

Fall 1961

Police Training Program Using Wax Bullets

James H. Chenoweth

Follow this and additional works at: <https://scholarlycommons.law.northwestern.edu/jclc>

 Part of the [Criminal Law Commons](#), [Criminology Commons](#), and the [Criminology and Criminal Justice Commons](#)

Recommended Citation

James H. Chenoweth, Police Training Program Using Wax Bullets, 52 J. Crim. L. Criminology & Police Sci. 347 (1961)

This Criminology is brought to you for free and open access by Northwestern University School of Law Scholarly Commons. It has been accepted for inclusion in Journal of Criminal Law and Criminology by an authorized editor of Northwestern University School of Law Scholarly Commons.

POLICE TRAINING PROGRAM USING WAX BULLETS*

JAMES H. CHENOWETH

James H. Chenoweth is Chief Deputy United States Marshal for the District of Alaska, Anchorage, Alaska. Mr. Chenoweth is a Past-President of the Alaska Peace Officers Association and was formerly an instructor in Law Enforcement, at the Anchorage Community College, University of Alaska. This is his third article to appear in our Journal.—EDITOR.

Even the most casual observer of the national scene must be aware that Alaska fosters an atmosphere naturally conducive to the establishment of hunting as both recreation and hobby. Because of this atmosphere it is surprising to find that among the obstacles which we share with police agencies outside of Alaska who conduct firearms training programs, is that of disinterest; our average police officer seldom manifests any interest in improving his ability to handle an official sidearm. This lack of interest seems to arise from two major sources. First, the unavailability—or the comparative unaccessibility—of a pistol range which can be used at a moment's notice. Second, the comparative boredom which is a byproduct of any training program restricted to the use of standard bullseye and silhouette targets. Fortunately, some recent developments in making wax bullets now allows any police agency to set up a shooting program which will be both immediately available to all personnel and capable of stirring the imagination and stimulating competitive spirit.

The wax bullet pistol range can be quickly and efficiently installed in any ordinary room without the necessity for elaborate and costly protective devices. Wax bullets are safe for use within any room constructed of normal building material. Any police agency can manufacture its own wax bullets at a cost of less than one cent per bullet because the wax and shell cases, once prepared, may be saved and re-used over and over again. The shell itself is obtained simply by collecting the expended .38 caliber shells usually abandoned in the process of carrying out any normal firearms

training program. We have found that factory wadcutter cases with no crimp and no belling of the case mouth provide us with the best results.

Next, the fired primer is removed from the empty shell by decapping it with a simple punch and base set. Place the case head in a counter bore on top of the base, and insert the pin head of the punch into the case flashhole. A light tap on the punch will knock out the fired primer.

The only propulsive force used to propel a wax bullet is that which is derived from the explosion of a primer. To prevent excessive primer setback, which would bind the revolver cylinder, it is necessary to enlarge the flashhole in each shell case used in making wax bullets. This is easily done with a small hand drill and a simple wooden clamp which will hold the case without misshaping it. It is extremely important that flashholes should not be enlarged too greatly or else the primer anvil will be blown forward as a secondary missile when the wax bullet is fired. These metal anvils could possibly inflict a serious wound. In preventing anvil blowout, the flashholes for cases to be used with small pistol primers *should not be enlarged to more than .120 inch in diameter*: a number 31 drill size will make just such an opening. As an additional precaution, our wax bullets have been drilled out with a number 32 wire drill which gives us an even smaller flashhole but one which is every bit as effective for our purposes.

Once the flashhole is drilled out, the wax should be inserted. Normal ½ inch thick slabs of paraffin wax (such as the type sold in grocery stores for home preserving) may be used for this purpose. The paraffin should be softened in warm water and then rested on a flat surface. Insert the case mouth into the paraffin block and push the case completely through the block. Twist the case slightly and withdraw it. The resultant bullet gives the general appearance of a wax wadcutter. Because we use a white background screen on our

* Although the Executive Office for U. S. Marshals in the Department of Justice at Washington, D. C. has consistently evinced an active and enthusiastic interest in any research which might improve the shooting ability of U. S. Marshals and their deputies, readers of this article should not infer that this method of training is officially prescribed, authorized, or conducted by the Department of Justice.

wax bullet range, we have found it advantageous to melt down the paraffin wax and add coloring by dropping in bits of colored candles with the candle wicks removed; wax crayons used for coloring will provide the same result. Great care must be taken in melting the paraffin. Do not use an open flame as paraffin is inflammable. The preferred melting method would be to place the paraffin in a container which is then immersed in hot water. Once melted, the paraffin is poured into a shallow flat-bottom pan to a depth of $\frac{1}{2}$ inch, after which it may be inserted into the cases in the manner described above.

Finally, the new primer is seated in the shell by using either a bench-type loading tool or an inexpensive "re- and de- capping" tool. Although there are various types of primers available, we have obtained the best results by using the CCI small pistol primer which is taken from fresh stock. With such a light loading, there are many variables which can materially affect the velocity of wax bullets, so it is best to be consistent in the choice of a primer.

