



MAY 2022

DIGITAL ARCHIVE
EDITION

PRECISION ARMS WORKSHOP

AND THE AMERICAN GUNSMITH ARCHIVE

A TECHNICAL JOURNAL OF CRAFT, REPAIR & RESTORATION

05

ARCHIVE ISSUE NUMBER

INSIDE THE ARCHIVE

THE HISTORY OF SATPCO

MORTON GO • NEW LIFE FOR AN OLD COLT • CERTIFIED LAW ENFORCEMENT ARMORER'S COURSE • I'LL TAKE A SLUG O...

ORIGINAL METHODS. MODERN ACCESS.

ARCHIVE EDITION 221

DIGITAL ARCHIVE EDITION

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FROM THE ARCHIVE

Morton Go

BY AMERICAN GUNSMITH EDITORS MAY 2022

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Morton Salt, Inc. has been making salt for culinary, water softening, household, road deicing, food processing, chemical, pharmaceutical, and numerous other uses since 1848 and employs more than 3,500 people in Chicago, Canada, and the Bahamas. Salt Science, Inc. makes Hypochlorous Acid (Ho CL) cleaners and disinfection solutions that are made from salt.

Founded by a doctor, tech investor, and a facilities director, Salt Science creates new ways to clean and disinfect that are good for the environment and good for one's health. Morton Go Both companies have teamed up to create a line of electrolyzed sanitizing equipment that cleans and disinfects using only salt and water. Designed for indoor and outdoor use, Morton Go produces a high quality cleaner and sanitizer that is 99.9% effective on all germs and diseases.

Being free from harsh chemicals, the Morton Go line of electrolyzing bottles and applicators allows making your own cleaners and disinfectants on demand. Based on a 40-year-old proven technology used in the medical industry, Morton Go electrolyzing bottles and applicators are safe and effective on multiple surfaces and makes cleaners for a fraction of the cost of store bought, single use cleaners and disinfectants.

Proprietary software coupled with precision components in the devices charge the ingredients to create a solution approved by the Environmental Protection Agency as being effective against bacteria, germs, and viruses, including Covid-19. "We're tremendously excited about our licensed partnership with Salt-Science, Inc. to bring a bold new product to market," said Chris Hegerfeld, Senior Manager of Brand Licensing, Morton Salt. "This new offering is a great fit with our company's vision to create more innovative and sustainable salt-based solutions to help improve the lives of consumers at home and serve the businesses we support." Adds Randall Satin, President of Salt-Science, Inc., "We are finding that consumers desire natural alternatives to many chemical-based household cleaners.

We thought of nobody else but Morton when considering a brand for a solution made from salt. We believe this Morton product line will change the game when it comes to cleaning and disinfecting." MortonGo.com lists currently available cleaner making tools and all testing and certifications showing the efficacy of Ho CL salt water cleaner. The devices are also available on Amazon.com.

METALWORKING

New Life for an Old Colt

The Colt Targetsman is a classic handgun based on the Woodsman. Here is how I restored a vintage Targetsman.

BY KENNETH FINLEY MAY 2022

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Sometimes a customer brings in a project that takes you down memory lane. Such was the case when a customer brought me what he said was a Colt Woodsman. I picked it up and felt eight years old again. That was about my age when I followed Dad “up on the hill”. We lived in rural West Virginia and our house was set on a bench just above Spring Run and Route 50 in Ritchie County.

A quarter mile up the hill was a clearing where our TV antenna managed to pick two stations out of the ether, unless something was wrong with the ladder line that ran down the hill to our house. When that occurred, Dad hung his US Army issue flap holster and knife on his belt and set out. I was just getting old enough to follow him. About half way up, he stopped to let me rest at a small bench with a clearing. There was a tree about twenty yards away, and Dad opened the holster and pulled out his Colt Woodsman.

He knelt behind me, showed me how to hold the pistol, aim, and squeeze the trigger. I don’t know if I hit the tree or not—I just knew something special had happened. Dad, however, would never have allowed his Colt to get into the condition of my customer’s pistol. The barrel and frame were pitted, the Rampant Colt

Pony logo was almost obliterated by corrosion, and it seemed every part was subject to whatever moisture had attacked this pistol.

