

The Sulphur family : Sulphur, Selenium, Tellurium.  
The Nitrogen family : Nitrogen, Phosphorus, Arsenic and Antimony.—Boron and Silicon.  
Base forming Elements.—General considerations.  
The Potassium family : Potassium, Sodium, Strontium.  
The Magnesium family : Magnesium, Zinc, Cadmium.  
The Copper family : Copper, Mercury, Silver.  
The Aluminium family :—  
The Iron family : Iron, Cobalt, Nickel.  
Manganese.—Chromium.—Uranium.—Bismuth.  
Lead.—Tin.—Platinum.—Gold.

*Text Books* : *Traité de Chimie des Frères*.—*Reimsen's Elements of Chemistry*.

### Physics

Preliminary definitions : Matter.—State and properties of bodies.  
*Elements of Mechanics*.  
Motion.—Force.—Energy.

*Gravity* : Direction and nature of gravity.—Laws of falling bodies.—Center of gravity.—Intensity of gravity.—The Pendulum  
Determination of units.—Units of length, time and mass, and derived units.—Dimensions of derived units.—Instruments of precision.

*Pneumatics* : Atmospheric pressure and barometers.—Principle of Archimedes.—Mariotte's law.—Compressibility of gases.—Manometer.—Expansion of gases.—Diffusion and absorption.—Air pumps.—Elasticity of gases.—Compression and rarefaction of air.—Pumps.

*Hydrostatics* : Properties of liquids.—Equilibrium of liquids.—Applications of the above principles.—Density and specific gravity.—Levels. Artesian wells.—Hydraulic press.—Hydrometer.

*Hydrodynamics* : Compression of liquids.—Laws of capillarity.—Torricellian vacuum.—Pumps and Syphons.

*Sound* : Production, propagation and reflection of sound.—Wave motion.—Musical sound.—Determination of number of vibrations.—Vibrations of sounding bodies.—Vibration of strings.—Wind instruments.—Analysis and synthesis of sounds.—Timbre.—Perception of sounds.

*Optics* :—General phenomena of light.—Reflection of light, and laws.—Refraction and decomposition of light.—Optical instruments

*Heat* :—Temperature.—Expansion of solids, liquids and gases.—Density of gases.—Condition of change of state.—Melting points and solidification.—Vaporisation of liquids.—Ebullition and evaporation.—Liquefaction and solidification of gases and vapors.—