

theoretically when the resistance of the air has become equal to the accelerating force of gravity; the motion of the body will then be uniform, and is called its *terminal velocity*.

Final Velocity.—The velocity of the projectile at the end of a given range.

Velocity of Rotation.—The number of turns of a projectile on its centre or axis of rotation during a given time.

Centre or Axis of Rotation.—The point or axis about which a body revolves.

Momentum.—The quantity of power in a moving body, this is always equal to the mass of the body multiplied by its velocity.

A 7 por. shell moving at the rate of 1,300 ft. per second has more momentum than a 9 por. projectile moving at the rate of 1,000 ft. per second.

Force.—Any power which moves or stops, or tends to move or stop a body. It is measured by weight, a force which bends a spring into the same position as a 4 lb. weight would do is called a 4 lb. force.

Friction.—The resistance which a body meets from the surface on, or the medium through which it moves.

Force of Gravity.—The tendency of everything to fall in a straight line towards the centre of the earth, the measure of it is weight.

Specific Gravity.—The weight of a body compared to that of another body of equal bulk. Air is the standard for gases, water for other bodies. A cubic foot of water weighs

1,000 ozs.=62½ lbs. { 1 gallon weighs 10 lbs., at average temperature.
6½ " " 1 cubic foot.

Centre of Gravity.—The point on which, if supported, the whole body would balance in any position.

A Concentric Body.—A body whose centre of gravity and centre of figure coincide, if they do not coincide the body is eccentric.

Resistance of the Air.—The resistance a body encounters in its flight through the air, which is due to its displacing from its path a greater or smaller number of particles of air according to the velocity with which it moves, these resistances will be as the cube of the velocity at ordinary gun velocities, i. e., from 1,100 to 1,400 ft. per second, and is the chief cause of the irregularities in the flight of rifled projectiles.*

Approximately for low velocities resistances vary as V^6
 " " high " " " V^2

* It is said by some that the particles of air cannot move among themselves faster than the rate at which waves of sound are transmitted through the air, 1,150 ft. per second. When the projectile has attained about this velocity the rate of burning of time fuzes is affected, it is thought, by the increased pressure due to the creation of a vacuum behind the shot which the particles of air cannot move fast enough to fill until the speed of the shot slackens when there is a relief of pressure on the head of the projectile. Opinions are divided on the above theory.