

Gunfacts Shoots:

THE RAREST SMITH & WESSON—THE M1940

by Jan Stevenson

Author's Note:

The Model 1940 9mm Light Rifle is without doubt the rarest Smith & Wesson ever made in quantity. The most resolute S&W collectors have been unable to locate a specimen, and the average serious gun buff has never even heard of it. Although the M1940 was designed and manufactured less than thirty years ago, history seems to have lost it in the shuffle. Most of what passes for firm data on this gun does more to raise questions than to answer them.

Robert Neal and Roy Jinks give the Model 1940 two paragraphs in the August, 1968 issue of GUNS, and three sparse pages in their definitive book, Smith & Wesson, 1857-1945. Tom Nelson takes notice of it in his monumental The World's Submachineguns. Aside from this, literature is strangely silent, and the above mentioned sources are by no means gospel accurate through and through. Neal and Jinks, for instance, give erroneous production figures, and are a year off on the manufacturing dates. No one seems to have realized that the M1940 was made in two distinct Marks. So although this may be the haziest article ever paraded under the banner of "Facts," it's the closest the truth has yet been approached with the Model 1940.



S&W technician fires S&W 1940 Light Rifle on indoor range.

GENERAL DATA

MAKE:	Smith & Wesson
MODEL:	Model 1940 Light Rifle, Mark I and Mark II
TYPE:	Semi-auto carbine, magazine fed, unlocked breech
FIRING SYSTEM:	Blowback, fires from open bolt
CALIBER:	9mm Parabellum
MAGAZINE:	Double column, box type, 20 rd. capacity
WEIGHT OF RIFLE:	8 lb. 4 oz. empty w.o. magazine; 9 lb. 2 oz. loaded
WEIGHT OF MAGAZINE:	6 oz. empty; 14 oz. loaded
LENGTH O.A.:	32 3/8"
BBL. LENGTH:	9 3/4"
DEPTH THROUGH MAG.:	7 1/2"
RIFLING:	Broached, 6-groove, 1 turn in 18 3/4"
STOCK:	Molded black plastic
SIGHTS:	Fixed blade front; notch type rear, fixed windage, micrometer adjustable for elevation, graduated from 50 to 400 yards, mounted midway on receiver.
SAFETIES:	Swinging lever on Mk I blocking sear; rotating sleeve on receiver of Mk II blocking bolt
FINISH:	Brush polish blue
CONSTRUCTION:	All parts machined from forgings
DESIGNER:	S&W R&D Dept. under direction of Joseph Norman
NO. MADE:	Mark I—approx. 860; Mk II—approx. 100
DISPOSITION:	855 of the Mk I's went to Britain, as did presumably all of the Mark II's.
MFG. DATES:	Mark I—6 February 1941 to 16 April 1941 Mark II—concurrently and on through May, 1941.

THE FACTS:

The Model of 1940 was designed and developed by Joseph Norman, then chief of Smith & Wesson's research and development department, and his design engineers. The project probably got cranked off sometime in 1939, and old timers at S&W seem to recall that the company had the U.S. police market in mind.

Meanwhile, the British suffered the Dunkirk disaster, and their disarmed army, backed up by an unarmed populace, braced for impending German invasion. The Tommy who patrolled the beaches with a single action Colt of 1873 vintage and two cartridges was better off than most, for pikes and pitchforks were very nearly standard issue as England appealed to American sportsmen to donate their hunting rifles for the defense of the Foggy Isles.

Smith & Wesson had accepted huge contracts from the British for M&P revolvers chambered for the Limey standard 380/200 cartridge. During these negotiations, it seems likely, the British learned of the prototype Model

1940 carbine, and in their desperation glommed onto it as well.

Smith & Wesson began production of the "light rifle" on 6 February, 1941, and allocated serial numbers 1 to 1010 for the first run. However, only about 860 of these Mark I's were built, and 855 of them were shipped to Britain in April of 1941, as production was halted on the 16th of that month.

