THE PYROLAS OR WINTERGREENS OF SASKATCHEWAN (Cont'd)

(4) Pyrola minor L. LESSER WINTERGREEN

A small species with thin, dark green, oval or rounded leaves that are from 3/8 to 1 1/4 inches long, and which grow on fairly long basal stalks. The flowers are small, about 1/4 inch across, white or faintly pinkish, and are borne in a rather crowded raceme on a stem from 2 to 8 inches high. Occasionally found in woodlands in the Cypress Hills.

(5) Pyrola secunda L. ONE-SIDED WINTERGREEN

A rather small species, generally growing in colonies from a branched root-stalk. The leaf blades are thin, oval to lanceolate, pointed at either end and from 1 to 2 1/2 inches long. The flowers are small, about 1/4 inch across and crowded on to one side of the short stem, which is from 3 to 10 inches high. Fairly common in woodlands and bluffs throughout the whole of the province.

In the Cypress Hills, I have noticed that the Greenish-flowered Wintergreen is the earliest of the Pyrolas to come into bloom and that it is generally in the darker, and denser coniferous forest, amongst the Lodge-pole Pines.

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THE ORIGIN OF THE CYPRESS HILLS By August J. Breitung, Ottawa.

The Cypress Hills is one of the most interesting areas in Western Canada for the study of Natural History. In 1947 the writer made a study of the flora of that area. It is considered one of the most unique areas in Canada.

These hills form an elevated plateau or series of plateaux situated in southwestern Saskatchewan and southeastern Alberta. The topmost formation, being the most recent, is known as the Cypress Hills formation. It was laid down in the Tertiary period and is of alluvial deposition. This is composed chiefly of hard, coarse conglomerates and interbedded with hard, grey, coarse sandstone. In general, this consists of smooth, well-rounded, ovoid boulders, cobbles and pebbles in a hard, grey, coarse matrix. The boulders are as much as 8 inches in maximum diameter, but average considerably less.

Erosion has cut the plateau so that a number of rocks underlying the Cypress Hills formation are exposed. In contrast, these are of a very soft nature of Paleocene and Cretaceous time and consist of shales, silts and sands.

There is much controversy as to the extent of the Cypress Hills in early Oligocene Time. The Cypress Hills formation was laid down in a freshwater environment. It was transported from the Rocky Mountains in the Tertiary Period. During the uplifting of the Rocky Mountains, vast glaciers accumulated and when the climate became ameliorated, their melting created enormous streams bringing with them gravels, silts and sands, thus creating an enormous fan eastward out across the plain as far east as the Dakotas.

Evidence of its alluvial deposition is from the smoothly worn, river sorted conglomerates. These decrease in size from west to east as the water carried the lighter material farther. In addition, the plateau having a west to east decline of 15 feet per mile indicates that it was an eastward flowing current.

Attempts have been made to determine the former height of the Rocky Mountains by calculating the force required to produce currents sufficiently strong to transport the larger boulders 200 miles to the east. It may be

THE ORIGIN OF THE CYPRESS HILLS (Cont'd)

that the boulders were originally deposited much closer to the Rocky Mountains, and subsequently uplifted, reworked and transported to their present, temporary resting place.

When the climate became favourable for the coniferous forest to establish itself, it also spread out over this gravel fan, bringing with it many other species of plants peculiar to the Rocky Mountain region and are now relicts in the isolated hills of the western plains. Due to soil and climatic conditions, the forest could not persist on the intervening plain which was being carried away by the forces of erosion.

It is agreed by geologists that during the glacial epoch the western or more elevated parts of the Cypress Hills were not glaciated. Here on this island, then isolated and surrounded by the ice sheet and 200 miles east of the Rockies, persisted a relict flora of more than 50 foothill and Rocky Mountain species.

Some geologists believe that the Cypress Hills are the result of local uplift at the time of the uplifting of the Rocky Mountains.

Other authorities maintain that the Cypress Hills plateau was a trough in the Tertiary period and the gravel carried by enormous streams heading in mountain gorges 200 miles to the west. Later the softer material eroded rapidly away and even the greater part of the river bed itself, thus leaving the Cypress Hills with its hard capping of river sorted conglomerates as the highest elevated plateau on the plains of Western Canada.

It seems more logical to assume, from the above evidence, that the Cypress Hills formation is an alluvial deposition rather than a local uplift. There appear to be three reasons for this: (1) the smoothly worn, river-sorted, ovoid, slightly flattened cobbles and pebbles; (2) these cobbles and pebbles decrease in size from west to east; (3) the surface of the plateau has a west to east decline of 15 feet per mile, indicating a west to east current.

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ARCHAEOLOGY Allan J. Hudson, Mortlach.

The offer of the Editor for a corner in the BLUE JAY for archaeologists is welcome. It presents archaeologists with an opportunity to let a wider circle of out-door people know what they are doing; what they hope to do and how others can help them in their efforts. For the aim of archaeologists is not just to make collections of the works of ancient man, but through their collecting to understand the man himself, his origins, his manners of life, his speed through time and space.

To do this, they have to find occupation sites that can be excavated stratigraphically, for it is only in this way that the sequences in cultures can be observed. It is here that observant out-door people can be of help in noticing clues to such sites. In our own discovery in the Besaul valley, near Mortlach, it was such a man who first observed the clues (bones weathering out of the soil) that led to a very good find.

From our deepest excavations right down to the old river sand, we have been able to establish a succession of point styles all within the notched point complex. Naturally, without the help of specialist opinion we have no means of accurate dating. The earliest form is a short, squat point, quite