When I removed the stocks, even inside the magazine well showed ill effects. The customer wanted it painted to cover the corrosion, but initial inspection suggested that a complete tear down was the only way to rescue this patient and prevent recurring problems.

The restoration task broke down into four distinct areas: disassemble the pistol and examine every part for corrosion; clean and treat all parts according to the level of corrosion extant, if any; refinish the parts requiring such according to the customer’s desires; and reassemble and function test. Disassembly As always, remove the magazine and clear the action before doing any work on a firearm. This Targetsman was pre-1955 and had no magazine safety. This simplified disassembly.

My first step in tearing down this style of Colt was to remove the stocks for the damage survey mentioned above. This was achieved by removing one long screw. Keep this screw handy as you will need it for later disassembly steps. Pull the slide back all the way and press

down on the assembly lock plunger on top of the slide, in front of the rear sight. This captures the recoil spring. In this case, the This shows some of the damage, even under the stocks. assembly lock plunger was frozen and refused to function.

Propping the slide back with a wooden dowel cut to fit, I was able to use a small C-clamp to slowly depress the plunger after applying some penetrating oil and letting sit for awhile. With the recoil spring captured, I was able to move the slide back to touch the breech face with a gentle press of the thumb. It did not move freely which caused some concern regarding the condition of the rails. Before removing the slide, first remove the mainspring housing and sear spring.

Do so by punching out the upper housing lock pin in the grip frame. Note the wooden clothespin under the frame pictured below. Often, when working on firearms for which I do not have an armorer’s block, a soft wood clothespin works very well. Placing it on its side allows driving new pins down through and they do not escape from between the legs of the clothespin. The clothespins are cheap and I keep a few in my range bag to keep firearms from lying flat on often unfriendly and hot



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surfaces, one in my cleaning kit, and one in my gunsmith's tool bin. After removing the housing, I punched out the mainspring cap pin to release the mainspring and the cap. Be careful as you do this, because the cap makes an excellent ballistic device for assaulting distant walls or windows. In this case, when I removed the mainspring cap, I found the recess and the spring both packed with debris. It was a black mess to clean out of both the spring and the recess.

I swabbed the recess out with a Q-tip and degreaser. I wanted no oils on the backstrap since I planned to refinish it. With the housing removed, you can see the sear spring and hammer assembly. Now is a good time to remove the sear spring and set it aside, and to make certain the All of the Targetsman's action lockwork is accessed from the left side of the frame. Far Remove by punching out the upper housing lock pin in the grip frame.

The wooden clothespin under the frame serves as an armorer's block. hammer is fully retracted. With this step complete, you can now remove the slide. At this point, you have a choice. You can disassemble the slide or the frame. The condition of this pistol made it clear that both should be

done, especially since so many parts were going to have to be refinished. Since most of my work so far had been on the frame, I set the slide aside for later.

Stripping the Frame All of the Targetsman's action lockwork is accessed from the left side of the frame, including the side plate, side plate screw, and safety catch. Removing the screw allows you to remove the side plate and the safety catch. Removing the safety catch allows the hammer and strut assembly to fall free from within the frame. Each of the parts were inspected for defects or excessive corrosion. As both the side plate and the safety catch are exposed, each was polished and degreased.

The side plate, safety, sear, and hammer were inspected to determine condition. The sear was checked for engagement, and then lightly polished as were the bearing surfaces on which it pivoted. With the removal of the side plate and safety catch, the next logical step is to move on to the trigger assembly. The trigger assembly is composed of the trigger, trigger spring, and trigger bar. Disassembly is straightforward. The trigger bar lifts

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Far easily from its groove in the frame, and both ends should lift freely from their respective recesses. Do not try to pry the bar out as you can bend it, or if brittle from age, break. Once it is free, the trigger and spring are free to lift off the frame post. The spring is inside a vertical slit cut into the top of the trigger and wraps around the post. As the trigger clears the post, the spring will drop out. Watch for it as it is very small.

All three pieces of the trigger components showed wear and corrosion. The spring, being carbon steel, showed signs of surface corrosion. Gentle burnishing with very fine steel wool removed the worst of the damage. This was an important step as I did not want to change the spring geometry in any way. The intent was to make parts move more smoothly together rather than change the trigger pull. The smoothness gained by polishing and smoothing components will make the pull seem lighter.

