A PETROGRAPHICAL CLASSIFICATION OF ROCKS.

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(Communicated by Prof. T. RUPERT JONES, F.R.S., President Geol. Assoc.)

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Visiting the well-ordered Museum of the Lausanne Academy in 1878, I was impressed with the practically useful arrangement which Prof. Renevier had adopted for the rock-specimens, and at my request he has favoured me with the following draft of his scheme of classification :—

ROCKS.

- I. Deutero-genous.—Of secondary or derivative origin. Sedimentary, by mechanical means.
 - A. Arenaceous.—Composed of sand grains visible to the eye.
 - a. Loose.—Gravels and Sands.
 - b. Consolidated.—Breccias, Conglomerates, Grits, Sandstones, Quartzite.
 - B. Limaceous.—Formed of mud (*lat. limus*), more or less consolidated.
 - a. Earthy.—Clays, Marls, &c.
 - b. Schistose.—Various Non-crystalline Schists and Clay-slates.
 - c. Hard or Stony.—Petrosilex (?), some Quartzites.
- II. Organogenous.—Sedimentary by organic means.
 - A. Calcareous.—Of Zoögenous origin essentially.
 - a. Phanerozoic.—Nullipore-limestones, Shell-limestones, Coral-limestones, Bituminous Limestones, &c.
 - b. Microzoic.—Small-grained, Oölitic, and Foraminiferal Limestones, Chalk, &c.
 - c. Cryptozoic.—Compact, Siliceous, Dolomitic, and Crystalline Limestones.
 - B. Diatomaceous (formerly “ Infusorial ”).
 - a. Siliceous.—Tripoli, &c.

- b.* Ferruginous.—Some Bog-iron Ore, with *Gallionella ferruginea*.
 - C.* Carbonaceous or Combustible.—Mostly of vegetable origin.
 - a.* Peat.
 - b.* Fossil Coals.—Lignite, Coal, Anthracite, Graphite.
 - c.* Fossil Resins.—Amber, Libanite, &c.
 - d.* Bitumens.—Asphalte, Maltha, Petroleum.
- III. Hydatogenous.—Of aqueous origin by chemical means.
 - A.* Halogenous.—Formed by precipitation from sheets of sea-water, salt lakes, &c.
 - a.* Saline.—Rock-salt, Carnallite, Nitrate of Soda, &c.
 - b.* Gypseous.—Gypsum, Alabaster, Anhydrite.
 - B.* Concretionary.—Formed by incrustations from mineral waters on the surface of the ground.
 - a.* Incrustations.
 - 1. Calcareous.—Stalagmite, Travertines, Calc-tuffs, Calcareous Alabaster, &c.
 - 2. Ferruginous.—Hæmatites, &c.
 - 3. Siliceous.—Geyserite, Paris Millstone (?).
 - b.* Pisolite.—Pisolitic and Oölitic Limestones, Pisolitic Bog-iron Ore, &c.
 - c.* Nodules.—Argillo-calcareous, Ferruginous, Flint, Hornstone, Jasper, Agate, Pyritous, and Carbonate of Iron (Sphærosiderite) Nodules.
 - C.* Spathic or Veinstuff.—Formed by hydatogenous crystallization in subterranean fissures under pressure. Various gangues of Calcspar, Spathic Iron-ore, Heavy-spar, Fluor-spar, Quartz, &c.
- IV. Pyrogenous.—Of chemical origin by means of fire.
 - A.* Lavas.—By the cooling of molten matters.
 - a.* Trachytic.—Principally Alkaline Silicates of Alumina: Trachyte, Phonolite, Pumice, Perlite, Obsidian (Trachytic), Pitchstone.
 - b.* Basaltic.—Magnesian Silicates: Basalt, Dolerite, Melaphyre.
 - c.* Euritic.—Alkaline Alumino-silicates, with an excess of silica.

Eurite (Felsitic), Pitchstone, Euritic and Quartziferous Porphyries.

d. Dioritic.—Magnesian Silicates, with excess of silica. Aphanite, Amygdaloid, Diorite, Dioritic Porphyry, Variolites (?).

B. Volcanic Aggregates.—Formed of solid *débris* ejected from volcanoes.

a. Loose.—Papilli, Volcanic Sand, Ashes.

b. Agglomerated.—Volcanic Breccias and Tuffs, Peperino, Trass, Wacké, Domite (?), Argillophyce (?).

V. Cryptogenous or Crystalline.—Of doubtful origin, its evidences having been obliterated by crystallization.

A. Crystalline Schists.

a. Alumino-alkaline.—Gneiss, Mica-schists, Felsite.

b. Magnesian.—Chloritic Schists, Talc-schists, Serpentine, Amphibolitic Schists.

B. Granitic or Massive Crystalline.

a. Granites.—Granite, Granitite, Protogine, Pegmatite, Gneisen.

b. Amphibolitic Massives.—Syenite, Euphotide, &c.

This is the general plan adopted by Prof. Renevier. On some points he is not quite satisfied, and is open to receive suggestions for improvement. He observes that this classification follows that given by Lyell, according to the *origin* of rocks, but avoiding reference to the known or supposed *succession* of rocks.

Prof. Renevier has published a large and well-known Stratigraphical Table of the Geological Formations.