

scales. It is designed to be a substitute for direct observation of nature. And the first necessity for every learner and teacher is to realize that the lines upon a map which represent the physical features of the earth are put down because they have been actually observed and drawn to scale. Probably no one realizes what a coast line means until he walks with compass and note book in hand round some part of the coast, and sketches its contours from nature; and then compares, day by day, the results of his rough work with the accurate results recorded on the map which he carries in his pocket, which also gives names of inlets and headlands which are examined. The hills of a country are not very intelligible without being examined in the same way, for I am not acquainted with any way in which an attempt is made to give an adequate idea of their distribution.

A map presents to the eye things to be seen, and it is a chart exhibiting what may become fields of personal exploration. It is desirable that a little work of this kind should be accomplished by every teacher. I do not mean that he should merely be able to give an account of his holiday travel, in seeing a bit of the Severn or the Rhine, a glacier in the Alps or a loch in Scotland, but that he should deliberately qualify for teaching by practical observation in the field, which is as necessary for the understanding of a geographical fact as is experiment for the understanding of the nature of a chemical compound. It is certain that whatever impressions we form of distant places, perhaps never to be seen, will take their tone from our knowledge of phenomena which may be classed as belonging to the same general kind or type which is near at hand. On this account we do well to recognize that the observable facts of nature admit of being classed, in so far as the physical features of the earth are concerned, into such groups as plains, mountains, hills, valleys, rivers and lakes, and the coast line. I designedly put the plains and mountains first, because they are the most widespread of geographical elements in a country, the most ancient parts of the earth's surface, and the elements which determine the existence of the hills and coast line. All these facts are very fully recorded upon maps, and, if the maps are good enough, there is no reason why a pupil should not acquire a very competent knowl-