

## **TERM**

## **DESCRIPTION**

### **A**

#### **Accuracy**

The measure of precision in consistently obtaining a desired result. In shooting, the measure of a bullet's or gun's ability to place all shots close to the same point.

#### **Action**

The mechanism of a firearm by which it is loaded, locked, fired and unloaded.

#### **Air Resistance**

The slowing effect of air on a projectile in flight.

#### **Annealing**

In handloading, the controlled heating of brass after work-hardening to prevent it from becoming too brittle. Only the neck should be annealed, and great care should be taken not to overheat and thus soften the head and rear portion of the case. See Work-harden.

#### **Antimony**

A metallic element that increases the hardness of lead when combined as an alloy.

#### **Anvil**

In the priming system, a fixed metallic point against which the priming mixture is crushed and thereby detonated by the action of the firing pin. Boxer anvils are part of the primer; Berdan anvils are part of the cartridge case.

### **B**

#### **Ball**

Early term for "bullet" due to the shape of the earliest projectiles being round lead balls. Still used in military nomenclature, usually to describe a full-metal jacketed bullet.

#### **Ball Powder**

Trademarked name for a double-base smokeless propellant powder developed by Olin, Inc. Both spherical or flattened spherical shapes are made..

#### **Ballistic Coefficient (BC)**

Ratio of the sectional density of a bullet to its coefficient of form. Represents the projectile's ability to overcome the resistance of the air in flight. A bullet with a numerically high BC will meet less air resistance than a bullet with a low BC

#### **Ballistics**

The science of projectiles in motion. Divided into interior ballistics— covering the time between the start of primer ignition and the bullet's exit from the barrel; exterior ballistics—the bullet's movement from barrel exit to target

impact; and terminal ballistics —the bullet's behavior from the moment it enters its target until it stops moving.

### **Barrel-cylinder Gap**

The clearance between barrel and cylinder in a revolver. In the U.S., the industry specification is 0.001" to .012". Revolvers with gaps larger than .012" can suffer a bullet lodged in the bore due to excessive gas loss through the over-spec gap.

### **Battery Cup**

Type of primer in which anvil and primer cup are supported in an outside cup. Shotshell primers are of this type.

### **Bearing Surface**

The portion of a bullet's surface that actually touches the bore in moving through the barrel.

### **Bedding**

Manner in which the barrel and action of a rifle is fitted to the stock.

### **Bell**

To expand the mouth of a case slightly in order to seat a bullet more easily. Also called flare.

### **Belted Case**

Case head type with a raised band or belt at the base ahead of extractor groove. A variant of the rimless case. The belt acts to control headspace of the cartridge. See rim and rimless.

### **Bench Rest**

A solid table or bench used for supporting a gun when testing for accuracy. Bench Rest target shooting has become an important shooting sport where the smallest group wins.

### **Berdan**

A centerfire priming system characterized by an anvil mounted in the case's primer pocket with one to three small, off-axis flash holes. Berdan primers have no anvil as the anvil is integral with the case. Poorly suited to reloading. Common in Europe, especially in military ammunition. Named for the inventor, Col. Hiram Berdan, an American.

### **Black Powder**

The oldest ballistic propellant for muzzle loaders and early cartridge arms composed of a mechanical mixture of potassium nitrate (saltpeter), charcoal and sulfur.

### **Boat Tail**

Name given to a bullet type with a tapered base due reduce aerodynamic drag.

### **Body (of a case)**

The section of a bottleneck cartridge case between the head and the shoulder that contains the powder.

### **Bolt**

The locking and cartridge-supporting mechanism of a firearm that operates in line with the axis of the bore. It contains the firing pin, firing pin spring, extractor(s) and sometimes the ejector.

## **Bolt Thrust**

The force on the face of the bolt or breech of a firearm caused by the pressure of burning powder gases. Bolt thrust acts on an axis parallel to the bore.

## **Bore**

The inside of the barrel of a gun of any kind and, in rifled arms, the diameter of the barrel before the rifling is cut.

## **Bore Sight**

To approximately align the sights of the firearm with a target by sighting through the bore.

## **Boxer**

The standard American centerfire priming system, named after the inventor of this type of primer, Col. Edward Boxer of the British Army. Characterized by a large, on-axis flash hole in the case and the anvil mounted in the primer cup. See Primer.

## **Brass**

An alloy of copper and zinc of which cartridge cases are usually made. This term is often applied to empty cartridge cases. Typical cartridge brass has a copper/zinc ratio of 70/30.

## **Brisance**

The characteristic in an explosive of brusqueness or shattering power. The more brisant an explosive, the more rapidly it detonates and the greater its relative power. In small arms, brisance is usually applied to priming compounds.

## **Bullet**

The missile only. Becomes a projectile when in flight. Not to be applied to the term cartridge. See also ball.

## **Bullet Path**

The track followed by a bullet in flight. It is described by the location of the projectile above (+) or below (-) the line-of sight at a given range.

## **Bullet Pull**

The amount of force needed to extract a bullet from a loaded cartridge. Used by ammunition manufacturers to measure uniformity of crimp.

## **Bullet Puller**

A tool for extracting bullets from loaded cartridges. The inertial and collet types are most common.

