

a power of penetration greatly in excess of any previously noted, and highly desirable for military purposes.

Unfortunately, this extreme penetration becomes an actual disadvantage under certain conditions (such as usually obtain in sport), and great disappointment was caused at first by the feeble stopping power of these bullets when used against big game. It was soon discovered, however, that by filing the extreme point flat, or by leaving it without mantle, or by other equally simple variations of the standard military projectiles, the bullet would expand upon impact, showing much less penetration, but making a larger orifice, thus producing equal effects upon animal tissues to a leaden, low-velocity bullet of wider caliber.

The foregoing will serve as an introduction to the series of bullets that represent the latest advances of American manufacturers.

The smallest caliber for which a high velocity, nitro-cartridge, suitable for military or hunting purposes, has been manufactured in the United States is the .236. The point blank range of this cartridge fired from a suitable rifle is for military purposes between 600 and 700 yards, within which the trajectory of the bullet is so flat as to make the entire range a zone of danger, and at a range of 1000 yards the bullet rises at the highest point of its trajectory but 24 feet. The rifling must have turn of 1 in  $7\frac{1}{2}$  inches to keep this bullet of .423 diameters point on, and consequently the breech pressures must be high, and nothing but steel having a high tensile strength will bear the strain. The rifle manufacturer has, however, at his command a choice of material which permits him to indulge in charges giving even higher pressures than this with perfect safety. As a sporting weapon with soft-pointed bullets the .236 has not been in such request as the larger calibers, yet there can be no doubt it is sufficiently powerful to account for any American animal if its bullet be accurately placed. The striking force is 1563 foot pounds, while the Ojibway hunter kills his moose, caribou and bear with a 44-40-200, the energy of which is but 691 foot pounds. With a soft-pointed

bullet, the charge under consideration has a far more damaging effect, than those not intimately acquainted with the power of the high velocity charge will credit.

The .25-35 Winchester and the .25-36 Merlin may be considered as identical, for the charge is in each case 21 grains of Dupont or Laffin & Rand .30 caliber smokeless powder and a half-mantled bullet with soft lead point, 117 grains in weight. This cartridge is extremely accurate, strings of 10 shots within a 4-inch circle at 200 yards being quite possible, and is naturally pleasant to shoot, but its energy being but about 1008 foot pounds, such a charge should be reserved for animals not exceeding the Virginia deer, and the antelope. While the .25-35 would undoubtedly be sufficiently powerful for any animal under conditions favorable to the shooter, the sportsman always prefers to have a little power to spare. One great advantage of this caliber is that a short range cartridge with lead bullets of 67 to 86 grains and 20 grains F.F.G. black powder, or 8 to 10 grains of Laffin & Rand's "Sporting Rifle Smokeless," may be used with excellent results upon small game up to at least 100 yards.

The 30-30-160 is one of the most popular cartridges we have. It is a delightful charge, having great accuracy, considerable killing power, and giving a recoil which is insufficient to be unpleasant. Moreover, a light rifle may be used, and the breech pressures are very moderate. This charge is effective for antelope, deer, and, under favorable conditions, for caribou and moose, but it is not recommended for grizzly, or for sheep, and is not as sure in its results upon even moose and caribou as later and more powerful cartridges. The 30-30 will kill any game we have on this continent, but the bullet must be excellently placed to bring down in its tracks an old bull moose or a silvertip in good health and condition. With a 1 to 20 lead bullet of 100 grains and a charge of 10 grains of Du Pont No. 1, Laffin & Rand "Sporting Rifle Smokeless", or 10 grains E. C. "Smokeless Rifle Powder, No. 7" the 30-30 makes an admirable weapon for small game up to 100 yards.