

(From the *Novascotian*, May 22.)

LECTURE ON MINERALOGY, DELIVERED BY MR. TITUS SMITH, ON MARCH 5, 1834, BEFORE THE HALIFAX MECHANICS' INSTITUTE.—Printed by order of the Institute.

A small part of the vote which the Legislature granted to the Mechanics' Institute in 1833, was given to Mr Titus Smith, to enable him to procure mineralogical specimens for the Museum of the Institute. This service was faithfully performed, and a curious collection, embracing about 70 mineralogical, and some botanical specimens, were presented during the winter. Mr Smith having written some notes descriptive of the former, was requested to prepare a paper upon the subject of Mineralogy, to which he readily consented. The specimens were exhibited, and the paper read before the Institute, on the evening of the 5th of March, and was by unanimous vote ordered to be printed. On many occasions it has given us great pleasure to call attention to the character and talents of Mr Smith—the paper before us is in excellent keeping with all that we had previously known of him. It is written in a style of clearness, elegance, and simplicity—the views advanced are founded on the actual experience and observation of the writer, and are sustained by a multitude of evidences, which his own industry, research and reflection, have supplied. They are put forth, however, with that modesty so eminently characteristic of the man, and of that true philosophy to which his whole life has been devoted. In the spirit in which Newton declared that he was but a boy playing with pebbles by the side of the vast ocean, which he could neither fathom nor comprehend, Mr Smith pursues his investigations, collects his facts, and draws his inferences. We shall give a few extracts from his paper, sufficient to enable our readers to judge of its character and value.—The following is the opening passage:—

In forming a collection of Fossils designed rather to throw some light upon the Mineralogy of this country, than as a cabinet of curiosities, I have thought it best to commence with our most common rocks.—They are undoubtedly the most ancient, and probably form the basis upon which the others rest. In learning something of their relative situations, and of the materials which compose their external parts, we shall necessarily acquire geological knowledge, and may also learn some things that will be of use to us. In giving the reasons for which these specimens have been collected, I have found it necessary to state, not only what I have seen, but what I have thought.—To state the consequences that seemed to me to follow from the facts I had observed. I am sensible that some of these opinions will appear strange to many persons, who being in the habit of employing their minds in more profitable speculations have paid little attention to this subject. I have adduced several facts to show the probability of these opinions, but do not expect they will strike the minds of others with the same degree of evidence that they do my own; for a multitude of slight proofs derived from facts observed during many year's attention to a favourite study, will leave an

impression on the mind which is not easily conveyed to others.

In a Society like the Mechanics' Institute, designed for diffusing useful knowledge, our stores must necessarily, and ought to be, drawn principally from the treasures already accumulated in Europe; but if there is any subject upon which we can add something to the common stock, and repay a little for the much we receive, it is perhaps in Natural History, for we here possess the advantage of viewing a part of the earth more in its natural state than any country which has been long possessed by a civilized race.

Geologists generally appear to be divided into two parts, one of which supposes that the large masses of rock were formed by the agency of fire, while their opponents maintain that they were crystalized by a fluid which held them in solution. That there are in this Province, rocks which have been formed in both these ways, there is no doubt: but it appears to me that the greater part of the large masses which compose the basis of this Province, have acquired their present form, in a somewhat different manner. He that dares to believe the evidence of his own senses, in opposition to such authority as can be adduced in support of the common theories, has no right to expect that his opinions shall be regarded any farther than he supports them with sufficient evidence. It is certain that in the great volume of nature there are records not written by the hand of man, which throw some light on the geology of remote periods, and give us some knowledge of the operations of the Former of all things. If these records are obscure, their authority is undoubted. To decypher them has afforded the writer much pleasure, in many a lonely and wearisome walk, for it is only by attending to the work, that we can learn the design of the workman, and it is with a view of throwing some light on this subject, that a part of these specimens have been collected.

He then proceeds to show the geological structure of the Province—tracing the great granite ranges, and accounting for some of the more striking appearances which the rock presents. In treating of whinstone, which next to granite, is the most abundant rock in Nova Scotia, he gives some information which to builders, and practical men, may be very useful. Passing over these, we come to the general theory which Mr Smith advances.

That curiosity which the Author of our being has implanted in the mind of man undoubtedly with a view of stimulating him to the acquisition of knowledge which must ultimately be beneficial to him, will not permit him to rest when he observes that great and extraordinary changes have taken place in the world which he inhabits, without attempting to learn how these changes have been effected. When he has discovered a considerable number of facts which bear upon the subject, and has so familiarized his mind to them, that he can take them all in view at once, he will perceive there are other facts which are necessarily implied by those he has discovered, and a great number which he will think are rendered probable by those which he knows to be certain, and in this manner before he is well aware that

he has such a design, he will have framed a theory of the whole subject. These observations are introduced as some apology for the following hypothesis which I should almost believe, did I know that the rocky parts of the earth generally resembled the little that I have seen.

The tradition of a "Golden Age," of a period in which there is no change of seasons, so generally spread through all ancient nations, is in some degree supported by the fossil remains of antediluvian animals and vegetables, which give no indication of a difference of climates. The Mosaic account of the creation and deluge, favours the same opinion. "The Lord had not caused it to rain on the earth." "A mist went up, and watered the ground"—Vegetables alone were given to man for food.—"Fourteen cubits of water" were sufficient to cover all the hills.—"It rained forty days and forty nights." "The fountains of the great deep were broken up." After the deluge the rainbow is mentioned as a new thing—a proof that it had never rained before. Permission is given to man to eat animal food, without which he could not inhabit the polar regions. Summer and winter, cold and heat, are now first mentioned. The life of man is remarkably shortened.

The tremendous showers of rain that attend the irruptions of Vesuvius are stated to exceed in violence, and in the immense quantity of water which falls, anything observed upon any other occasion, and the floods they have produced appear on some occasions to have done more damage than all the other accidents attending the irruption. Undoubted volcanin remains prove that at some period prior to the date of history, subterranean fires must have prevailed in a greater degree than they have been known to do since. If these eruptions were simultaneous with the deluge, and what is meant by the "breaking up of the fountains of the great deep," they would be sufficient to account for the shock given to the earth by which the parallelism of its poles with those of the equator was destroyed, and a rotation of seasons necessarily introduced. Such a shock must have caused all the water of the ocean to roll over the earth with a force sufficient to have produced our present mountains, by removing the soil that covered them, and for a time presented an appearance resembling the allusion of the prophet to this event. "The windows from on high are open, and the foundations of the earth do shake. The earth is utterly broken down. The earth is clean dissolved. The earth shall reel to and fro like a drunkard, and shall be removed like a cottage."

I have seen a piece of shallow plough land resting on a sloping rock which had the earth partly washed off in a heavy shower. The most elevated parts of the rock were naked, with a few large stones upon them, often resting on pebbles. The hollows of the rock filled with loose stones which covered a portion of the gravel. Here and there, where a whirling eddy had been formed by the position of the stones, small hillocks of the earth formed. The earth which had been carried off disposed in layers, varying in fineness and in the proportion of small stones which they contained. Such