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The Curious Conduct of

By Sir Sydney Smith

Excerpted with permission from "Mostly Murder" by Sir Sydney Smith, C.B.E., LL.D., M.D., F.R.C.P., Emeritus Professor of Forensic Medicine, Edinburgh University. Published by David McKay Co.

WHEN A PROJECTILE traveling at high velocity suddenly strikes a resistant body, the tip of the bullet is checked in flight, whereas the rest of it continues at the original speed. As a result the hinder end passes over the body of the bullet, just as the finger of a glove is turned inside out when it is drawn off the finger by pulling on the wrist portion. At the same time there is a splashback at the point of entrance which gives the appearances of an exit hole.

These odd effects are readily explicable, but they can cause a lot of trouble to anyone investigating the results of rifle fire who does not know these facts. The behavior of high-velocity projectiles at short ranges is rather extraordinary and is also little known.

When a rifle is fired the bullet leaves the barrel at a speed of about 2500 feet per second. It is spinning at between 2000 and 3000 revolutions per second, and at short ranges—that is, between 200 and 300 yards—it tends to have a certain degree of wobble. A similar wobble can be seen in the spinning of a top. When a top is spun it first gyrates unsteadily round its center of gravity, and then settles down and spins without any deviation at all. A bullet does the same; and if it strikes anything while it is still unstable the effects may have all the appearance of an explosion.

Mistakes of Inexperience

IF A HIGH-VELOCITY bullet is fired into soft clay it does not, as one might expect, pass through it. After tunneling in for a few inches it suddenly produces a cavity many times its own diameter, and quite frequently the bullet itself is smashed into fragments. An inexperienced observer might infer that only an explosive or dumdum bullet could do this. A similar inference could be drawn, with possibly more serious results, when a human body is struck by an ordinary rifle bullet within 200 or 300 yards with the same explosive effects.

An example of these effects was seen in a case that occurred in Edinburgh in 1940.

On July 12, at about midnight, a police car containing three police officers and the Assistant Chief Constable was proceeding toward police headquarters at about 40 miles an hour. Two of the officers were in the back, and the third was driving. The Assistant Chief Constable was sitting beside the driver. An air raid alarm had sounded, and when the car approached the city it was challenged by a sergeant of the Royal Air Force. It did not stop, and the sergeant fired his rifle at the car. The bullet passed through the rear celluloid window of the car and struck the Assistant Chief Constable on the chin. The car was stopped, the sergeant was arrested and the Assistant Chief Constable was then driven to the Royal Infirmary. He was found to have a severe bullet wound of the face and a fracture of the lower jaw. Septic infection occurred, and after three days he died.

At the post-mortem examination I found a clean-cut entrance wound of the bullet on the right side of the lower jaw, and a lacerated exit wound on the left. This exit wound was three and a half inches long, and ran up from the level of the chin toward the lobe of the ear. It had the appearance of bursting outward. The lower jaw was smashed into fragments, but the appearance of the entrance wound showed that the bullet was intact when it struck. It appeared to have merely touched the jaw bone in the region of the chin, and then its velocity and spin caused complete disintegration of the bone. In among the broken bone there were a few fragments of the bullet, which had itself disintegrated after striking the chin.

Effects of a Single Bullet

WHEN THE CAR WAS examined not one but a number of bullet marks were found. There were two holes in the license holder and the windscreen under it, each of which looked as if it had been caused by a separate bullet. The upper part of the left traffic indicator had also been pierced, and there were several other marks apparently produced by the passage of projectiles. On the upper bar of the windscreen frame there was an oval dent about an inch in length, in which some metal had been deposited, and which appeared to have been made by a .303 bullet. In and round the windscreen, on the woodwork in front of the passenger seat, on the seat and on the hood, the police found more bits of lead and nickel and fragments of human tissue and bone. On the back seat a portion of a .303 bullet was found, consisting of the aluminum tip and the cupro-nickel jacket.