However, if the customer chose to compete with this pistol, I did not want to lighten the pull. A light oiling provided a protective film. The trigger

bar and trigger were both very rough with flaking finishes. Both were wire brushed and lightly burnished with fine steel wool. The trigger bar groove in the frame was also scrubbed out and polished smooth as was the trigger recess and pivot post in the frame. The only component left in the frame at this point was the sear.

Removal consisted of punching the pivot pin out of the frame and letting the sear drop free. The sear was in very good condition and only required a little touch of the wire brush and a light polish of the bearing surface. Since the part was not going to be coated, it was set aside. The stripped frame was wire brushed to remove all flaking particles, and the pitted areas were dressed with 200 and 400 grit emery cloth. The customer originally requested the entire pistol be finished in a satin black Duracoat.

I suggested that the sides of the slide and the areas of the flat surfaces of the frame just back of the barrel be polished and reblued as a contrast in finish and to preserve the outline of the rampant Colt logo. The customer agreed to this revision.

Stripping the Slide With the frame stripped and set aside, it was time to turn attention to the slide. The adjustable rear sight is a very delicate assembly, so I removed it first. This involved removing the elevation screw and then the windage screw.

Removal of the screws releases two very small springs that you do not want to lose. You can see in the picture that somehow the windage screw was bent. I straightened it before replacing it. Once these parts were removed, all that remained of the sight in the slide were the two bosses upon which the sight assembly hinges. I decided to leave the dovetailed portion attached to the slide to be finished with it.

With the sight small parts removed, it was safe to turn the slide upside down to begin the removal of the extractor, firing pin, and recoil spring assemblies. At this point, the grip Far A composite photo of the three pieces. Sear and pin are in inset picture.

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screw retained earlier becomes an important accessory in the disassembly process. Thread the grip screw into the firing pin stop. Do not try to remove the stop at this time. It is held in place by the extractor which must come out first. To be removed, the extractor must be rotated 180 degrees so that the hook moves from facing inward, to facing outward. Use caution—the extractor is highly tempered and easily damaged if you attempt to rotate it with tool steel pliers.

I found these padded jaw jeweler's pliers at a Jo-Ann Fabric and Craft store and they serve very well for handling small, delicate parts. The cost of the pliers was significantly less than the cost of a replacement extractor. Once the extractor is removed, place your finger over the hammer end of the firing pin, remove the stop, and let the firing pin and spring emerge from their recess in the

slide. These parts were in very good condition and all that was required was to wire brush them to remove any debris.

The final steps in stripping the slide are to release the recoil spring from the assembly lock, gently lift the assembly lock to disengage from the plunger, and slide it from the grooves in the slide. This is a very tight fit and you may need a drift punch and light hammer to remove the lock from the slide. In this case, as the plunger had earlier been frozen in place, once the assembly lock was removed, the plunger required a few taps with a brass drift punch and hammer to fall free from the slide.

Once these are removed, you have room to remove the recoil spring and guide. Preparing Parts The critical parts to prepare for refinishing were the frame and barrel assembly, slide, rear sight, side plate, safety catch, and mainspring housing. The slide and frame and barrel assembly

would actually undergo two finish processes. The side plate would be polished and blued to blend in with the polished area of the frame under the Colt logo.

The rear sight, safety catch, and mainspring housing would all be finished in the satin black. I decided to prepare for painting first. As the biggest task would be the barrel and frame assembly, I started there. The customer had been very clear that the barrel was to be painted satin black. Given the degree of rust and pitting, it was a good choice. I've illustrated the barrel restoration evolution of the barrel preparation process. Even the muzzle and crown had suffered.

I wire brushed the barrel and carefully "shoe shined" with 200 grit and 400 grit emery cloth topped off with a final polish with 0000 steel wool. I worked very carefully around the front sight. Unlike later versions of the Targetsman, the

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Lower left shows where even the muzzle and crown had suffered. Top shows the barrel after wire brushing and “shoe shine” polishing with 200 grit and 400 grit emery cloth. Bottom right, I recrowned the barrel with an 11-degree recessed target crown to remove all trace of rust and to true the muzzle to the bore. front sight is silver soldered in place and I had no desire to tinker with its placement. I simply wire brushed the surfaces and lightly touched up the ramp serrations with a V-shaped file.

