

Influence of Caloric—Relative densities and volumes.
 Weight of water and its constituents.
 Crystalline forms of water.
 Formulæ for volumes at different temperatures.
 Weight of pond water.
 Compressibility and elasticity.
 Weights of single molecules.
 Pressure of water.
 Pressure proportional to depth.
 Individual molecular reaction.
 Pressure from vertical, inclined and bent columns of water.
 Pressure on unit of surface.
 Equivalent forces; weight on measure of pressure.
 Line a measure of weight; line a measure of pressure upon a surface.
 Diagonal force of combined pressures graphically represented.
 Angular resultant of a force graphically represented.
 Angular effects of a force represented by sine and cosine of the angle.
 Direction of maximum effect.
 Pressure upon a curved surface and effect upon its projected plane.
 Centre of pressure upon a circular area.
 Sustaining pressures upon submerged and floating bodies.
 Upward pressure upon a submerged lintel.
 Syphon—Inverted syphon.
 Transmission of pressure to a distance.
 Flow of water—Action of gravity upon.
 Individual molecules.
 Frictionless motion of molecules.
 Acceleration of motion.
 Equations of motion.
 Parabolic path of the jet.
 Velocity of efflux proportional to the head.
 Conversion of the force of gravity from pressure into motion.
 Resultant effects of pressure and gravity upon the motion of a jet
 Resistance of the air—Theoretical velocities.

Flow of Water through Orifices.

Theoretical volume of efflux.
 Converging path of particles.
 Classes of orifices.
 Form of submerged orifice jet.
 Ratio of minimum section of jet.
 Volume of efflux—Co-efficient of efflux.
 Maximum velocity of the jet.
 Factors of the co-efficient of efflux.
 Experimental co-efficients, from Michalotti, Bussuet, Rannie, Castel, Lupinasse,

Ellis.

Co-efficients diagnosed.
 Effects of varying the head or the proportions of the orifice.
 Co-efficients of velocity and of contraction.
 Variable value of velocity and contraction.
 Jets of various cross-sections.
 Flow of water through short tubes.
 Adjutage—Vacuum of adjutage, and its effect.
 Diurgent tube—Inward projecting adjutage.
 Experiments with cylindrical and compound tubes.
 Range of Egtalwein's Table.