weights of the different elements, which latter a characteristic color serves to distinguish. Thus, a black hemisphere, representing carbon, weighs twelve times as much, and a green one representing chlorine thirty-five times as much, as a pale blue hydrogen hemisphere.

To illustrate the changes which take place when hydrogen and oxygen combine to form water:—Two glass cylinders of five cm. diameter and twenty cm. high are filled with hydrogen molecules, and a like cylinder is filled with oxygen molecules. The condensation to two volumes is effected by joining an oxygen atom to each two atoms of hydrogen, forming a spherical molecule of water. The volumes should be weighed before and after condensation.

The writer begs to remind teachers that the use of the models should always be accompanied by an experiment with the gases themselves, and also to recall the necessity of impressing upon students the fact that the models are intended only to represent pictures (however distorted) of our conceptions of some chemical changes; and that they are not magnified illustrations of actual atoms and molecules.

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## NOTES.

*A Mineral Group from York, Pa.*—In the same quarry from which fluorite was reported,[1] the writer recently found a group of four minerals, namely, fluorite, calcite, pyrite, and dolomite, all except fluorite showing very perfect crystals. The fluorite is imbedded in calcite and dolomite which are closely intermingled. The crystals of calcite are the common prisms with rhombohedral terminations, the length and thickness being about equal. Others are thin, tabular in form. They vary in size up to an inch or more in diameter. The pyrite occurs on the surface of the dolomite and consists of perfect little cubes, scarcely more than one-half mm. square. Their surface is brown owing to oxidation.

As the dolomite has not to my knowledge been heretofore reported from this locality it is noticed a little more fully. It is

[1] See *J. Anal. Chem.*, July, 1890.

the Pearl-spar variety. The crystals occur not only distinct on the surface of the rock, but are often so massed together as to form veins $\frac{3}{4}$ inch thick in the limestone. It has a beautiful pink color. The crystals are the common curved-face rhombohedra with pearly luster, the largest being about $\frac{1}{4}$ inch across. Sp. gr. = 2.81.

An analysis gave the following results:

| | Per cent. |
|---|---|
| CaO | 32.04 |
| MgO | 20.09 |
| FeO | 1.18 |
| $Al_2O_3$ | 0.38 |
| $CO_2$ | 45.91 |
| | 99.60 |

C. H. EHRENFELD.

## NEW BOOKS.

FOUNDATIONS OF THE ATOMIC THEORY. PAPERS, ETC., BY JOHN DALTON, WILLIAM HYDE WOLLASTON, M.D., THOMAS THOMSON, M.D. 1802–1808. Alembic Club Reprints, No. 2. 12mo. 48 pp. Wm. F. Clay.

This number contains two papers by Dalton taken from the Memoirs of the Literary and Philosophical Society of Manchester; the first, an "Experimental Inquiry into the Proportion of the Several Gases or Elastic Fluids Constituting the Atmosphere;" the second, "On the Absorption of Gases by Water, and Other Liquids." At the end of his second paper is given the famous first table of atomic weights. These papers are followed by two extracts from Dalton's New System of Chemical Philosophy, and then follow a paper from the Philosophical Transactions by Wollaston on "Super-Acid and Sub-Acid Salts," extracts from a paper on oxalic acid by Dr. Thomson, also from the Philosophical Transactions, and an extract from Thomson's "System of Chemistry" containing the account of Dalton's Hypothesis. E. H.