## **Burning Rate**

A relative term used to rank the rapidity with which a given powder releases energy during burning in comparison with other powders.

## **C**

## **Caliber**

A term that derives from Latin *qua libra*, meaning "what pound," first applied to the weight of a bullet and then to the diameter. Caliber now refers to the diameter of either a projectile or the bore of a gun. It is the approximate bore or groove diameter expressed (in English) in hundredths of an inch. A bullet that is 0.451" in diameter is 45 caliber. To write ".30 caliber" is technically incorrect. According to the strict definition, such a bullet would only be 0.003" in diameter! Frequently compounded with other descriptive words or numbers to create a cartridge name, e.g., 308 Winchester or 30-40 Krag. Also used in artillery as a measure of length equal to the diameter (or caliber) of a specified gun, as, a "fifty-four caliber" 5-inch naval rifle has a barrel that is 5x54", or 270 inches long. A "6 caliber" bullet ogive has a radius equal to 6 bullet diameters.

### **Canister Powder**

A propellant powder intended for retail sale to hobby handloaders. As these hobbyists do not have access to pressure testing equipment and rely instead on published load data, every effort is made to insure that lot-to-lot variation over time is minimized. "Non-canister" propellants are sold in bulk to ammo manufacturers who have pressure testing equipment.

### **Cannelure**

Circumferential groove(s) around a bullet or cartridge case. Used for identification, to hold lubricant, or for securing the bullet in the case..

### **Cap**

See primer.

### **Cartridge**

A complete unit of assembled ammunition: case, propellant powder, primer, and bullet. Commonly applied only to rifle and pistol ammunition, but technically correct for shotshells also.

### **Case**

The paper, metal, or plastic container that holds all the other components of a cartridge. Sometimes called hull or shell.

### **Case Forming**

To alter or modify one cartridge case to another of different shape and or caliber. Also see wildcat.

### **Case Hardening**

A heat treating process which increases the surface hardness of iron alloys. Often produces distinctive colors, such as seen on the frames of Colt Single Action revolvers.

### **Case Trimming**

Shortening an overly long case by removing metal at the case mouth.

### **Cast Bullet**

Bullets for rifles or pistols cast from molten lead or lead alloy in a mould. See mould blocks

### **Center Fire (CF)**

Refers to metallic cartridge case having a centrally located primer in the base. Also called centerfire. Most center fire cartridges are reloadable.

**Chamber**

That part of the barrel at the breech end, formed to accept and support the cartridge. In a revolver, chambers are located in the cylinder.

**Chamber Cast**

A casting, usually of sulfur or low melting-point metal, poured in the chamber to more easily measure chamber shape or condition.

**Chamfer**

To bevel or ream a taper on the inside of a case mouth to facilitate bullet seating.

**Charge**

The amount of propellant powder measured into the case in loading. Also refers to amount of shot measured into shotshell.

**Choke**

A constriction at the muzzle of a shotgun barrel designed to control the spread, or dispersion, of the shot charge.

**Chronograph**

An mechanical or electronic device used to measure the velocity of a projectile.

**Collimator**

In shooting, an optical device used to roughly align the sights with the bore of a rifle or handgun. Essentially, a collimator allows bore sighting without having to see through the barrel.

**Combustion**

Burning; in firearms, the chemical process which unites oxygen and other substances in gun powder to produce heat and gas. Also called deflagration.

**Compensator**

A device fitted to the muzzle of a firearm to reduce recoil or muzzle rotation. Usually applied to such devices when fitted to a handgun. See muzzle brake.

**Components**

The individual parts that go into the making of a cartridge.

**Compressed Charge**

A charge of powder which is compressed by the bullet during seating in the case.

**Copper Crusher**

Small, solid copper cylinder used in a pressure gun to measure chamber pressure. See pressure gun.

**Cordite**

Trade name for a long, tubular-grained, double-base powder used mainly in Great Britain, and one of the earliest

smokeless propellants. The granules are often as long as the powder space.

### **Core**

The interior part of a jacketed bullet; usually a lead alloy in sporting ammunition.

### **Corrosion**

The eating away of the bore because of rusting or the chemical action of salts deposited in the bore by corrosive primers or powders. Cartridge cases can also be corroded by salts or acids.

### **Corrosive Primer**

A primer whose burnt residue is hygroscopic (attracts moisture) and forms chemicals that can cause corrosion. These chemicals will rapidly rust a bore unless removed with a water-based solvent. All component primers in the U.S. have been non-corrosive for decades

### **Crimp**

The bending inward of the mouth of the case in order to grip the bullet, or to close the mouth of a shotshell case. Two types are used. A roll crimp is the bending or rolling the mouth of the case into the crimp groove or cannellure of the bullet. In a taper crimp, the mouth of the case is pressed into the bullet body without bending the case mouth.

### **Crimped Primer**

A forcing inward of the brass around the top of the primer pocket to prevent set-back of primers. This is usually found on military cartridges intended for use in fully automatic weapons. Unless the crimp is removed after depriming—either by swaging or reaming—repriming of the case is very difficult.

