

as the most important factors in determining the age of rocks.

#### NATURE.

2. Nature of the deposit. All animals have a particular habit, a place adapted to their habits of life. It may be in the sea, river, lake, deep or shallow water, consequently if we know the mode of life led by the animals we can form a conclusion regarding the nature of the deposit. The fossils we find at Selkirk are the remains of animals which are now represented by such as are found only in salt water, comparatively shallow and of warm temperature. Knowing this, as we examine the different species of coral found in the quarry, our minds revert to a time when a great sea must have covered this region, the waters of which had a temperature the same as those in which corals flourish now. Some of our northwest fossils indicate that they flourish in brackish water something like what is found in the Gulf of St. Lawrence and other places where fresh and salt water mix. Thus you can perceive how readily the nature of the deposits can be made out by knowing the habits of the creatures which have been entombed within them.

#### CLIMATE

Climate can be fairly inferred from fossils. The presence of coral furnishes an excellent example of this. These animals can exist only in water with a mean temperature of 66°. To maintain such the climate of a country must be tropical, at least semi-tropical, such as where corals are found at the present time.

Their presence in Selkirk becomes of great interest reminding us of the pleasant climate once common to the Northwest, when balmy breezes swept over the country and blizzards were unknown.

Further, the plants of the carboniferous period recall a time when gigantic club mosses, immense ferns, and other forms of flowerless plants flourished in a warm climate and moist atmosphere supplying the conditions necessary for such luxuriant growth as seems to have been common in the days when the carboniferous flora was in existence. On account of the immense coal fields in America, some have thought the American continent of those days had a more moist climate than Europe, and some have even thought the atmosphere of carboniferous times was highly charged with carbonic acid, a compound very important to plant life. You can, without further illustration, perceive that much can be inferred regarding

the past climate of a country the rocks of which contain the remains of the organisms which flourished at that time.

#### SELKIRK FOSSILS.

We shall now proceed to consider some of the fossils found in Selkirk quarry.

1. A few are readily recognized as the remains of shells some of which show considerable resemblance to the common whelk of our present seas. I have here an excellent specimen of this kind, it is fully three inches long and shows four distinct whorls. Others are more symmetrical in appearance and though the shell had two valves still they are quite different from the bivalve shells of modern seas. They are members of a great family (Brachiopoda) which thronged the Silurian seas but are now represented by comparatively few forms. A chief characteristic of these animals was a pair of long fleshy "arms" covered with delicate cilia. By far the most interesting fossils among the remains of shells is an immense one about 9 inches in diameter with three well defined whorls, one side is perfectly flat the other convex four inches through the thickest part. The nature of the creature which occupied this large shell is not well understood. The family having passed out of existence long before our modern seas were formed. I have found another of this group, but it is not so large. Several distinguished scientists have seen this large form and pronounce it the largest they have ever examined. Further examination of Selkirk rock may furnish us with still more complete specimens, from which something may be gathered that will give more light regarding the nature of this peculiar type.

2. Another comparatively large fossil obtained last summer appears to be made up of a series of thin layers, each about twice the thickness of note paper. These are arranged in a wave-like manner. At the summit of each crest there seems to have been an opening around which the layers are arranged in concentric rings. This specimen is five inches in length, four in width and two in thickness. It is not complete but it shows the structure very distinctly.

Several fragments of the same nature were found. This peculiar fossil is the remains of an animal which is of doubtful nature. By some it has been considered a sponge, by others as allied to animals (Foraminifera) which have assisted largely in the formation of chalk.