As a final step, I recrowned the barrel with an 11-degree recessed target crown to remove all trace of rust and to true the muzzle to the bore. The rest of the frame was wire brushed and scrubbed with 0000 steel wool. The entire assembly was washed with acetone and set to dry overnight as were the

slide and other parts to be painted. The next day, I masked the areas to be polished and blued on the frame and slide to prepare for painting.

As always, when painting, the area should be brightly lit, well ventilated, and you should be using a mask. Painting the slide, rear sight, and mainspring housing was very straightforward. An airbrush connected through a pressure regulator to my shop compressor made short work of the task. The barrel and frame were another matter as there were so many contours and difficult to reach places. A very useful fixture in this situation is the Pana Vise 396 wide opening head and C-clamp base.

The flat jaws with removable rubber sleeves for flat and round surfaces allow you to find a convenient clamping surface, and the jaw rails

make a handy method of checking every surface without having to touch the frame. Since I masked part of the frame for polishing and bluing, I had a convenient gripping surface. After all parts were coated, I set them aside to cure for a week. always, surface preparation is key to a pleasing finish.

It was my intent to be very protective of existing surfaces and finishes in the portion to remain blued. To this end, the most violent abrasive I used was 0000 steel wool. I also used jewelers’ rouge on a linen buffing wheel. This imparted a high shine to the blued portions of the frame and slide. I decided several coats of Birchwood Casey Perma Blue would be all that was needed to touch up the original finish and provide a pleasing contrast to the satin black finish on the rest of the Colt. As

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Far Reassembly For the most part, reassembly was simply the reverse of the disassembly process. While I tried to avoid overspray in any critical areas, there was some. I polished the boltface of the slide before reinstalling the extractor. I also made certain the breech face of the barrel was free of any overspray. I had plugged the barrel before painting but decided to lap the bore anyhow. One tricky assembly was the rear sight. The elevation spring was easy to install. The windage spring was another matter.

With the dovetail base already on the slide, insert the windage screw through the first, threaded boss on the dovetail base, then the first segment of rear sight. Since there is a small space for the elevation spring under the sight, now is the best time to set it in place. It did not pose any problem. The problem is the windage spring. It must be compressed between the second dovetail boss and the narrow ear on the base.

I did this by bending one end of a very small paperclip into an L-shape and using it as a holder to compress the spring and run the windage screw

through. As the minor leg of the screw was very small, I was able to work it out before threading the windage screw all the way through. All that remained for the sight was to insert the elevation screw. Assembled, the satin black finish of the top of the slide and the rear sight made a very attractive, glare free sight plane.

The rest of the slide assembly was a reversal of the disassembly. All channels in the slide were polished to ensure no paint overspray or other obstructions were present. Parts were dried using air from the compressor. Moving parts received a very light touch of a high-quality light oil before assembly. The second ticklish assembly task was inserting the trigger group into the frame and onto the trigger pin.

To simplify the process, I assembled the trigger, trigger spring, and trigger bar on an appropriately sized punch. With a little care the trigger and spring slid over the pin without any trouble. The trigger bar dropped into its frame groove. With the trigger bar in place, I installed the sear and sear

pin. Inserting the hammer assembly into the frame, I inserted the safety catch and checked for smooth movement.

The side plate and screw serve to hold all in place, and the safety catch interacts with the spring steel side plate to lock in the desired position. I polished the rails of both the frame and the slide. When I started the slide onto the frame rails it slid forward freely and smoothly, unlike the hesitant movement before. Having been careful to polish, rather than remove metal from the rails, there was no excess play in the slide.

Once the slide was in place, the sear spring, and reassembled mainspring housing could be reinstalled in the frame. I checked the function of all the parts before reinstalling the grips. Conclusion Test firing the pistol was a guilty delight. The trigger broke smoothly at four pounds. The action cycled quickly and smoothly, with the empty cases ejecting cleanly from the pistol. After a final cleaning, I reluctantly returned the pistol to the customer. AG

MILLING

Certified Law Enforcement Armorer's Course

BY EARL ROBERTS MAY 2022

ORIGINAL PP. 9–10

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Alright, so I have spent my entire adult life with some version of the AR-15. From learning to field strip and clean them in boot camp, to milling, drilling, and building several of my own in my workshop. Currently, the AR platform serves me in several capacities; not only does these firearms hold a special place in my heart as I relied on them many times in hostile environments, but I also compete with them. As a professional instructor, I teach others how to employ them safely, properly, and effectively.

