

mantle of drift so that over large areas no bed rock at all is exposed. The soils vary according to the underlying drift deposits, which vary from very sandy porous soils to those of the heavy, sticky, stoneless, marine clays which are so retentive of moisture. As a general rule the clay soils occur in the flat plain-like areas and the sandy and gravelly soils in the ridges and rolling country. A typical illustration of this occurs in the farming district west of Arnprior where the flat clay plain is bordered by sand and gravel ridges. All of the level areas, however, are not clay plains but are underlain by flat-lying dolomites with only a thin layer of sandy soil. There are many such areas of thin soils in the southern portion of Lanark and Carleton counties.

Wherever any large area of forests occur in the Ottawa valley the reason that they are left in timber and not cultivated is either that they are situated on land in which the bed rock is too near the surface, or they are on land which cannot be drained, or on land which is so sandy that it would be practically barren under cultivation. In other words, forested areas exist only on lands which are fit for nothing else. On the other hand it is true that many patches of land where cultivation is attempted is only adapted to timber.

The stoneless clay areas are the most sought after and are the most productive. The clay occurs in patches at various places in the valley up to about 5 miles north of the town of Pembroke, where it is replaced by the sands of the Petewawa area, and the sand and gravels continue up to Mattawa, a distance of 100 miles above Pembroke. It is worth noting that there is neither a town nor a village in the latter portion of the Ottawa valley.

INDIAN OCCUPATION.

The first explorers into the Ottawa valley tell us little or nothing about how the Indian lived and moved and had his being. If it were not for the patient work of the modern archeologists and anthropologists we would still know very little about what kind of clothes they wore, the food they ate, the weapons and tools they used, how the women made their pottery and baskets or the hosts of things we would like to know about a primitive people.

Among the meagre accounts we learn that there was a village at Hochelaga (Montreal) and another on Allumette island on the Ottawa, but no trace of the latter has been discovered.

Through the efforts of archeologists we now know of the sites of several prehistoric Iroquoian villages in Grenville and Dundas counties which border on the St. Lawrence river. The best known of these is at Roebuck, near Spencerville, which was explored by Mr. W. J. Wintemberg. These village sites are situated from 2 to 10 miles away from the banks of the St. Lawrence and very often not near

any large stream. We do not know all the requirements of the Indians in selecting their village sites but slightly elevated sandy spots with openings in the forest in which to grow grains were among them.

Possibly they were selected with a view to seclusion from the attacks of the more unsettled and hostile tribes who frequented the main waterways.

There has been very little archeological work done in the Ottawa valley between Ottawa and Pembroke or on the tributary streams and consequently we have much to learn about the Indian occupation, except that they used the main river in journeying up or down the valley. It looked as if the Indians never left the Ottawa valley, and indeed why should they, as there was an abundance of game and fish there to supply the wants of the few people that inhabited it. They went into the highland probably for two reasons, either to escape the attentions of hostile tribes or to hunt beaver.

We hear a great deal about the importance of furs these days, but consider how little fur the prehistoric Indians in the Ottawa valley were accustomed to. For the greater part of the year there is not a particle of fur on any of the deer family or the bears. The beavers are fat when other animals are lean, they are highly prized by the Indians everywhere for their flesh and skins, and so they will make extraordinary journeys in pursuit of them if they happen to be scarce in their accustomed hunting grounds.

Indians never go up rough rivers if they can avoid them, consequently we find little or no trace of them along such rivers as the Gatineau, Madawaska, Coulange or Petewawa rivers, but numerous relics have been found along streams which furnish good canoe routes such as the Lievre, Rideau, Mississippi and Bonnechere.

In the portion of the Ottawa valley we are considering, only one prehistoric Indian village is as yet known. It is situated on the north shore of Mud lake, an expansion of the Bonnechere river between Eganville and Golden lake. This site was discovered by Mr. Wintemberg, who examined a portion of the valley of the Bonnechere during the summer of 1917 at the suggestion of the writer. The village when excavated will probably turn out to be the largest Algonquin site so far known to archeologists.

This site had undoubted advantages for a people who earned their living by hunting and fishing. It was connected to Doré lake to the north by a trail about 4 miles in length and to Clear lake about 8 miles to the south. The Bonnechere river is an easy canoe route, and the valley as a whole must have been a great game country in former times.

It may be, however, that the Indians had few villages or fixed places of residence in this region,