The Mark I was designed for the original 9mm Luger round with a truncated bullet ahead of 4-gr. of some sort of powder. Whether it would take prolonged firing with this cartridge is moot. The British at the time, though, had just boosted the powder charge to six grains, and the gun wouldn't stand the gaff of the heavier loading.

Smith & Wesson, with this complaint among others ringing in its ears, set out to redesign the Model 1940. With the assistance of a one-million dollar advance on the contract from the British, S&W promptly served up the Mark II, which was likewise prone to breakdown.

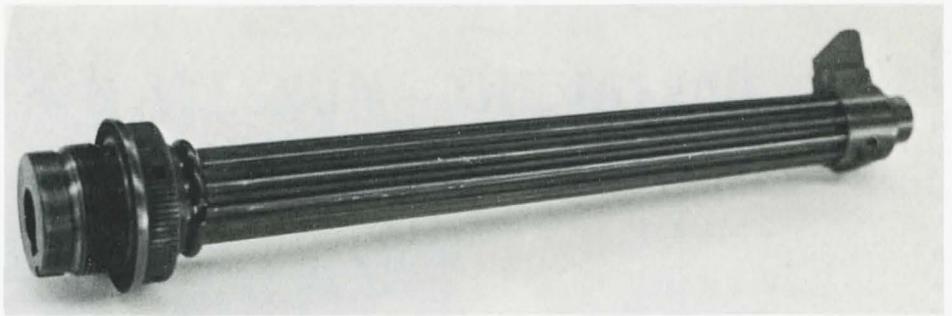
The British at this point decided to chuck the whole deal, and demanded their million dollars back. Smith & Wesson, having already disbursed some \$870,000 on the project, balked, and an agreement was reached whereby they would return the advance by supplying 380/200 M&P's to the British at a price lower than that previously negotiated.

The Mark II, in a flush of optimism, had been allocated a serial number range through 2108, but only about 100 were made by the time production was halted in May of 1941. All of these were presumably shipped to England.

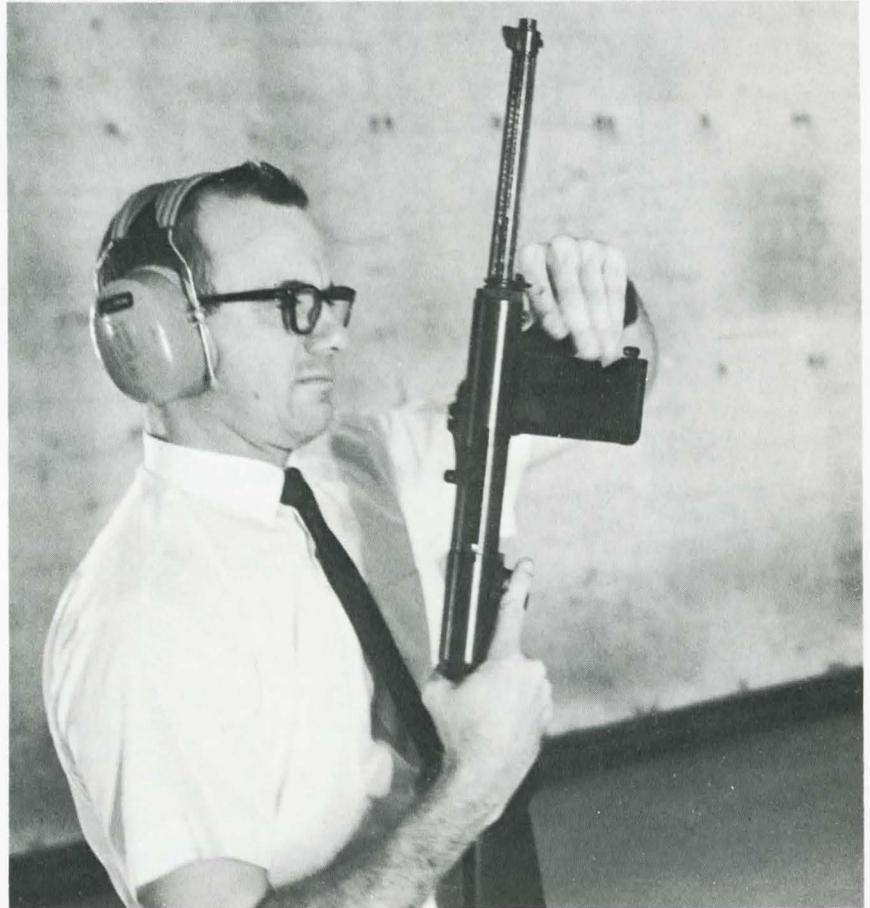
What about this colossal pig in a poke? What was it, and what was so wrong with it that not even the British would buy?