### **Cupro-Nickel**

A copper-nickel alloy once used extensively for bullet jackets. It was largely replaced by gilding metal because of barrel fouling problems.

## **D**

### **Deburr**

To remove burrs or roughness sometimes left on case mouth edge by trimming operation. See chamfer.

### **Decap or Deprime**

To remove or eject a primer from its primer pocket. Usually done by the decapping pin in the sizing or expanding operation.

### **Deterrent Coating**

A chemical coating applied to the surface of powder granules to control the burning characteristics of the base powder. Aply described as a "temporary fire-proofing" of a powder kernel.

### **Die**

In handloading, a tool to form or reform cases or bullets by cold-working, or to seat bullets.

### **Double-base Powder**

Nitrocellulose (smokeless) propellant that uses nitroglycerine as the plastisizer.

## **Drag**

see air resistance

## **Dram Equivalent**

In shotshells, a term used to indicate that a charge of smokeless powder produces the same velocity as a given number of drams of black powder. Thus, a 3 dram equivalent load has a charge of smokeless powder that gives the same velocity as a similar load charged with 3 drams of black powder. One dram equals 27.3 grains.

## **Drift**

In exterior ballistics, the deviation of a projectile from the line of departure due to its rotation or spin. Also commonly but incorrectly applied to the effects of wind. See wind deflection.

## **Drop**

The distance a projectile falls due to gravity, measured or calculated from the line of departure as it travels downrange. Must be corrected for difference between line of sight and line of departure. Drop is normally reported assuming a horizontal barrel.

## **Duplex Load**

A dangerous condition that uses two different powders in loading the same cartridge. There is little or no advantage to duplex loading in small arms and results are unpredictably dangerous.

## **E**

### **Elevation**

The vertical adjustment of a sight to bring the point of aim into coincide with the desired point of impact.

### **Energy**

The amount of work capable of being done by a projectile at a given range, expressed in foot-pounds in the English system. Found by multiplying the square of the velocity in feet/sec by the weight of the bullet in grains and dividing by 450,400.

### **Engraving**

The marks made on the bullet by the rifling.

### **Erosion**

The wearing away of the bore of a firearm due to friction from the projectile, the action of hot powder gases, or the abrasive effects of partially burned powder grains.

### **Expander Ball or Button**

The round steel part of a die that expands the sized neck of a cartridge case to the diameter needed to hold the new bullet firmly.

### **Expansion Ratio**

Ratio of interior case volume to bore volume.

### **Extruded Primer**

A primer that, on firing, has the metal of the primer cup forced back into the firing pin hole in the face of the bolt. Also known as cratering. Usually a gun problem, not a pressure sign.

### **Extruded Tubular Powder**

Another term for cylindrical powder. Formed by forcing damp propellant mix through a die during manufacture and cutting to desired lengths. Usually has one or more longitudinal holes through the grains.

### **Extrusion**

A shaping process that forces a solid mass through a hole of smaller diameter to produce a wire; used in the manufacture of bullet cores.

## **F**

### **Fireform**

Using the pressure of normal firing to shape a cartridge case to fit a given chamber.

### **Firing Pin**

That part of a gun's mechanism that strikes the primer to start ignition.

### **Flake Powder**

A smokeless powder characterized by thin, disc-shaped granules.

### **Flash Hole**

The hole leading from the primer pocket into the body of the cartridge case. Also called the vent.

### **FMJ**

Full metal jacket. See metal case.

### **Foot-pound**

A unit of kinetic energy in the English system defined as the effort required to raise one pound to a height of one foot against the force of gravity.

### **Forcing Cone**

The slope of the forward end of the chamber of a rifle or shotgun which decreases the chamber diameter to bore diameter. In a revolver, the bevel in the rear of the barrel just ahead of the cylinder.

### **Form Factor**

A multiplier which relates the shape of a bullet to the shape of the standard or reference projectile used to determine the ballistic coefficient.

### **FPS**

Feet per second, a measure of velocity in the English system. Also feet/sec, ft/sec, or fs.

### **Freebore**

The distance, if any, which a bullet travels upon firing before it contacts the origin of the rifling.



## **Frontal Ignition**

Experimental type of cartridge ignition system where primer flash is directed to the forward part of the powder charge through a metal tube.

## **G**

### **Galling**

Friction between a case and sizing die producing roughness on the case and case metal deposited on the die surface.

### **Gas**

In handloading, the vapor produced by burning powder. This heavy gas is capable of expanding rapidly, creating sufficient pressure to propel the bullet at high speed.

### **Gas Check**

A copper or brass cup used to prevent hot, high-pressure powder gases from deforming the base of lead bullets.

### **Gilding Metal**

A copper-zinc alloy used for bullet jackets. Defined as 95 parts copper to 5 parts zinc. Commercial bronze (90 copper, 10 zinc) is also used for jackets.

### **Grain**

In English weight measure, 7000 grains equal one pound; 437.5 grains equal one ounce. Incorrectly used in referring to a granule, or kernel, of powder. Thus "35 grains of powder" always refers to 35 of the weight-unit grains, never to 35 individual granules of powder.

### **Grand Slam**

An honorary award to a hunter who has collected the four varieties of North American wild sheep. Also the trademark of the premium hunting bullet made by Speer.

