

SUCCESSIVE FLORAS AND SUB-FLORAS OF THE CRETACEOUS IN CANADA.

(IN DESCENDING ORDER.)

PERIODS.	FLORAS AND SUB-FLORAS.	REFERENCES.
Transition Eocene to Cretaceous.	Upper Laramie or Porcupine Hill Series.....	{ Platanus beds of Souris River and Calgary. Report Geol. Survey of Canada for 1879, and present memoir.
	Middle Laramie or Willow Creek Series.	
Upper Cretaceous	Lower Laramie or St. Mary River Series.....	{ Lemna and Pistia beds of bad lands of 49th Parallel, Red Deer River etc., with Lignites. Report 49th Parallel and this memoir.
(Danian and Senonian.)	Fox Hill Series	Marine.
	Fort Pierre Series	Marine.
	Belly River Series. (See note).....	{ Sequoia and Brainerd beds of S. Saskatchewan, Belly River, etc., with Lignites. This memoir.
	Coal Measures of Nanaimo, B.C., probably here.	{ Memoir of 1883. Many Dicotyledons, Palms, etc.
Middle Cretaceous (Turonian and Cenomanian.)	Dunvegan Series of Peace River. (See note)...	{ Memoir of 1883. Many Dicotyledons, Cycads, etc.
	Mill Creek Series of Rocky Mountains.....	{ Dicotyledonous leaves, similar to Dakota Group of the U. S. This memoir.
Lower Cretaceous (Neocomian, &c.)	Saskwa River and Queen Charlotte Island Series.	{ Cycads, Pines, a few Dicotyledons. Report Geol. Survey. This memoir.
	Intermediate Series of Rocky Mountains.....	
	Kootanie Series of Rocky Mountains.....	Cycads, Pines and Ferns. This memoir.

NOTE.—Though the flora of the Belly River series very closely resembles that of the Lower Laramie, showing that similar plants existed throughout the Senonian and Danian periods in North America, yet it is to be anticipated that specific differences will develop themselves in the progress of discovery. In the mean time it scarcely seems possible to distinguish by fossil plants alone the Lower Laramie beds from those of Belly River, and if these are really separated by 1,700 feet of marine strata, as is now believed on stratigraphical grounds the flora must have been remarkably persistent. The Dunvegan series of Peace River probably corresponds in time with the marine Niobrara and Benton groups farther south and the Mill Creek with the Dakota group.

VI.—PHYSICAL CONDITIONS AND CLIMATE INDICATED BY THE CRETACEOUS FLORAS.

In the Jurassic and earliest Cretaceous periods the prevalence, over the whole of the Northern Hemisphere and for a long time, of a monotonous assemblage of Gymnosperms and Acrogenous plants, implies an uniform and mild climate and facility for intercommunication in the north. Toward the end of the Jurassic and beginning of the Cretaceous, the land of the Northern Hemisphere was assuming greater dimensions, and the climate probably becoming a little less uniform. Before the close of the Lower Cretaceous periods the dicotyledonous flora seems to have been introduced, under geographical conditions which permitted a warm-temperate climate to extend as far north as Greenland.

In the Cenomanian, we find the Northern Hemisphere tenanted with dicotyledonous trees closely allied to those of modern times, though still indicating a climate much warmer than that which at present prevails. In this age, extensive but gradual submergence of land is indicated by the prevalence of chalk and marine limestones over the surface of