

## QUESTION DEPARTMENT.

Questions on scientific subjects may be addressed to EDUCATIONAL REVIEW, Pictou, N. S., to whom also all natural history specimens may be submitted for identification; those on ancient classics and mathematics to EDUCATIONAL REVIEW, Charlottetown, P. E. Island, and all questions on general subjects—English, school management, methods, etc.—to EDUCATIONAL REVIEW, St. John, N. B. On technical questions the editors will seek the views of teachers of experience, in order that this page may be of the greatest possible advantage to our teachers.

## Questions and Answers.

M. S. D.—What is the enclosed fine, white deposit, taken from the bottom of Irwin's Lake?

It is what has been called infusorial earth. But the name is incorrect. The infusoria are animal organisms. This white powder belongs to the vegetable kingdom. It consists of beautifully ornamented, transparent silicious shells of various shapes. Each shell is so small as to be invisible to the naked eye, and constituted the skeleton of a one-celled plant belonging to the order *diatomaceæ*. The *diatom* is a plant whose cell-wall is made up of the most regularly sculptured transparent quartz. The living part is a soft yellowish protoplasm which fills the cell and secretes the silica from the water for its covering. These cells multiply in a regular way, and many species have the power of moving through the water, while others are always attached to some object. Our specimen is very pure and white, consisting of the tests or skeletons of dead diatoms which have probably been accumulating in the lake for ages. Boiled in an acid or burned in a fire those shells—or more properly speaking—*cells*, only become more clear and

beautiful. This material has been used for absorbing nitro-glycerine to make dynamite, for tooth powders, for polishing powder, for packing fruit. Being composed of cells, it is extremely porous. It is also used for making water glass, for silicious tiles, for packing steam pipe packing, being a good non-conductor of heat, and for other purposes.

X. Y.—1. Will the citrate of silver make sea water drinkable? 2. If so, is it practicable on a large scale?

Ans. 1. The citrate of silver changes salt water into a sugarless lemonade. When put into sea water a white heavy precipitate is formed which soon settles, leaving a clear liquid above. If the proper proportions are used, all the salt will be precipitated to the bottom with the silver, forming the chloride of silver. The water above, will contain the citric acid, and will therefore be sour. If the proper proportions be not exactly used, there will be either some salt or citrate of silver remaining in the water. 2. For every ounce of salt taken out of the sea water, about *two* ounces of metallic silver made into the citrate will be required. So the process must be rather expensive, although the silver chloride made in the process is not lost.

A. M.—There is large and also a small yellow butterfly quite common here. What are their names, do you suppose?

Ans.—The large one *Papilio turnus*, (swallowtail), the small one, *Colias Philodice* (clouded sulphur) very probably.

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