### **Granulation**

Refers to powder grain size and type. Can apply to either black or smokeless powder.

### **Grease Groove**

Lubricating groove. On a lead bullet, a circumferential groove used to hold lubricant.

### **Grooves**

Spiral cuts or impressions in the bore of a firearm that cause a bullet to spin as it moves through the barrel. See rifling.

### **Group**

The pattern made at the target by a number of bullets fired with one aiming point and usually one sight setting. Usually measured from center to center of the holes farthest from each other.

### **Gun Powder**

Propellant explosive used in small arms. Can be either smokeless or black powder.

## **H**

### **Half-jacket**

A short bullet jacket, or a bullet swaged with a short jacket, which leaves some lead in contact with the bore. A three-quarter jacket is similar but longer, so the bearing surface of the bullet is covered by the jacket material.

### **Handloading**

The practice of loading or reloading small arms ammunition by hand-powered equipment and methods.

### **Hangfire**

Slang term for a delayed firing, which is any detectable delay in the ignition of a cartridge after pulling the trigger. Can be a chemical delay caused by the cartridge or a mechanical delay caused by a defect in the firearm. Chemical delays are recognized as being less than 0.3 second. The use of modern lead styphnate priming has virtually eliminated the chemical delay. Chemical delays were more common with the now-obsolete potassium chlorate priming compounds.

### **Headspace**

The distance from that surface of the barrel or chamber that prevents the cartridge from moving further forward into the chamber, to the face of the breech with the action fully closed and locked. This is the most important dimension governing the safety of the shooter.

### **Heel**

The edge of the bullet base.

### **Holdover**

The vertical distance a shooter must aim above a target to obtain a hit at ranges greater than the gun's "zero." See zero.

### **Hollow Point (HP)**

Bullet design feature; an axial hole in the tip of a bullet to speed the release of energy into a target and reduce the chance of over-penetration.

### **Hot-Cor**

The trademark for Speer's exclusive process of manufacturing flat-base rifle bullets. A molten core is poured into a clinically clean jacket and then the bullet is immediately swaged to shape, with a resulting tight bond between core and jacket.

### **Hydrostatic Shock**

A pressure wave created by a bullet passing through animal tissue, which is high in water content.

## **I**

### **Ignition**

The initiation of burning, either of a priming compound or a propellant.

### **IHMSA**

International Handgun Metallic Silhouette Association.

### **Improved**

Term used to indicate a standard cartridge case which has been altered by fireforming to reduce body taper and/or increase shoulder angle. Improved cases have greater powder capacity than the corresponding standard case.

### **IMR**

Abbreviation for "Improved Military Rifle," a trademark of DuPont (now IMR Powder Company) to its line of single-base rifle powders.

### **Ingalls' Tables**

Ballistic tables computed by Col. James M. Ingalls and first published in 1918. The most widely used ballistic tables in the U.S. prior to the development of computers.

### **IPSC**

International Practical Shooting Confederation.

### **J**

#### **Jacket**

The cover or "skin" of a bullet. Usually made of gilding metal in the U.S., but copper-clad mild steel is also used in other countries. See cupro-nickel and half-jacket.

### **K**

#### **K (used as a prefix)**

Applied to cartridge case improvements developed by experimenter Lysle Kilbourn. Example: the 22 K-Hornet.

#### **Keyhole**

The elongated imprint of a bullet on a target that shows that the bullet was not traveling point-on at the time of impact.

### **L**

#### **Lands**

The spiraling raised portion of a rifle barrels interior remaining after the grooves have been cut or formed.

#### **Lead Crusher**

A pure lead cylinder used in a pressure gun for obtaining lead units of pressure (L.U.P. or lup). Formerly used to test low-pressure cartridges such as shotshells, this system is now obsolete in the U.S.

#### **Leade**

See throat or freebore.

#### **Leading**

Lead deposited in the bore from the friction of lead bullets rubbing against the bore, or from gas-cutting of lead

bullets. A form of metal fouling, some leading is normal; however, excessive leading can destroy accuracy and raise pressures.

### **Line of Departure**

The straight line at which a bullet leaves the muzzle of a firearm, equivalent to the axis of the bore extended into space. The bullet immediately falls away from this imaginary line due to gravity.

### **Line of Sight (LOS)**

The straight line through the sights of a gun to the point of aim.

### **Loading Block**

A block of material, usually wood or plastic, with rows of holes to conveniently hold a number of cartridge cases during the loading operation. Especially useful when charging cases with a powder measure.

### **Loading Density**

Ratio of the volume of powder charge to the volume of the case.

### **Lock Time**

The period of time between the release of the sear by trigger movement and the instant the priming mixture detonates after being hit by the firing pin.

### **Locking Lugs**

Protrusions on the bolt which engage a mating recess inside the receiver ring when the bolt is closed. This feature prevents the bolt from moving rearward when the rifle is fired. Usually used in reference to rotary bolt-action firearms.

### **Lubricant**

Case sizing lubricant is used to reduce friction when sizing cartridge cases. Bullet lubricant is used to help minimize leading when firing lead alloy bullets.