The Model of 1940, Mark I, was a semi-automatic 9mm carbine, and its factory manual observes it was "designed for military use under service conditions." It was also one of the most expensive and anachronistic weapons ever to make the ill-considered leap from drawing board to production line. In the day of the Sten, the Grease Gun, the Shpagin, and the MP40, this was a gun in the tradition of the P-08 Luger and the 1928 Thompson. As a production piece, it was decades out of date.

How much it cost in 1941 is something we haven't been able to determine; how much it would cost to build today would stagger the imagination. The barrel, for instance, has a diameter of 1.120" at the breech end, drops off to .900" as the fluting begins, and gracefully tapers to .800" just behind the front sight. Twelve flutes run most of the length of the barrel, and are spaced equidistantly around the cir-



The S&W 1940 barrel was a thing of machined beauty, but a ridiculous idea for an open-bolt arm for the 9mm Luger cartridge.



One loads by tipping the magazine back into its receptacle as shown here. Not very simple, but different.



This looks like a change lever, but it isn't. It's a winter trigger, which every well-dressed combat gun wears.



Broken down for cleaning, the S&W 1940 looks like this. (Note: The magazine-ejector tube housing is shown backwards in this photo) A careful examination, noting what goes into where, reveals complication is as bad as the writer claims.

cumference. Each flute was cut as a separate milling operation.

The receiver is the most expensive part of almost any firearm, and one of this type is best made by stamping, by casting or by hacking off a length of seamless tubing. The Model 1940 complicates things incredibly by using a three-piece receiver, each part drop forged of manganese steel and machined to almost zero tolerances so that they join together in a very tight slip fit.

The manual lists 46 component parts, nearly all of which were machined from forgings. When you go into the gun and start counting pins, plungers, springs, and such, you find the weapon contains in the neighborhood of 90 bits and pieces—some three or four times as many as an arm of this type should—and each had to go through sundry stages of manufacture.

The barrel and lockwork were fabricated from chrome nickel steel, while the bolt was of nickel steel. Whatever other faults the Model of 1940 had, Smith & Wesson didn't skimp on materials or workmanship.

The main fault was parts breakage; specifically, the rear portion of the receiver would fatigue and break off at the point where it's threaded to receive a receiver cap which the manual calls the "butt nut." The cap is inside-threaded and screws over the end of the receiver. Since the whole unit has to slip into the frame, the cap is the same

diameter as the receiver body. Thus the end of the receiver has to be turned down before threading, thereby creating a weak point. The bolt recoils inside the receiver, setting back against the cap. After 900 to 1,000 rounds, we are told by two very competent sources, the end of the receiver would snap right off. Doubtless this annoyed the British.

The problem could have been taken care of by leaving the receiver full diameter all the way back and threading the inside to receive a plug rather than a cap. No stock removal at this critical location would then have been necessary. Although we haven't been able to run a MkII to ground, the data we have indicates this was NOT done when the MkI was redesigned. Another improvement would have been to beef up the MkI's notably feeble recoil spring to lessen the bolt's impact against the receiver cap. But again, there's no evidence that this was done. These failures to correct a critical problem probably caused the British cancellation.