Your wax bullets are now ready for use. It would be wise to pause here for a consideration of their effectiveness. Unfortunately, the writer has no information available concerning the impact energy of such a wax bullet. Its velocity is surprisingly high when we consider that the only propellant used is the primer. The wax pellet itself generally weighs between 11 and 13 grains. If fired from a .38 Special revolver with a 4 inch barrel, its muzzle velocity would be about 390 feet per second although it may range anywhere from 330 feet per second to 460 feet per second. In this caliber, the use of a 6 inch barrel revolver would produce a noticeably greater drop in maximum velocity at longer ranges. Muzzle velocity with a 2 inch barrel revolver is about 20 feet per second less than with a 4 inch barrel. The loss in velocity after the wax bullet has been projected about twenty feet is about 100 feet per second.

Although the above-figures are not very impressive when contrasted with that of regular cartridges, every normal safety precaution should be used during the firing of such bullets. Fired at a distance of 16 feet, a wax bullet made according to the above instructions is capable of penetrating two layers of corrugated cardboard although the penetration was not sufficient to carry the pellet into a third layer. At ranges of 20 to 25 feet such bullets generally lack sufficient energy to pass completely

through one layer of corrugated cardboard. Notwithstanding the relatively low impact of these bullets, they possess an amazing accuracy, even when used with a 2 inch barrel revolver. At 4 and 6 yards distance from the target, the bullet is very accurate; we have obtained 2-inch groupings at 8 yards. Naturally, this accuracy cannot be obtained unless the revolver sights are adjusted to compensate for the lack of recoil. With a gun containing a 4 inch barrel, we estimate that it is necessary to file down the front sight by approximately $\frac{3}{32}$ of an inch, or elevate the rear sight by the same amount. It is suggested that agencies installing a wax bullet range should also set aside the number of revolvers necessary and have their sights adjusted for use on that range. To avoid the danger of using these altered weapons with regular ammunition, each weapon so altered should have its handle painted bright yellow.

No weapon will be damaged by using wax bullets in it, but it is imperative that the residual wax deposits left in the bore and cylinder chambers be removed from the gun with a solvent and brush before regular ammunition is fired in it again. The mandatory use of special range guns eliminates much of this cleaning since, even with constant use, we have had no noticeable fouling effects. And the possible danger of accidentally mixing regular ammunition with wax ammunition (which must be strictly guarded against) is largely eliminated by requiring the use of range guns.

Now for the pistol range itself. Although the ordinary wallboard partitions in most buildings are sufficient to withstand the impact of wax bullets, we have found it feasible to construct a target screen by erecting a large sheet of ordinary plywood to which has been fastened in the central target area a 4' x 4' sheet of ordinary masonite. The entire target area has been painted a flat white. When the wax pellet hits this target surface, it rebounds slightly and drops into a gutter immediately under the target area, leaving on the target screen itself a small smear of colored wax which is easily visible against the white background. The noise created by firing a wax bullet is approximately equivalent to that of a cap pistol. If this noise does not disturb those in the immediate area, no further precautions are necessary; some sound absorbing material fastened to the remaining walls or ceiling will help to reduce this noise if it is loud enough to be a nuisance. If the room in which the range is to be installed possesses windows,

care should be taken to place the target screen in such a location that there is no danger of breaking these windows.

It seems entirely possible that even the smallest police agency would have access to a room which could be converted into a wax bullet range along the above lines. Such a range would be immediately available for use by officers coming off duty without requiring them to travel great distances or make elaborate preparations in advance. By itself, however, it does little to correct the problem of boredom. In an effort to overcome this problem, we have installed a projector on our wax bullet pistol range with which we project a variety of targets onto the screen. Basically, we use three types of targets. The first are the bullseye and silhouette targets. With these targets the shooter can practice in improving his accuracy and his control of the gun. The second type of target is a situational target in which an actual scene is flashed upon the target screen. These targets are used to improve the shooter's reaction and his ability to make on-the-spot decisions; some of the situational targets are obviously "shoot" targets, others are obviously "no shoot" targets, and still others are questionable in that there is no book answer as to whether or not the shooter should fire. Targets in the latter category are followed up by questioning the shooter concerning his reason for his decision; if he has based his decision to fire or not fire upon some rational or logical line of thought, he is given credit. The third type of target is a new one with us which we call an abstract target. It is our belief that many shooters tend to over-compensate when they are firing at an object which is partly hidden by a larger object. Our abstract targets consist of one small circle strategically placed adjacent to some distracting influence such as a heavy dark area or an area containing broken lines moving off at an angle. While it is too early to evaluate the results of using this target, it provides an interesting change of pace for the shooter whose only instructions are to fire at the circle; shots missing the circle tend to be concentrated on the side opposite to the distracting area.

Our wax bullet range contains two other items to eliminate boredom. One of them is a variable lighting system through which we can duplicate either daylight or night-time firing conditions. The second is an electric timer which we have fastened to our projector so that the target picture remains

on the target screen only for as long a period of time as we wish it to.