When the car was first examined it was thought that a number of shots had been fired. From the holes in the windscreen alone it seemed that two or three bullets must have struck the car. However, all the eyewitnesses spoke of only one shot being fired, and one cartridge case only was found on the scene; out of a clip of five bullets the remaining four were still in the rifle, one in the chamber and three in the magazine. Finally a reconstruction at the scene of the affair, with the actual vehicle and passengers, showed pretty conclusively that not more than one bullet could have entered the car. A single bullet, then, had produced all these bizarre effects—the bullet that had hit the Assistant Chief Constable on the chin . . .

Explosion Without Substance

IN THE CASE I have just described the bullet exploded after merely touching the bone at the chin. Shortly afterward I saw a similar case of a bullet exploding when no solid substance was struck at all.

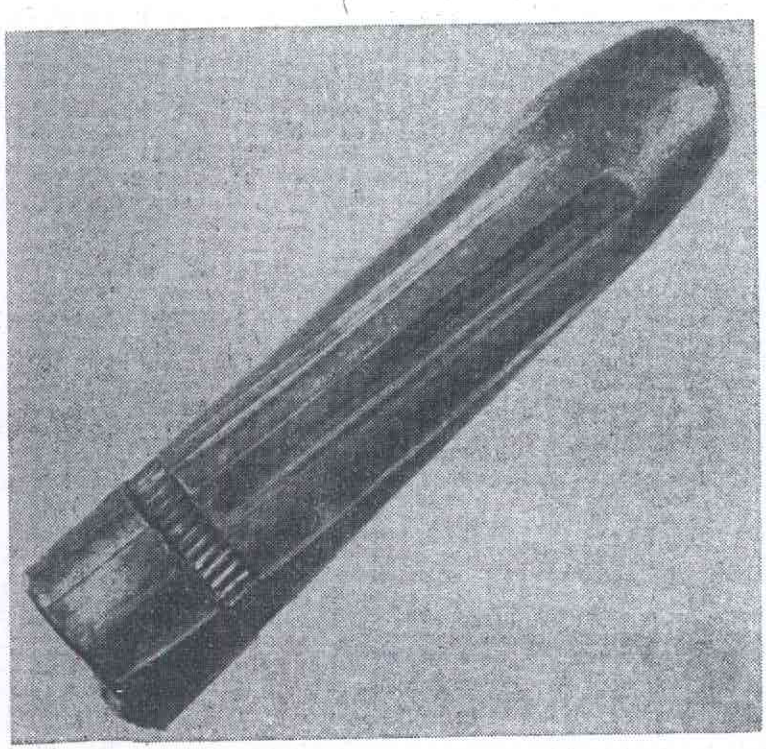
A young deserter was fired at from a distance of about 10 to 15 yards by a Service rifle. The bullet passed through both legs, and the man collapsed and died from hemorrhage in about an hour . . .

The bullet went in from the outer side of the left thigh, and the entrance wound was clean-cut and characteristic. The bullet traversed the fleshy part of the thigh, passing below the femur. The tissues were severely lacerated, and although the great vessels were not damaged the muscle was pulped. This damage to the muscle increased as the track approached the

a High-Velocity Projectile

exit, which was made on the inner side of the thigh. The exit hole itself was two and a half by two and a half inches; the skin was torn, and tags of muscle and tissue were projecting from it.

The bullet then entered the inner side of the right thigh. The entrance hole was a lacerated wound six by three inches in size. After destroying skin and fibrous tissue and pulping more muscle the bullet struck the lower end of the femur, smashed it into fragments, reduced a portion of it to powder and destroyed the femoral artery and nerve. A few fragments of the bullet made their exit on the outer side of the right thigh. Other fragments, innumerable and minute, were found in the tissues among the damaged muscle and bits of bone. It was evident not only that the bullet had completely disintegrated but that it had broken up in the muscles before it struck the bone.

Anyone without experience or knowledge of the circumstances of the shooting might, on looking at the wounds, have assumed that two shots had been fired, one from the left and the other from the right.

The preceding material was published ur years before the Kennedy assassina- on.