Indeed, the only recorded alteration on the Mark II which *might* have had some laudable effect on receiver fatiguing was abandoning the Mark I's absurd hammer-firing pin mechanism. On a standard blowback arm of this type, firing from open bolt with a fixed firing pin, the bolt still has some forward momentum at the instant of ignition which theoretically must be over-

come and reversed before the bolt begins to recoil. Not so the Mark I, which featured a laterally swinging hammer pinned vertically just to left of center in the bolt and behind the firing pin. When the bolt came to rest, the left side of the hammer impacted a fixed stud in the left wall of the receiver which caused the right side of the hammer to swing around and deliver the firing pin a hearty whack on the rear. Thus, by the time the primer was ignited, the overlight bolt on the M-1940 (1 lb. ½ oz. compared to 1 lb. 4 oz. for the 9mm S&W M76) was fully at rest waiting to be flung back against its meagre recoil spring.

This strange arrangement may have served as inspiration for the Ruger Number One and the Swiss M57 Assault Rifle, both of which use the principle intelligently, but on the Model 1940 it was quite out of place. The Mark II opted for a fixed firing pin in the nose of the bolt. The hypothetical advantage of the fixed firing pin in easing recoil setback was probably nullified in the Mark II since the bolt was shortened by 9/16", thus presumably subtracting from its mass and inertia.

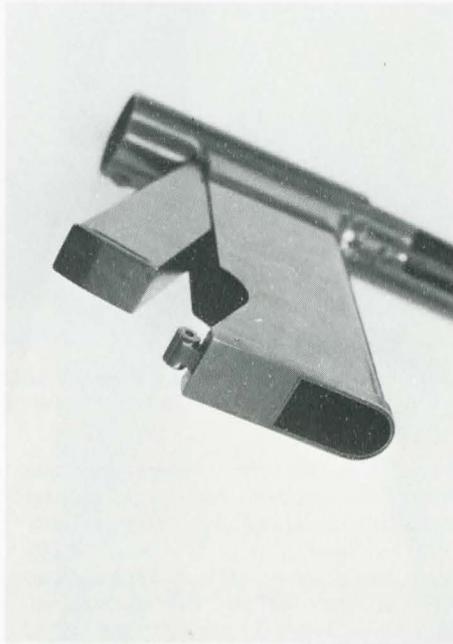
THE RESULTS:

What with all this among other things going against it, shooting the Model 1940 was an eye opener. I

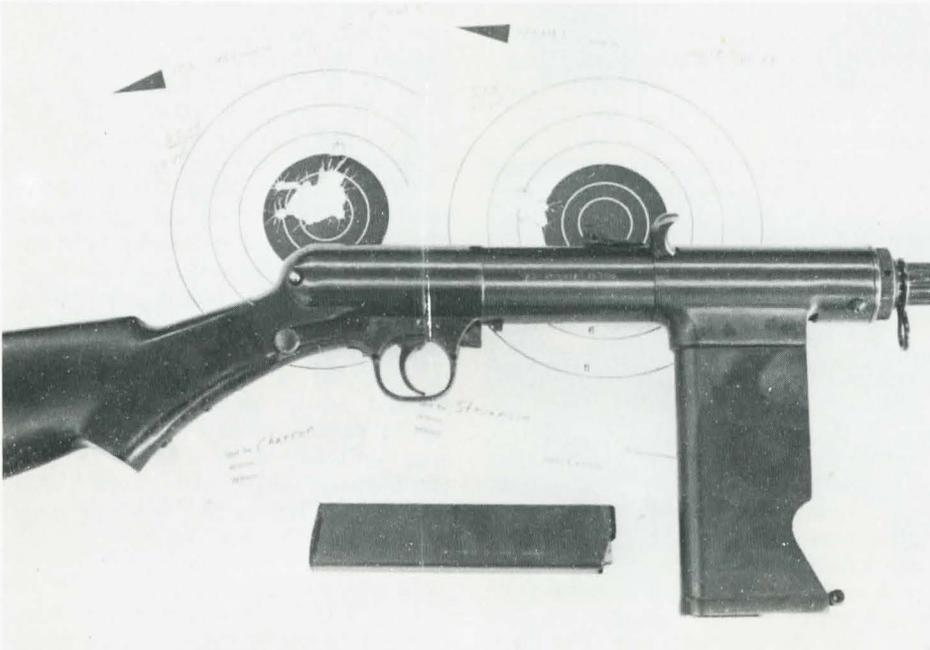
This is the receiver group.