### **Lubricator-Sizer**

A tool used to simultaneously size and lubricate cast lead bullets. Often contracted to lubrisizer.

## **M**

### **Magnum**

Originally, a large wine bottle. In shooting, it refers to a cartridge of exceptional size or power. First applied to large bottleneck cartridge, hence the name. Magnum is more of a marketing term than a technical one.

### **Mean Radius (MR)**

The average radius of a group of shots from the center of the group. Another method of recording accuracy, MR is commonly seen in military contract specifications for accuracy. Extreme spread is more commonly used to measure accuracy in commercial ammo manufacturing and hobby shooting.

### **Meplat**

The flat or blunt end of the nose of a bullet. The French pronunciation "meh-PLAY" is seldom used.

## **Mercuric Primer**

A primer in which the primary initiator is mercury fulminate. These primers have been obsolete since the advent of metallic cartridge reloading over a century ago. On firing, the compounds release minute amounts of metallic mercury. Mercury attacks the cartridge case making it brittle and thus unsuitable for further loading.

## **Metal Case (MC)**

Also Full Patched (FP) or Full Metal Jacketed (FMJ). A type of bullet in which the core is completely encased in jacket material, except for an opening on the base. Standard military bullet type.

## **Metal Fouling**

Bullet jacket material deposited in bore due to friction. More common in very high-velocity rifle cartridge, metal fouling must be removed to prevent corrosion due to the electrolytic action of the copper against the steel barrel. Metal fouling can also result from a rough bore at any velocity.

## **Micrometer**

A measuring instrument with a fine screw adjustment for measuring very small distances. Usually calibrated to read in increments of 0.001" or 0.0001".

## **Mid-range Trajectory (MRT)**

The highest vertical distance of a bullet above the line of sight at a point approximately halfway from muzzle to target or point of aim. The MRT varies with the zero range for a given load. Also called the maximum ordinate.

## **Minute-of-angle (MOA)**

A unit of angular measurement equal to 1/60th of a degree. Although usually approximated as one inch per 100 yards, it is actually equal to 1.047" per 100 yards.

## **Misfire**

Complete failure of a cartridge to discharge after the primer is struck by the firing pin.

## **Mould Blocks**

Two "mirror twin" pieces of metal having a bullet-shaped cavity in which lead bullets are cast from molten lead.

## **Mushroom**

The ability or capacity of a bullet to increase its diameter upon impact with animal tissue. The name comes from the desired shape after expansion.

## **Muzzle**

The front end of a barrel. The point at which a projectile leaves the barrel.

## **Muzzle Blast**

The compression of air caused by hot, high-pressure powder gases jetting from the muzzle of a gun.

## **Muzzle Brake**

A deflector fitted to a gun muzzle to deflect exiting gases. Usually used to reduce recoil by redirecting the jet effect of muzzle blast. Also called a recoil compensator, or comp for short. See compensator.

### **Muzzle Energy (ME)**

The energy of a bullet at the muzzle. At this point a bullet's energy is highest. See energy.

### **Muzzle Pressure**

Gas pressure in the barrel at the muzzle at the instant the bullet leaves the muzzle.

### **Muzzle Velocity (MV)**

See velocity.

## **N**

### **NBRSA**

National Bench Rest Shooters Association.

### **Neck**

The portion of a cartridge case that grips the bullet. In a bottlenecked case, the cylindrical portion of the case in front of the shoulder.

### **Neck Down or Up**

To change the diameter of the case neck during case forming.

### **Neck Expansion**

The act of expanding a sized case neck by pulling it over an expander plug or button.

### **Neck Ream**

Reducing neck wall thickness from the inside with a reamer. Commonly performed when forming a short case from a much longer one, such as the 300 H&H to 6.5mm Remington Magnum conversion.

### **Neck Size**

To resize part or all of the neck only, leaving the case body unchanged.

### **Neck Turn**

Reducing neck wall thickness from the outside by cutting or grinding.

### **Non-corrosive**

Cartridges or primers with priming mixture that does not contain any compound capable of causing rusting or corrosion of bore or adjacent parts. All commercial small arms primers made in the U.S. and most military ammunition produced since 1954 has non-corrosive primers, although it is well to clean the bore promptly when in doubt.

### **Non-mercuric**

A priming mixture containing no mercury compounds.

### **NRA**

National Rifle Association. If you haven't joined, don't put it off!

## **NRMA**

National Reloading Manufacturers' Association.

## **NSSF**

National Shooting Sports Foundation.

## **O**

### **Ogive**

The curved portion of a bullet ahead of the cylindrical, or shank, section. Also, the radius of this curve, usually expressed in calibers.

### **Oil Dent**

Dent in a cartridge case formed by too much oil or lubricant when sizing. Usually seen on the shoulder of bottleneck cases.

### **Overbore Capacity**

A common but unscientific term referring to a cartridge case that has too much case volume for its bore volume. Technically, every case can be over its bore capacity with some powder. Generally used when a case has a volume so large in relation to the bore diameter that only the very slow burning powders will give satisfactory performance, or very little velocity is gained by adding more powder.