So, I take every opportunity I find to learn more about them. Back in the late months of 2020 I stumbled upon the American Below and Gunsmithing Institute (AGI) and found they offer some courses on the AR. I did some research and decided to give them a try. I would like to note that AGI offers a lot of courses, from gunsmithing to armorer to appraising. Many of their courses are offered as a bundle but almost all topics can be taken as stand-alone courses.

For this review, I am discussing my thoughts on the AGI Certified Law Enforcement Armorer's Course for the AR-15/M16/M4A1 Weapon Platform. Let me begin by saying that these are my opinions and that this is a positive review; even if I mention things I felt could be improved upon, my overall assessment and experience with the course was positive and I would recommend taking the course. Purchasing the course can be a difficult process—at least it was for me.

It helps if you receive their mailers or subscribe to AGI's emails as the courses are advertised very well in those forms and ordering instructions are very clear. If you do a web search, that is where it can get tricky. It seems there are two websites that pop up when searching for AGI (.net and.com). And even

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when you get to the course catalog, you may be confused; like what is the difference between the Certified Law Enforcement Armorer's Courses and the basic armorer's courses? Well, to answer that question, the difference is in receiving a certificate or not. For those requiring an official certification or continuing education hours, the certificate would come in handy I think it is also worth noting here that you do not need to be in law enforcement or even be an armorer to take this course.

Anyone who uses, maintains, or otherwise has access to an AR would benefit from this training. There are other courses within the Certified Law Enforcement Armorer category that concentrate on some of the more common firearms used by peace officers. In addition to the AR platform, you could also choose the Glock and/or SIG courses. I have and am planning on sharing my thoughts on those in the near future.

To make it easier for you to find, the direct link to the Certified Law Enforcement Armorer's Courses are at AmericanGunsmith.com/productcategory/cert-armorers-courses The course can be purchased in one of two formats, online or DVD. After paying, you'll first receive the video in the format you selected along with instructions on how to access and take a test at the end. The five or six-hour video, along with some provided course notes is the entirety of course.

There is no personal interaction with the instructor, but you can watch the video as many times as you need in order to fully understand the topic being taught. After watching the video, take the test by mail or log onto a separate AGI testing site, create an account, and take your test online. If you opt to take the test online, you will see you score immediately. When completed, contact an AGI representative to request your certificate and patch to be sent to you, if desired.

I felt the testing process and the test itself was lacking, but again, I felt the information delivered in the video was worthwhile. (you also get a patch for certified courses). It is important to understand that this is not an AR gunsmithing course; you will not learn how to build an AR and you will not be 'smithing any gun parts.

As the name indicates, this is an armorer level course; you will learn design and function, you will learn about variations of the platform, how to disassemble to an armorer level, how to inspect and replace parts, how to check headspace, throat erosion, firing pin protrusion, how to manage and record a maintenance program, and so on. I have to say, I thought this course was well worth the money.

If you're looking to learn a little more about ARs or if you need a quick refresher, go on over to AGI and check out their course catalog. AG

MEASUREMENT & INSPECTION

I'll Take a Slug of That

Working with old and interesting guns likely requires precise custom internal measurements. Here's why and how to slug your barrel.

BY PAUL MAZAN MAY 2022

ORIGINAL PP. 11–13

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Many old guns have bores that do not conform to what today are “standardized” dimensions. To get them to shoot accurately, you must measure the bore and match a bullet to it. Here is how to do it. Colonel Townsend Whelen (1877- 1961) is remembered by many for two things. The first is necking the 30-06 Springfield up to .35 caliber so it could accept heavier and wider bullets, making it a better choice for elk, bear, caribou, moose, and other large game that most of us never get a chance to hunt.

