

SCIENCE DEPARTMENT.

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GROUP II.—METALS OF THE ALKALINE EARTHS, CALCIUM, STRONTIUM, BARIUM, MAGNESIUM.—By Miss L.E. Briant.

PROPERTIES OF THE GROUP.—The alkali-earth metals have a brilliant metallic lustre, Ca and Sr are yellow, Ba and Mg white, are hard and ductile at the ordinary temperature, are DIVALENT and cannot be reduced by hydrogen or carbon alone, decompose water at all temperatures (Magnesium at 30° C), heated in the air they burn with a bright light to oxides (Ca O, Sr O &c.) which combine with water to form hydroxides (Ca OH)₂ &c.), the hydroxides dissolve in additional water (Mg O is nearly insoluble) forming solutions that give an *Alkaline reaction* (hence name). The metals of this group (II.) are distinguished from those of the preceding one (I K Na, &c.) by their NEUTRAL CARBONATES and PHOSPHATES being *insoluble in water, and from all other metals by being neither precipitated by HYDROGEN SULPHIDE H₂ S, nor Ammonium Sulphide NH₄ HS.* The Carbonates although insoluble in water are soluble in water containing Carbonic Acid CO₂ in solution.

I.—SYMBOL.

Ca 40 (39.9), Sr 87.2, Ba 137 (136.8), Mg 24 (23.94).

II.—OCCURRENCE.

CA.	SR.	BA.	MG.
Combined (a) forming a large portion of the plutonic rocks of which the earth is composed.	(b) Sr CO ₃ STRONTIANITE	(b) Ba CO ₃ WITHERITE.	(b) 1. Mg CO ₃ MAGNESITE. 2. Mg CO ₃ + Ca CO ₃ DOLOMITE.
(b) As the Carbonate Ca CO ₃ Calcite, Limestone, Chalk.	(c) Sr SO ₄ CELESTINE.	(c) Ba SO ₄ Heavy Spar.	(c) Mg SO ₄ + 7 H ₂ O. Epsom salt soluble in water, a constituent of the so-called bitter water of Mineral Springs, Epsom, England, Saidschütz, Sedlitz and Püllna in Bohemia, and in sea water.
(d) Mg Cl ₂ (+6 H ₂ O) in springs and sea water.	(d) In minute quantities in certain spring waters.		