## **P**

### **Parallax**

In telescopic sights, the condition that exists when the reticle (crosshairs) does not lie exactly on the image plane. Excessive parallax makes the shooter's eye position very critical if repeatable accuracy is to be obtained. Most lower power scope have the parallax pre-set at 150 yards; high-magnification scopes (10X and up) commonly have an adjustable objective to correct for various distances.

### **Patched or Paper-patched Bullet**

A bullet with a wrapped paper "patch" commonly used in older black powder cartridges. Derived from the even older cloth patch used to wrap a muzzle-loader ball. The patch helped seal the powder gases and reduced bore leading, and was an evolutionary step towards today's metal bullet jackets.

### **Pattern**

The way a shotgun places its shot load. Generally measured as the percentage of pellets that strike in a 30" circle at 40 yards. Has been jokingly used to describe a very poor rifle group.

### **Pierced Primer**

A primer that has been punctured; caused by a defective firing pin, a weak firing pin spring or excessive clearance between the firing pin and breech.

### **Plinking**

Informal target practice commonly at informal targets. Shooting for fun where no one keeps score.

## **Point of Aim**

That point on which a gun's sights are aligned; the intended spot where the shooter wants his bullet to strike.

## **Port Pressure**

In a gas-operated firearm, the pressure measured at the gas port leading to the piston assembly.

## **Powder**

The propellant material used in most gun systems. Divided into two basic types: smokeless powder and black powder. It is produced in a wide variety of types, forms and brand names intended for specific applications. It varies chiefly according to burning speed. The fast-burning types are used for light bullets in short barrels at low velocities: slower-burning powders are used in longer barrels and in greater quantities to drive the bullet at higher velocities. Most powder contains a major percentage of nitrocellulose, with small traces of other compounds intended to control burning rate or prevent deterioration; such powder is called single-base; smokeless powders containing a percentage of nitroglycerine are called double-base. Powders containing substantial amounts of other organic nitrates are called multi-base. Further identified by shape of individual kernels or granules. See ball powder, flake powder and extruded tubular powder. Black powder is a mechanical mixture of sulfur, charcoal, and saltpeter. It is now used primarily in muzzle-loading guns.

## **Powder Bridging**

A condition that may occur in the drop tube of a powder measure. The powder kernels interlock and wedge together to block free passage. A "log jam" of powder. Most common with long, cylindrical powder kernels. Can be compared to an arch construction in a bridge.

## **Powder Measure**

A mechanical device to meter powder charges by volume. Used to speed the charging process. Must be set using a reloading scale.

## **Powder Scale**

A sensitive measuring device used to accurately weigh small charges of powder. Designed expressly for cartridge reloading, it is usually graduated to permit weighing to units as small as 1/10th grain.

## **Powder Trickler**

A mechanical accessory that dribbles a few powder granules at a time, used with a powder scale.

## **Pressure**

The force exerted by a burning charge of powder in the chamber of a gun. Expressed normally as the peak pressure in pounds per square inch (psi) or copper units of pressure (cup) depending on the test equipment.

## **Pressure Gun**

Device for measuring chamber pressure generated by a cartridge. Usually of the "crusher" type or of the electronic "transducer" type. Both types were used in the development of the Speer Reloading Manual.

## **Pressure-Velocity Ratio**

Numerical comparison of velocity to pressure in a specific cartridge with given bullet and powder.

## **Primer**



Also called "cap", deriving from the percussion caps used with some muzzle-loading arms. In a centerfire cartridge, the small metal cup contains a detonating mixture which is used to ignite the propellant powder. The primer is seated in the primer pocket in the base of the cartridge case. The standard American type of primer, the "Boxer," also contains an anvil. Electrically fired primers are used in some military weapons and in some experimental European sporting arms. In a rimfire cartridge the priming mixture is contained within the rim of the case. See anvil, Berdan, and battery cup.

### **Primer Flipper**

A two-piece metal or plastic tray for orienting and turning primers. Facilitates loading of primer tubes in semi-automated equipment.

### **Primer Indent**

Depression made in primer by firing pin. Also called the firing pin impression.

### **Primer Leak**

The venting of high-pressure gas between primer and primer pocket wall. Usually indicates a damaged primer pocket, and can erode the breech face of a firearm.

### **Primer Pocket**

The cavity in the base of a centerfire cartridge case made to receive and support the primer.

### **Primer Pocket Reaming or Swaging**

Two methods for removing the primer pocket crimp from military cases.

### **Primer Punch**

A tool part which inserts the primer.

### **Priming Tool**

A specialized tool which does only the priming operation. Usually used in reference to off-press priming.

### **Progressive Burning**

Characteristic of a powder which burns at a predictable rate, producing a gradual pressure build-up to safely accelerate the bullet.

### **Progressive Reloading Press**

A reloading press designed to perform different operations on multiple cases with each pull of the press handle. Cases progress through the device via an indexing system, stopping at each tool station for processing. Used to increase the output of cartridges per hour of reloading. Intended for advanced, experienced reloaders needing volume production; not recommended for the novice. Contrast to single-stage reloading press.

### **Projectile**

A bullet or any other object projected by force and continuing in motion by its own inertia. Note: A bullet is not a projectile until it is in motion.

