

birds, with the brisk chatter of the squirrel and the business-like chirrup of the little chipmunk, and with the myriad sounds of busy insect life, with which we are surrounded.

But in this beautiful primeval forest there is not a sound. All is still as the grave, and in the half light of the heavy oppressive atmosphere, the tall slender trunks bearing up the dense canopy of leaves, look weird and gloomy. A sense of loneliness comes over even the imaginary observer, when he reflects that through all these forests, extending for thousands of miles, there roams not a single animal, nor do they ever echo to the song of the bird, rarely, if ever to the hum of the insect. Birds were there unknown, insects almost unknown, while such land animals as were then in existence, were found always by the sides of the large rivers or near the ocean.

So much we extract from the records which in her own immense note-book Nature has kept for us. Naturally we wish to know more of these records. How have they been preserved during these long ages of changes, and where are they to be found?

We find them in many places over the earth's surface, but perhaps as perfectly kept in Nova Scotia as in any other country.

Around this basin of Minas, overshadowed by Longfellow's "Forest Primeval" are the records of many of the ferns we have been discussing. Farther to the north, across the mountains, is to be seen the famous "South Joggins" Section. Here the record book reaches a thickness of more than 14,000 feet and is more than 7 miles in length. In it there are to be counted 166 distinct leaves or layers; 90 of these are gray or reddish in color, being formed of shale or sand-stone, the remaining 76 are formed of coal.

Upon the gray pages, the record is most clearly written, upon the black the characters can for the most part be distinguished only with the aid of the microscope. Through the red pages there often rise the upright trunks of the Seal Tree, whose roots are fast in the shale below. Here, too, we often meet with the erect Reed Tree, whose soft central pith has been replaced by sand, while the hard outer shell remained and has become a thin coating of shining coal, enclosing a solid cylinder of hard sand-stone.

Other trees have fallen and are crushed flat, pressed to a mere fraction of an inch, yet still retaining the markings we noticed upon the stems. The markings were especially upon the bark, and as this part is always best preserved we can often tell at a glance what the tree was which now lies before us in coal.

But though the records are clearer in either of the others than in the black layers or leaves, yet these interest us most, for in them we have the remains of those luxuriant forests of Fern, Seal, and Reed trees which were a short time ago the objects of our admiration.

How have these layers of coal been found? what is the process by which they have been interleaved as we see them here?

Upon this point there is a difference of opinion. Some suppose these layers have been deposited at the bottom of vast inland seas or lakes. The ranges of mountains upheaved from the bed of the ocean enclosed vast inland seas. Into these large rivers, constantly fed by the heavy rains of the period, emptied their waters. At certain periods of indefinite length these rivers and their tributaries were unusually high, overflowing their accustomed channels and sweeping away in their course large portions of the forests upon their banks. This debris, being thoroughly soaked with