That wildcat round is now named after him and today formally recognized by the Sporting Arms and Ammunition Manufacturers' Institute and firearm industry at-large as the 35 Whelen. The other thing Whelen is known for is being reputed to have said, “Only accurate guns are interesting.” Col. Whelen was evidently never bitten by the history bug. In my humble opinion, guns don't get interesting until they are at least 100 years old.

Perhaps we can forgive the good Colonel because back in his day, 100-yard groups covering one inch were usually something to be attained only after a long load development process. The inconsistencies in powders, primers, and bullets

we enjoy today were not available in his day and that is not to mention other improvements in bedding, barrels, sights, triggers, synthetic stocks, and loading techniques.

Today, one-inch groups without-of-the-box rifles and factory ammunition are reasonably common if the rifleman is able to do his part. That is not the case with old rifles in discontinued calibers that are often well worn and far past their prime. Perhaps that is why they intrigue me as they present the gunsmith with numerous challenges.

The first is to bring them back to a shootable condition, then to work up ammunition that will simply function in the action, and then improving things to deliver a degree of accuracy. In some cases, this modest endeavor presents monumental challenges. Shooting old guns in obsolete calibers is not for the uncommitted. First, there is the cost of the firearm.

Some of the more “affordable” firearms like the Trapdoor Springfield, Rolling Block, Martini, and Snider will start somewhere in the neighborhood of \$800 and go up from there. Of these, the Trapdoor and Rolling Blocks chambered in 45-70 Government are the easiest to find ammunition, dies, bullets, and cases for. The Rolling Blocks can be found in many calibers that offer a significantly greater chal-

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lenge. The Snider and Martini are probably the next level of difficulty with their 577 Snider and 577/450 Martini-Henry loadings. Not as obscure as they were just a few years ago, the influx of guns from Nepal have made them common enough that reloading dies and components Once you are bitten by the old gun bug, things can get really interesting as many obsolete cartridges have to be made by converting other cases.

The conversion process will often involve turning operations to reduce the rim diameter and/or thickness as well as annealing and fire forming to larger caliber and chamber dimensions. In some cases, you may work for 435 caliber.

Since the barrel measures 0.442 inside it is very likely that accuracy will be poor. for them, while expensive, are available from places like Graff & Sons (Grafs. com, in Mexico, Missouri. hours to turn out one case and days to make up five or

six cases just to take the gun out and fire it. Barrel Slugging To achieve any degree of accuracy, you cannot simply depend on commercially loaded ammunition to load a bullet that will fit the bore of your rifle or that the bore matches the stated caliber.

You will want to be sure to slug the bore and find a bullet that is at least bore diameter. Unlike modern guns, there is much more variation in the actual barrel diameters in old guns of the same model and caliber. These guns were built in the early part of the Industrial Revolution and tolerances, especially between manufactures, was not as closely held as they are today.

The chart presented here of typical caliber measurements provides examples of a given firearm's listed bullet diameter for each chambering along with the actual bore diameters of guns that have been in my shop. In most cases they match up pretty well but some exhibit bores as much as 0.008 larger than the standard

bullet, such as a Snider carbine which chambered for a .577 bullet but had a .585 caliber bore.

I've also encountered bores 0.015 smaller than the nominal caliber would take, such as a .69 caliber musket made by the Eli Whitney Manufacturing Company with a bore that measured as .675 caliber. These measurements highlight the necessity of determining the actual diameter of the bore of any old gun before heading off to the range and expecting it to be a tack driver.

I have to wonder how many old firearms have been sold off over the years because the owners couldn't get them to shoot accurately because of a mismatched bullet to bore diameter. The process of slugging a bore is simple. You simply force an oversize slug of soft lead down the bore using a steel or brass rod. Depending on

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Five shots yielded a group of 11 inches. This is a good example of the challenges in working with old guns and why slugging for an exact internal measurement is critical. the size of the slug and condition of the bore, this might require light taps or more substantial blows on the rod to force the lead slug down the length of the bore. It helps if both the slug and the bore are lubricated and I will normally use lubricated lead bullets of a slightly larger caliber as the slug.

After the slug has been forced down the length of the bore it is measured with a micrometer or caliper to determine its true diameter. Is doing this worth it? That depends on you. Shooting old firearms is a journey into the past. Typical Caliber Measurements (these may vary) Firearm Caliber Bullet Dia. Bore Dia.

