far north on Melville and Ellesmere Islands, the extremes are not as severe as they would be in a continental area of the same latitude. During the cool brief summer the ice-filled polar waters with a surface temperature near 30°F. prevent the air in contact with them from warming up to any extent. Consequently, summer temperatures are uniformly cool throughout the entire region, averaging 40°F. to 45°F. during July, the warmest month. In winter most water surfaces are frozen but the new ice is usually less than six feet in thickness and radiation from the water below exerts a slight moderating influence. The highest January mean temperatures occur in the Hudson Strait region with values ranging from 0°F. to −5°F. at the eastern entrance and −10°F. to −15°F. at the western end. The lowest January means of −30°F. to −35°F. occur north of latitude 75°N.

Despite the fact that mean temperatures are generally below zero for six months or more, occasional mild periods occur during the Arctic winter. They are caused by intense cyclonic activity in the Davis Strait area which brings comparatively warm air from the Atlantic over the eastern Arctic. A striking example of such mild conditions occurred in January 1958 when the whole of the eastern Arctic experienced abnormal warming, with mean temperatures for the month as much as 15°F. above normal in northern Ellesmere Island. These mild spells rarely extend farther west than Cornwallis and Somerset Islands or farther north than the southern part of Ellesmere Island and the average variation in mean temperature for winter months in the western Arctic is less than half that for eastern Arctic stations. Freezing temperatures may occur during any month of the short cool summer.

The Arctic Archipelago is one of the driest regions in the world. The annual total precipitation over the islands north of the Parry group averages less than five inches, with Eureka reporting only 2.5 inches and Mould Bay only 3.0 inches a year. Southward from the Parry Islands there is an increase in annual precipitation with decreasing latitude with totals ranging from 5 to 10 inches between latitude 75°N. and the Arctic Circle. In southern Baffin Island the mean annual totals range from 10 to 15 inches. Snow may fall during any month of the year in the Arctic Archipelago but rainfall is restricted to the relatively short summer warm period. In the south 40 to 50 p.c. of the annual precipitation totals occurs as rain and in the very far north this is decreased to about 30 p.c. The accumulation of rime or hoar frost in the Arctic is also a source of moisture. Although showers, and even a rare thunderstorm, may occur occasionally in the southern part of the Archipelago, most summer rainfall is in the form of a light drizzle.

In the eastern Arctic there are two periods of maximum cloudiness, one in the spring and one in the autumn with a shallow minimum in mid-summer and a decided minimum in winter. For stations near the polar ice pack, the spring cloudiness maximum tends to be delayed and the autumn maximum advanced to such an extent that they merge into one with a minimum in winter. The high percentage of low cloud and drizzly weather produce very unpleasant conditions in the Arctic summer.

Although snowfall is light in the Arctic, a distinct maximum in the monthly snowfall is observed in the autumn and also a spring maximum which is not as marked in the southern half of the Archipelago as in the northern. In view of the small size of the snow crystals they are readily blown about by the wind with the result that much of the ground is bare all winter, whereas deep drifts are formed in ravines, hollows and in the lee of obstacles. The measurement of snowfall is very difficult in the Arctic.

The following table provides basic temperature and precipitation data for a selection of stations in various districts across Canada. Monthly and annual climatic data in greater detail will be presented for 45 stations in the 1960 Year Book.

Temperatures in this table refer to observations taken in a thermometer shelter which has been placed in a representative location with the thermometer bulbs four feet above the surface of the ground. Mean January and July temperature data are based on records over the 30-year period from 1921 to 1950 except for far northern stations where