

going ships with experienced navigators in Hudson Strait, but present a real hazard to small coastal schooners or inexperienced pilots. A knowledge of the intricacies of the tides helps to explain some of the problems of servicing the tiny settlements of this region, where no permanent wharves are available, and where ships can often discharge cargo only at high tide, and then only by means of lighters.

In Hudson Bay the tides do not have so great a range as in Hudson Strait. Most of the harbours are open to the sea and thus have no constrictions to increase tidal rises. At Churchill tides average from 12 to 15 feet. The tidal undulation progresses in a counter-clockwise movement around Hudson Bay. At Port Harrison, on the east side of the Bay, the influence is almost spent so that tides are recorded as being only 3 to 4 feet.

**Climate and Weather.**—In climatic terms, an Arctic area is one where the average mean temperature for the warmest month is not above 50° F. In Northern Canada the isotherm delimiting this area is generally slightly north of the tree-line. Thus the Eastern Arctic is a treeless area, except for small, stunted willows which grow in sheltered valleys. The general climatic conditions are those of long, cold winters and short, cool summers.

Owing to the large amount of water within the Eastern Arctic region, minimum winter temperatures are not so low as in some other areas of the interior of Canada or northern United States. The modifying marine influence delays the coldest period so that February is generally the coldest month at each station. Average winter monthly mean temperatures range from -20° to -30° F. at the most northern Eastern Arctic posts, and vary from -10° to -20° F. in the Hudson Bay and Strait area. Absolute extremes of about -50° F. have been recorded at most of the posts, with the record low of -60° F. having been reported at both Pond Inlet and Chesterfield. At most of the stations there is an average of 4½ months in which monthly mean temperatures are below 0° F.

For the four months of June to September the average monthly mean temperature is above 32° F. in most of the Eastern Arctic. During the short summer season vegetation comes to life in the valleys which contain soil; flowers blossom forth in colourful beauty; and myriads of mosquitoes swarm over the low, wet areas. Average daily summer maximum temperatures are in the cool 50's, but extreme maximums of over 70° F. have been known at most of the stations. A record high of 84° F. has been recorded at Chesterfield, on the edge of the Barren Lands, while 81° F. has been reached at Lake Harbour and Cape Hopes Advance on Hudson Strait. The Eastern Arctic stations have not recorded the same high summer temperatures that are known in the Mackenzie Valley in the western part of the Northwest Territories.

When the factors of a short summer season are combined with a general lack of developed soil, it becomes apparent that agriculture under natural conditions is not possible. The shortness of the growing season is illustrated at Chesterfield, where the longest average frost-free period of the Eastern Arctic stations is only 67 days. In addition, variability is a great hazard prohibiting an attempt to grow anything, for at Chesterfield first autumn frosts have occurred as early as August 1 and as late as October 3. Autumn frosts usually occur much earlier on the east side of Hudson Bay, where the marine influence of the cold waters of the Bay is more dominant—Port Harrison has an average of only 44 frost-free days. Similar conditions are found on Baffin Island where the average last frost occurs in late June