Snider carbine 577 Snider 0.577 0.585 Snider rifle 577 Snider 0.577 0.582 71/84 Mauser 11mm Mauser 0.446 0.448 Gras 11X59R Gras 0.44 0.442 Werndl 11.15X58R 0.44 0.442 Eli Whitney Musket .69 cal. 0.69 0.675 1812 Musket .69 cal. 0.69 0.692 577/450 MH* 577/450 MH* 0.455 0.461 1870 Rolling Block 50-70 0.515 0.513 *Martini-Henry It is a lesson in firearms development and gives you insight into the evolution of design that resulted in the guns we shoot today. As a gunsmith, I find it both interesting and educational.

It shows me different ways others have approached designing actions and helps me to innovate when problem solving myself. Besides, it is fun to go to the local range and have the others there coming by and asking what that gun is that I'm shooting and being able to answer by telling them it is a Wendel, a Snider, a Martini, a Gras, or whatever. AG

FINISHING

Custom Action Wrench

Making your own gunsmithing tools allows customization, can save time by creating a needed tool in a pinch instead of waiting, and can save money. Here's how I made a custom action wrench.

BY ROBERT M. LAYNG MAY 2022

ORIGINAL PP. 14-15



Left: The top jaw of my wrench. Note the half round cutout and the two clearance holes for the bolts to attach it to the other half of the wrench.

[ORIGINAL ARCHIVE IMAGE](#) · [PERMISSION CONFIRMED](#)

When working on a project, sometimes even the best of us find that we are in need of a special tool to finish the job but don't have it on hand. The reasons for this are many, including not wanting to purchase one for the high price tag they usually have attached, or are in a time crunch, etc. Whatever your reason, you are still in need of said special tool to move along with the job.

I found myself in this exact situation when needing to rip the barrel off of the action of a surplus rifle I picked up at a local gun shop for a pet project. After placing multiple phone calls to various companies to get quotes and searching the depths of the World Wide Web, I came up with almost no results costing less than a mortgage payment. I decided to just make my own with some materials I had on hand in the shop.

I had some inch and a half square steel bar and some 1x0.095" wall chromoly tubing in the steel room, so I cut a length of the tubing to make a handle and a few chunks of the steel bar to make the clamping blocks. I faced both ends of the steel tube to make them flat and put a healthy chamfer on them to get rid of any sharp edges, blending with files and sand paper. I

aggressively knurled one end about eight inches from the edge to get a solid purchase point for a sure grip on the handle.

At finished length it was two feet long, giving me plenty of leverage to break the connection of a rather stubborn barrel torqued into this old action. Next, after machining the chunks to equal length, I gang clamped one of them together with a scrap bar in the milling machine vice and picked up the center of the set. After spending a few minutes with a 1-2" micrometer and measuring the front receiver ring, I had my desired size. Back to the milling machine!

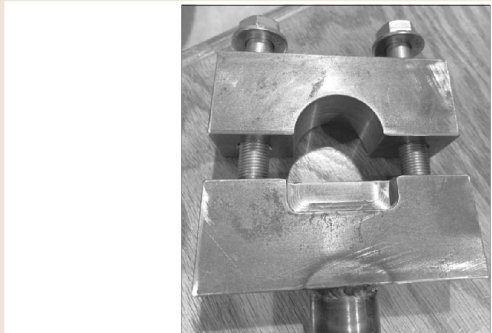
After hogging out a majority of the material with various drills, I switched to the boring head and precisely machined out the pocket to the exact size I measured. I split the vice open and recycled the scrap bar. I checked my work to the front receiver ring. Finding it was a perfect fit, I deburred it heavily and set it back in the milling machine at 90 degrees from the work I had just completed and drilled two clearance holes for 1/2" bolts.

I put the second milled bar into the vice and drilled and tapped two holes in identical locations for 1/2"-20 UNF screw threads, seeing

as I had two Grade 8 bolts of proper length in this size already on hand. Note, you can obviously use whatever size screws or bolts you desire, but a professional tip would be to not use anything smaller in diameter than 3/8" Grade 8 bolts. This bar also needed a recess to accommodate the recoil lug from the receiver.