### **Proof Cartridge**

A special cartridge used to test a new or repaired firearm for strength and safety. Usually about 25% higher pressure

than normal maximum pressure. Not commercially available.

### **Propellant**

The technically correct term for ballistic chemical used to propel a projectile. See powder.

### **Protruding Primer**

A primer which partially backs out of the primer pocket on firing. Usually an indication of low firing pressure.

### **Pyrodex®**

A recently developed black powder replacement designed primarily for use in percussion muzzle loading arms, black powder cartridges and muzzle loading cannon. Manufactured and distributed exclusively by Hodgdon Powder Company.

### **Q**

### **R**

### **Ram**

The main plunger or shaft of a metallic ammunition reloading tool.

### **Range**

1. A place where shooting is conducted. 2. The horizontal distance of travel of a projectile from gun to target.

### **Ream**

To remove metal from a cavity with a rotary cutting tool.

### **Rebated Rim**

In cartridge case design, a case whose rim is smaller than the body. Examples: 284 Winchester and 50 Action Express.

### **Recoil**

The backward thrust or "kick" of a gun caused by the powder gases pushing the bullet through the bore and the jet effect of the gases themselves.

### **Recoil Buffer**

A cushioning device to help reduce action battering; most commonly used in semi-automatic firearms.

### **Reloading Press**

A tool used in reloading ammunition. Usually has some form of mechanical advantage to reduce effort in resizing or reforming cases. Available in several basic types known by the shape of letters of the alphabet; "O" types are most common today, but "H" and "C" types have been used also.

### **Remaining Energy**

The residual or "down-range" energy of a projectile, measured in foot pounds, at a given distance from the muzzle.

### **Remaining Velocity**

The residual speed of a projectile at a given point on its trajectory.

### **Reticle**

The aiming indicator at the focus of a telescopic sight. May consist of straight or tapered lines (crosshairs), dots, posts, or some combination thereof. Some scopes have auxiliary marks for range estimation.

### **Rifling**

Spiral grooves cut or impressed into the bore of rifles and pistols in order to make the bullets spin, insuring stable flight to the target. See grooves and lands.

### **Rim**

The feature at the base of most cartridge cases in which the extractor engages to pull a fired cartridge from the chamber. In England this is called the flange. See rimless and rimmed.

### **Rimfire (RF)**

Cartridges which contain the priming mixture within the rim. This type is not reloadable under any practical conditions.

### **Rimless**

A case head type; actually a misnomer. Rimless cases have a rim, but it is the same diameter as the case body so it does not protrude. An undercut extraction cannellure or groove provide a surface for the extractor to grip. Example: 30-06 Springfield

### **Rimmed**

A case head type whose rim protrudes beyond the case body. Example: 30-30 Winchester.

### **Round**

A military term meaning one complete cartridge.

### **Round Nose**

Bullet design feature; a blunt, spherical nose shape.

### **Rupture**

Also separation. In shooting, a failure or break in the wall of a cartridge case, usually allowing gas to escape.

## **S**

### **SAAMI**

Small Arms and Ammunition Manufacturers Institute. The organization which establishes firearms and ammunition standards in the United States.

### **Sabot**

From French for "shoe". In modern small arms usage, a light-weight carrier or holder in which a sub-caliber projectile is centered to permit firing the bullet in a larger caliber barrel. Sabots are usually the discarding type; they fall away from the bullet soon after exiting the gun barrel. Pronounced "SAY-bo."

## **Seating Depth**

In a loaded cartridge, the depth to which the base of the bullet is seated below the case mouth.

## **Sectional Density**

A bullet's weight in pounds divided by the square of its diameter in inches.

## **Shank**

The cylindrical section of a bullet below the ogive. The shank usually defines the bearing surface.

## **Shell Holder**

The part of a reloading press that holds the head of the cartridge case on the ram.

## **Shock**

See hydrostatic shock.

## **Shock Wave**

The compression wave formed whenever the speed of a projectile relative to air or other medium exceeds that at which the medium can transmit sound.

## **Shot**

The lead alloy spheres, sometimes copper or nickel-plated, that are used for the projectiles in shotguns. Chilled shot is hardened. Drop shot is very soft.

## **Shoulder**

The sloping or rounded part of a bottleneck cartridge case between the neck and the body.

## **Sighting in**

Firing a rifle or pistol to determine its point of impact at a specified range and adjusting the sights so the point of impact has the desired location with regard to the point of aim.

## **Single-base Powder**

Nitrocellulose powder made without the addition of any other highly nitrated chemical such as nitroglycerine. See double base powder.

## **Single-stage Reloading Press**

A reloading press that hold only one reloading die at a time. For example, a sizer die is inserted and all cases are sized individually, then the sizer is removed and replaced with another die and a different operation is performed on all cases. Contrast to progressive reloading press.

## **Sizing**

Also resizing. Reducing a fired cartridge case to dimensions that allow easy chambering in a firearm of the appropriate caliber. May be full length, partial, or neck sizing. Bullets are also sized or reduced in diameter by forcing through a die.

## **Slug**

A large, single projectile, often bearing external pre-cut rifling, intended for adapting shotguns to the hunting of larger game such as deer. Also a slang term for bullet. As a verb, "to slug" means forcing a soft lead slug through the bore of a gun and measuring it to determine barrel dimensions.