Original Mark I design demanded the gun poke the cartridge all this distance up into the chamber.



The magazine tilted into place as shown whilst empties came tumbling down the chute at right.



While it shot, the S&W 1940 shot right well, as these 15-yard cloverleaves show. Remember that open bolt.

located an operable Mark I at the Smith & Wesson plant, and accompanied by Duane Charron, now chief of S&W's research and development department, and his assistants Harold Sibley, Khoury, and Don Fogg, fetched the archaic carbine down to their experimental range to run a few hundred rounds through it, a charming notion, everyone agreed.

We tipped a loaded 20-round magazine backwards into its curious housing, drew back the bolt, swung the safety lever through its long 150-or-so-degree arc, and sent the first shot downrange. The trigger pull was heavy but smooth, the lock time interminably long. The recoil spring was so light that it just took quite a while to get the bolt up front. But by the same token, even with the built-in delay of the round-the-rosebush hammer arrangement, there was little apparent jarring when the bolt struck home. It is well supported fore and aft as it nears battery, and what with the old-line S&W quality built in, the bolt has a very smooth ride in the receiver.

The gun is marvelously comfortable to handle and shoot, and with some 9 pounds of chrome, nickel, and manganese steel and such in back of it, the little Parabellum can't stir up any noticeable recoil at all. Functioning was excellent.

Charron and Fogg, used to empathizing with every part in a gun when they pull the trigger, could feel the bolt smacking hard against the receiver cap as it recoiled back, but I couldn't notice it.

Much of the fun with this sort of gun is having brass flying about. No such jollies with the M1940, which funnels the empties straight down out of the gun through a chute which forms the rear half of the magazine housing. A steel wall separates the magazine receptacle from the ejection chute, precluding inspection of the receiver interior.

According to the manual, the Model of 1940 was supposed to be accurate to 400 yards, and the gun was sighted

with these naive hopes in mind. The rear sight is a notch type, micrometer adjustable for elevation with each click raising the sight .014". Windage is fixed and the lower-most setting zeros the gun for 50 yards. One click up sets it for 100 yards; 6 clicks for 200 yd; 15 clicks for 300 yd; 22 clicks for 400 yd; and intermediate ranges by interpolation.

We left the sight flat down and shot at 15 yards—a more realistic range for this sort of gun. Shots struck an inch and a half above point of aim, and slightly left of center.

From standing position, bracing the magazine housing against a forearm rest, I surprised myself by easing 5 shots into a one-hole group measuring 11/16" center to center. Khoury threw one shot out of a 4-shot hole, for a 5-shot group measuring an even 3/4". Charron, a fine shooter with vast experience with open-bolt weapons, grandstanded the entire 20-round clip into one ragged hole, save for one shot which crept a half-inch out, opening the group to 1 7/8".

Charron tried a few shots at 50 yards, and though we made no efforts at serious accuracy testing at that range, it looked as if he were coming up with about a 5" group for 5 rounds fired.

Extrapolating the 15-yard groups, the Model 1940 should be capable, under the best of conditions, of 5" groups at 100 yards and 20" groups at 400 yards—phenomenal for an open-bolt gun. At the longer ranges this gets pretty academic, considering that the 9mm will drop about 26 feet at 400 yards, and that a cone of fire at extreme ranges tends to diverge at a much greater than geometric progression. Add lock time plus flight time and the target can have a foxhole dug by the time the bullet finds the address. Maximum effective range, realistically, is 150 yards at best.

OPINION:

Where does all this leave the Model of 1940, as a weapon and as a collectors' item?

As a military or police weapon the Model 1940 was a farce from the first. A 9mm Parabellum semi-auto carbine is an odd notion anyway. At 9 lb. 2 oz. it's ludicrous. Add to this the fact that the M1940 was needlessly complex, prohibitively expensive, unsafe to handle in some respects (see below), and predestined to break down at 1,000 rounds, and it begins to seem incomprehensively foolish. For an open bolt weapon it was remarkably accurate, but an open-bolt mechanism, with its attendant heavy trigger pull, long lock time, and pre-ignition impact as the bolt closes, has no justification

in a non-automatic weapon meant to place single shots accurately.

