹ already mentioned.

The vegetative characters of the Arctic Zone have been frequently described^{16,23} but nowhere better than by Porsild,²⁴ who writes as follows:—

Among the herbs of the Arctic Zone there are no climbing plants, none that are poisonous, nor any that are protected by spines or thorns. Very few are annuals and as a general rule Arctic plants of all species depend only to a limited extent for their propagation upon seed, protecting themselves against unfavourable seasons by various means of vegetative reproduction. One of these means is wintering buds which are not buried in the soil, but are situated close to the surface and are well protected by withered leaves. Most of the herbs are caespitose with numerous leafy shoots, forming dense cushions or rosettes. In most species a profuse branching is the rule.

To this description might be added the viviparous condition where a small vegetative bulb-like growth takes the place of a flower, as in *Polygonum viviparum*. An example of the annual type of plant is furnished by *Gentiana arctophila*.