

ned, so as to hold the class close to the work in hand when the special locality for study is reached. All sorts of other questions may be asked and answered on the way to and from the special locality, so long as they do not interfere with the prime objects of the excursion. A ledge of bare rock serves as a good beginning.* Its surface is more or less decayed and loosened in contrast to the firmer and less-altered interior, as shown on a fresh broken surface. The difference between the two is explained by the action of the weather on the outer surface. Fragments weathered from the ledge are often found at its foot or on the slope beneath it; they are slowly moved down hill by frost, rain, and snow. From this simple beginning the teacher may lead up to a series of inferences. If processes like those of to-day have been long in operation, the ledge must now be smaller than it used to be; if they continue long into the future, it may be still further worn away. If the rock is of stratified structure, a comparison with the sawed-off end of a board may lead to the belief that the rock mass must once have had a much greater extent than it now has, and hence that a long time has elapsed during its erosion. If it is of coarse crystalline texture, it may be explained that such rocks are formed deep underground, under conditions of temperature and pressure that do not obtain at the surface; and hence that their appearance at the surface to-day implies the removal of the great mass, perhaps thousands of feet thick by which they are covered. A

knowledge of geology is no more necessary here than is a knowledge of astronomy when some elementary explanation is given of the distance to the sun. If the teacher is well persuaded of the verity of these simple facts, so that all her explanations are natural and easy, the pupils will not find any difficulty in following her.

Let a stream be next visited. Examine its current, its bed, and its bank. Consider the transporting action of running water and its different behavior with respect to coarse and fine waste. Let the pupils seek to learn where the waste in the stream bed comes from and where it goes to. Illustrate the difference between the direct action of the stream in wearing down its channel and thus deepening its valley, and the action of wasting and washing on valley sides. The waste from the valley sides creeps slowly down hill to the stream; then it is more rapidly washed down the valley along the stream channel. Then lead the pupils to infer something of the changes that are now in progress by the action of the stream, and exercise their imaginations by asking what changes have already taken place in the past and what are yet to come in the future. If the field does not furnish examples by which this sort of thing may be studied, it is still possible to imitate natural processes very effectively with a sprayed stream fed from a hose and turned on a heap of sand and gravel in the school yard. Far from being silly play with mud-puddles, such an illustration may be made highly educative. It has