Smith & Wesson viewed the Model 1940's system of routing the empties out through a lengthy chute beneath the gun as "a distinct improvement over the common method of side ejection." The idea has merit only for gallery shooting. On a battle arm it's indefensible, for an ejection port affords vital access to the feedway and chamber. Not only are jams in the M1940 impossible to clear quickly, but the chamber is blocked off from ready inspection of any sort. You can neither see nor feel a round in the chamber, even with the magazine out, for the chamber is countersunk into the barrel so deeply that a probing finger can't reach it. The headspace shoulder is

MARKINGS:

Mark I: Right Side of Receiver:
 "Patents 2213348 & 2216022"
 Left Side of Receiver:
 "Smith & Wesson
 Springfield, Mass., U.S.A."
 Left side of frame just forward of stock:
 S&W Monogram

Mark II: As Mark I, adds Patent #2231978; "Mk II" stamped on lower frame tang.

SERIAL NUMBER LOCATIONS:

Mark I: Notch plate, bolt cover, trigger stop screw latch, rear face of magazine housing, bottom of receiver, bottom frame tang, butt plate, underside of rear sight. (On a few early guns the serial number was also stamped on the sear and on the sear cut in the bolt.)

Mark II: Notch plate, rear face of magazine housing, bottom of receiver, butt plate, underside of rear sight, lower frame tang.

MK I To MK II Alteration Table:

Part	Alteration
Chamber	Moved back 9/16" so casehead is flush with rear of bbl.
Bolt	Shortened 9/16".
Firing Pin	Made integral with bolt fact, eliminating hammer, hammer pin, hammer "striker" or impact stud in receiver, firing pin, and firing pin spring in Mark I.
Safety	Changed from swinging lever blocking sear on Mark I to rebounding sleeve on receiver blocking bolt of Mark II.

about 1 1/4" from the rear face of the barrel, thus the case head is more than 1/2-inch (9/16" to be precise) down into the barrel.

Assuming the shooter didn't have a dentist's mirror handy, there were three possible ways to more or less inspect the chamber:

- (1) Field strip the gun—a lengthy process best done with a tool kit in reserve.
- (2) Run a cleaning rod through the barrel from the muzzle to see if it comes out the breech.
- (3) Cock the gun, apply the safety, hold the magazine recess up to a light, peer down the muzzle, pray that the chamber's empty and nothing slips.

The Mark II moved the chamber back 9/16" so that a casehead would be flush with the breech face of the barrel, easing inspection and enhancing safety a bit, but jams were still next to impossible to clear.

Despite all this, the factory proclaimed that the Model 1940 "... fills the need for a light, fast, easy-handling multiple fire weapon. It is rugged, dependable, and easy to operate. Its effective range is 400 yards and is very accurate up to and including that distance."

We needn't comment further, and should only note that save for a long-barreled revolver with a detachable stock, this was the first shoulder gun Smith & Wesson tried, and maybe they deserved one lulu. Their new M76 shows they learned a lot from the experience.

As a collector's item, the Model of 1940 is in a paradoxical plight. Despite its 32 3/8" overall length, 8 lb. 10 oz. empty weight, and generally dubious virtue as a weapon, the 9 3/4" barrel places it under the shadow of the National Firearms Act, as amended, and it takes registration and \$200 to make it legal. The extreme rarity of the gun makes it worth the bother.

The best guess is that less than a half dozen are in the United States. As far as I know, Smith & Wesson has two—an operable Mark I and a toolroom model. Aberdeen Proving Ground is reported to have received one gun, modified for full-automatic fire, and probably still has it. Perhaps three guns are in the hands of private collectors.

Then there are the nine hundred fifty-odd that went to Britain. Neal and Jinks have pipe dreams of them all, Mark I's and Mark II's alike, sitting in pristine splendor swathed in cosmoline in a British warehouse. More likely they were heaved into the Channel, which is what the British traditionally do with the tools of their salvation every time they've won the war to end all wars.

At any rate, we'll try to find out. ■