The normal procedure for using the wax bullet pistol range is a fairly standard one with variants being utilized according to the training record and shooting ability of the persons using the range. Our particular range is only wide enough to accommodate two shooters and a range officer. Before entering the range they activate an outside switch which illuminates a warning sign that the range is in use. Should anyone wish to enter the range room during the firing, he need only flick a second outside switch which turns the light in the range room on and off, thus notifying the occupants that their shooting must cease.

Generally speaking, we allow only one person at a time to fire on our range; we have felt it best to give individual attention to each shooter using it. If the shooter has never used the range before, the range officer starts by explaining what a wax bullet is, and how range guns have been adapted for use with wax bullets. To demonstrate, he projects a bullseye target on the screen, loads the wax bullet in the cylinder of a range gun, and then allows the shooter to fire at the bullseye target. This acquaints the shooter with the relative noise, accuracy, and lack of recoil he can expect when firing these bullets.

The range officer then demonstrates the effect of reducing the lighting to simulate night-time firing. He advises the shooter of the range rules and general commands that will be used. He explains the different types of targets in use and exhibits each type on the target screen. He demonstrates the use of the timer and shows how the target may be flashed on the screen for a short period of time during which the shooter, if he decides to shoot, must draw his gun from his holster and fire before the target leaves the screen. Because the projector does not move, the same target may then be flashed back upon the screen in exactly the same position it was originally; when this is done the shooter and range officer are able to evaluate the accuracy of the shot by comparing the location of the smear left by the wax bullet with the theoretically ideal area where the bullet should have gone. Each bullet smear can be wiped clean from the target screen by using a dry cloth; after each practice session, however, the entire target screen should be cleaned with energine, lighter fluid, or any other acceptable substitute.

The shooter is also advised that during the

course of firing he will be required to state how many bullets are left in his gun whenever the range officer so requests. Sometimes the shooter is started with a full cylinder, but because we are attempting to encourage our shooters to keep firing at each target rather than to acquire the habit of firing one shot and waiting to see its effect (a habit which is frequently fatal to a police officer exchanging shots with a criminal), we generally place only three wax bullets in each cylinder, spacing them so that the shooter never knows whether a live round or an empty chamber is under the hammer. Naturally, the methods for scoring each shooter will vary according to the number of shots he is required to fire while each target is on the screen.

At the present time we have 36 targets we can project upon our screen; with twice that number we would have a truly selective choice of targets. Of course, we do not start any shooter at the beginning and let him fire at all our targets. Instead, we select a series of targets according to the capabilities of the shooter, and these targets are flashed upon the screen in a well-shuffled sequence so that the shooter is never able to anticipate either the type of target with which he will be confronted or, in the case of situational targets calling for a decision on his part, what action he will take. Our situational targets have been derived from many sources. Many of them were posed for us by police officers or civilians willing to assist. Many of them are simply photographs copied from firearms training manuals, selfdefense manuals, or illustrations found on the covers of paper-back novels. These latter illustrations have been very helpful in that they tend to capsulize a situation with clarity by eliminating extraneous detail. We have derived a great deal of amusement by observing the reactions of shooters who are forced for the first time to fire at a woman who is pointing a gun at them. Because we do not preface any target with an introductory explanation, we use a local ground rule whereby any person holding a gun in a situational target is, by definition, a criminal. This does not mean that the shooter is required to fire at any person holding a gun in such a target

but merely to consider that person a potential threat.

One of our situational targets shows a man running toward the shooter. Behind him, a second man is crouched in a shooting position with his arm extended. Many of our shooters have fired at this second man before they realize that there is no gun held in his extended hand. Another situational target depicts an attractive young lady somewhat scantily clad; many shooters do not realize that she is pointing a gun in their direction until it is too late for them to draw and fire.

We have further stirred the competitive spirit of our shooters by making it possible for two shooters to contest each other by firing at the same target. Under this system each shooter uses wax bullets of a different color than that of his opponent. Both shooters stand the same distance from the target, one on each side of the line of target-projection. At any time after the shooters indicate they are ready, a target is flashed on the screen for a brief period during which time each shooter draw and fires. The shooter who fires with the greatest accuracy scores three points; the shooter who fires first scores two points. Under this system it is possible for a shooter who is slow but accurate to win a shooting match against an opponent who is quick but inaccurate, although top honors will naturally go to the shooter who possesses both of these qualities.

For those shooters who need constant practice in order to qualify on a practical pistol course, we have been successful in projecting silhouette targets which are accurately reduced to the correct proportionate size which a silhouette target would appear to be if it were placed at distances of 8, 12, and 16 yards away from the shooter. In effect, we can reproduce our entire practical pistol course within the space of four yards. This type of approach to the use of a wax bullet range makes it possible for any police agency to duplicate any type of shooting situation it deems desirable for the purpose of training its officers. We feel that the results derived from our wax bullet range have amply demonstrated its capability for providing an inexpensive and exciting method of improving our efficiency in the use of firearms.