MATERIALS TO AID NATURE TEACHING.

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Some of the questions asked in the apple article last month have puzzled a few readers. Teachers have asked for answers to three or four of these questions; but I shall wait another month to see if more inquiries are made. Then, I shall answer all at once, through the Review.

One teacher asks if it would be possible for me to begin a series of questions and answers on botanical topics in the Review, similar to those published two years ago. Certainly. But why won't the teachers themselves ask the questions? I believe the Review can be made extremely helpful if all will take part in asking questions or reporting their experiences.

Instead of asking questions in this article, may I suggest ways that might make nature work mean more to our school children? All will admit that geography and nature work are really one subject. Physical geography treats of the earth, the stars, the planets, mountains, rivers and lakes, a hundred and one things, all of which are natural. The word itself implies nature study. Commercial geography treats of our control of natural powers and our use of natural objects. Our nature work, then, can effectively link itself with geography.

For example, a child may be asked to name the minerals of his province. As such, the question is useless. If, however, some object in the school room suggests a discussion of minerals, their location, manufacture and use, the question may be a very attractive one.

Possibly the iron nails in the floor would bring up such questions as the countries in which iron is found, the condition in which it is found, how it is mined, how it is smelted, things manufactured from it, methods of transportation, by-products of its manufacture, the galvanizing of iron, etc. Doubtless all teachers bring up these topics. But, too often, the topics are named without their making any impression on the child's mind.

Would it not be wise to have the following material in the school room to illustrate iron and its products? Have the children make maps showing the distribution of iron ore in workable quantities. With advanced grades, these would be world-maps. With the middle grades, they should be provincial maps. Have samples of magnetite, hematite, limonite and siderite. Beside them, have pig iron, wrought iron and steel. Have, also, pictures of blast furnaces and open hearth furnaces in order to help explain the process of manufacture. Have, also, pictures of iron mines. Have the children make lists of things made of iron. As their knowledge increases, they will add to this list. Get pictures of steamers and trains carrying iron ore or iron products.

Children who like manual training might make a cardboard model of a blast furnace. Sample of coke and limestone or dolomite are also necessary, since these are used in the smelting. Slag, too, should be in the collection, and with it could be a small bag of cement and of fertilizer; thus the children learn that the waste from one operation may be profitably used in some other industry. They will learn, too, how closely industries depend on each other.

In the collection of raw materials, include red ochre and yellow ochre; and with them, exhibit a piece of wood that had been painted with paint, made from these ochres. A can of ochre paint would be more real still. Have also some dyes made from iron salts.

A cube of iron pyrites is interesting on account of its crystallization. To call it "fool's gold" may be suggestive. But to exhibit with it a bottle of sulphur, with pictures showing how sulphur is manufactured from iron pyrites, brings it in contact with affairs of real life rather than leaving it an isolated object on a museum shelf. But even the object on the museum shelf means infinitely more than the printed word of doubtful pronunciation in the text-book. With the pyrites and the sulphur, put a bottle of sulphuric acid. Then is pyrites valuable?

It may be urged that to follow this method, one never reaches the end. That everything suggests something else, and requires something else to illustrate it. That is one of its strongest points. There is only one nature. The teacher who can link all knowledge together, instead of dissecting it into unrelated fragments is certainly on the right road.

What a fairy story is suggested when I dip my steel pen into ink! Our iron collection might have contained some green vitriol — a salt of iron. A piece of black leather and a bottle