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CYRIL H. WECHT, M.D., J.D., F.C.A.P.

DETECTION AND SIGNIFICANCE OF BLOOD IN FIREARMS

HERBERT LEON MACDONELL
BRIAN A. BROOKS

RESULTS

Results of this research were not difficult to interpret. The correlation of data, however, was another matter. Initially, an attempt was made to plot dual curves—one for traces, and the second for more concentrated deposits of blood. The problem of resolving where a trace ended and a heavier concentration of blood began was strictly a matter of personal interpretation.

To simplify this task all results are reported as the maximum penetration of obvious traces of blood. Without exception, heavier concentrations of blood were detected nearer the muzzle of each weapon.

In general several results, summarized in Table 1, were obtained that are quite consistent with what was originally anticipated:

1. The larger the caliber or gauge, the greater the depth of blood penetration into the barrel.
2. Recoil-operated autoloading weapons will produce less depth of blood penetration than a weapon whose barrel does not recoil.
3. The use of magnum or similar, higher energy loads will produce more depth of blood penetration than standard ammunition (.357 versus .38 spl. magnum versus field, etc).
4. When a double-barrel shotgun is discharged at contact, considerable backscatter occurs (up to 12 cm) into the dormant barrel.



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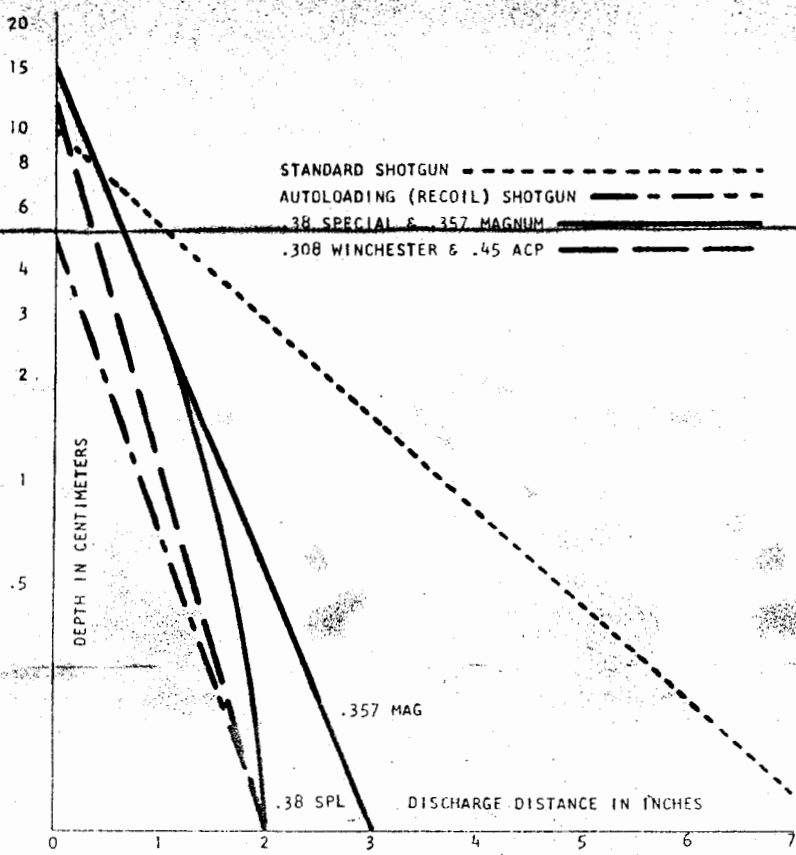


Fig. 12. Approximate depth of blood penetration into the muzzle in centimeters as a function of the discharge distance in inches.

Table 1. The Maximal Penetration of Blood into the Muzzles of Various Firearms

Weapon	Maximum Distance* (inches)
Standard shotguns, 12, 16, 20 gauge	5
Recoil-operated, auto-loading shotguns, 12, 16, 20 gauge	2
.308 Winchester	3
.45 ACP (recoil operated)	2
.357 Magnum revolver	3
.38 Special revolver	2
.22 Revolver	1-1/2

*Maximum discharge distance at which traces of blood were detected to a depth of 5 mm or greater inside the weapon's muzzle.

A more complete representation of results obtained during this study is shown in Figure 12. This graph may be useful in approximating actual muzzle-to-impact point distances. However, since all maximum distances listed are very short, this graph will find limited application. Maximum discharge distances listed in Table 1 should be far more significant.