### **Smokeless Powder**

A nitrocellulose-based propellant. Leaves a non-corrosive residue, but normally produce small amounts of smoke. Named because smoke production is very small compared to the older black powder.

### **Soft point (SP)**

Bullet design feature in which a portion of the lead alloy core is exposed at the tip of a jacketed bullet.

### **Spent**

In shooting, a cartridge or component thereof that has been fired.

### **Spherical Powder**

A registered trademark of Hodgdon Powder Company use to describe round or semi-round grained powders. See ball powder.

### **Spin**

The rapid rotation of the projectile caused by the spiral rifling of the bore. At the muzzle of a high-velocity rifle, spin can be in excess of 300,000 revolutions per minute.

### **Spire Point**

A conical pointed bullet. The line from the shank to the point is nearly straight. See the .308" 110 grain bullet in the 30 caliber rifle section for an example.

### **Spitzer**

Bullet design feature from German for "point". A bullet with a pointed nose. The line from the shank to the tip is arched. Compare to spire point above.

### **Stabilize**

To spin a projectile around its long axis rapidly enough to keep it point-on in flight.

### **Swage**

To form by forcing into or through a die. Rhymes with "age".

## **T**

### **Throat**

That area of the bore immediately ahead of the chamber tapering to the point where the rifling starts. See also leade or freebore.

### **Time of Flight (TOF)**

The elapsed time, in seconds, of a bullet's flight from muzzle to a given point.

### **Trajectory**

The path of the projectile in flight relative to the line of sight.

### **Transducer**

In ammunition research, a device containing a quartz crystal which develops a voltage directly proportional to the pressure applied to it. Used for electronic measurement of chamber pressures.

### **Twist**

The angle of the rifling in relation to the axis of the bore. Usually measured by the length of barrel required to rotate a bullet one complete turn. A barrel rifled with a 1-in-10" twist rotates the bullet faster than one with a 1-in-12" twist. Therefore, small second numbers indicate barrels with a "faster" twist rate.

## U

### **Upset**

1. The tendency for a bullet to become more cylindrical on firing due to inertia. Also known as slugging. 2. The expansion on impact of a hunting bullet. See mushroom.

### **USPSA**

United States Practical Shooting Association

## V

### **Varmint**

A variation of "vermin". A wild animal or bird considered a pest, usually not covered by game regulations.

### **Velocity**

The speed of a projectile. Usually measured in feet per second (fps) at a given range.

### **Vernier Caliper**

A simple slide-type precision measuring tool used by handloaders. "Vernier" refers to the readout mechanism. The dial caliper is becoming more popular because its dial permits faster and less error-prone readings

## W

### **Wad**

A disc of paper, felt, cork, plastic or other material used primarily in shotshells to separate powder from shot. Can be over-powder, filler or a combination of these. Speer shot capsules for handguns feature a wad to seal the bore.

### **Wadcutter**

A cylindrical, sharp-shouldered bullet, usually for a revolver, designed to cut a clean round hole in a paper target for maximum score in competition.

### **WCF**

Winchester Center Fire. A proprietary name applied to several cartridges developed by Winchester

### **Web**

That part of a cartridge case between the bottom of the primer pocket and the interior of the case. The web is pierced by the flash hole.

### **Wildcat**

A cartridge formed by altering an existing commercial case to make a style that is not available from ammunition companies. Usually applied to cartridge development by hobbyists instead of industry ballisticians. SAAMI dimensional and pressure standards do not apply to wildcat cartridges.

### **Wind Deflection**

Lateral change in the path of a projectile due to crosswind effects. Also called "wind drift."

### **Windage**

The amount of sight correction, left or right, applied to compensate for wind deflection of a projectile.

### **Work-hardening**

The change in hardness of metal due to repeated cold flexing or stress. In reloading, continued sizing of a case can work-harden the metal until cracks appear. See annealing.

### **Working-up**

1. The process of developing a safe maximum load by starting with a lower powder charge and increasing it in small steps only after firing and checking for signs of pressure at each point along the way. 2. Accuracy testing of known safe loads in a step-wise manner.

## **X**

## **Y**

### **Yaw**

A normal situation where a bullet tips on its axis at a small angle to the line of flight just after leaving the barrel. In yaw, a bullet's tip is normally on the axis of the path but the base is spiraling around that axis. The spin of the bullet causes it to settle into stable flight with both tip and base on the same path axis, usually within 40 to 100 yards for a rifle. If the bullet is fired too slowly, or in a barrel with insufficient twist rate, the bullet never stabilizes and the yaw grows into a full tumbling motion.

## **Z**

### **Zero**

More correctly, "Zero Sight Adjustment." That adjustment of a gun's sights placing a properly aimed shot at the desired point of impact at some range with a given load, in the absence of wind. The basis from which subsequent sight adjustments are made.

### **Zero Range**

The distance at which the bullet path exactly coincides with the line of sight (LOS). Each gun/load combination actually has two zero ranges—one near the muzzle as the bullet rises through the LOS and another at some greater distance where the bullet descends through the LOS. Normally, it is the second zero range that most shooters recognize.