Rotating the bar 90 degrees and clamping it again, I picked up the edges in the milling machine and found where I would have to put the pocket to fit the recoil lug and also how deep I would have to go to get the best possible clamping force out of the wrench over the front receiver ring. After doing all the math, I put an end mill in the machine, cut out the pocket and gave it a healthy chamfer around the machined edges, and then rounded them off with a fine-cut file.

This is also the bar that I would be putting the handle in, so I rotated the part another 90 degrees and drilled a one-inch hole about halfway down the thickness of the bar. This allowed me to sink the handle into the bar a good bit. I then walked around the tube with my TIG welder to make sure that puppy never came apart again.



Left and above: An assembled wrench. Here we see the half round for the receiver ring, the bolts used to squeeze the ring, and the cutout for the recoil lug. You can also see the handled welded on. The other end is aggressively knurled for grip texture. This setup worked remarkably well!
[ORIGINAL ARCHIVE IMAGE](#) · [PERMISSION CONFIRMED](#)

Left and Here we see the half round for the receiver ring, the bolts used to squeeze the ring, and the cutout for the recoil lug. You can also see the handled welded on. The other end is aggressively knurled for grip texture. This setup worked remarkably well! With that, I had made a custom action wrench in about three hours that will serve me for many years to come. I highly suggest going this route if you have access to a machine shop, welding machine, and the raw materials.

After carefully and evenly snugging the two parts over the front receiver ring and butting up against the recoil lug, I torqued each screw down to 50 foot pounds, placed the offend- ing barrel in the hydraulic press, and ding! The threads unlocked and the receiver threaded right off without a hitch. After unscrewing the two bolts that held the wrench together, I took the freshly-made tool apart and had a receiver ready for anew lease on life.



Left and above: An assembled wrench. Here we see the half round for the receiver ring, the bolts used to squeeze the ring, and the cutout for the recoil lug. You can also see the handled welded on. The other end is aggressively knurled for grip texture. This setup worked remarkably well!
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This same tool can also be used to snug and torque this receiver onto replacement barrels. I have since opened up the recoil lug pocket on this wrench to accommodate just about any receiver that will come across my bench in the future. I keep the blueprints handy for the hole locations and receiver ring sizes of all known options on the market today. I even went so far as to make a few bars up with various angles of V-block geometries (30, 45, 60, and 90 degree cut jaws) that all attach to this same wrench.

Should I ever need to make another clamping jaw, I reckon I can make the top half of the wrench and be back to the bench within a few hours. This custom tool has been a huge money-saver and has proven to be ultra-reliable. It was also made in less than a day, so I didn't even lose any appreciable time on the job. Thank you for reading, and I hope this inspires you to think about this in the future if the need ever arises in your shop! AG

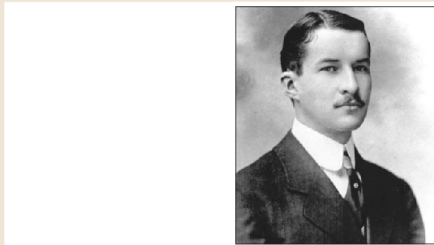
HISTORY

The History of SATPCO

Thomas G. Samworth and his Small Arms Technical Publishing Co. produced classic gunsmithing titles from 1928 through 1950 and single handedly created the firearms technical literature genre.

BY BRIAN R. SMITH MAY 2022

ORIGINAL PP. 16–23



Left: A young Thomas G. Samworth at the time of his marriage to the former Dora Cloud.
Above: Samworth at his desk at the Dirleton Plantation house. The South Carolina summer climate likely dictated his choice of office attire.

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Left: A young Thomas G. Samworth at the time of his marriage to the former Dora Cloud.
Above: Samworth at his desk at the Dirleton Plantation house. The South Carolina summer climate likely dictated his choice of office attire.

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Well into the third decade of the 21st century, it seems as if hardly any people consult books for information. The Internet and smart phones have made doing any kind of research far too easy and convenient. The cellular mobile phone has become such an effective source of instant information at our fingertips, regardless of the information's accuracy or veracity. If you need to know something, an answer (right or wrong) is just a few keystrokes away. It wasn't always this way.

Before the Interwebz was commonly available, people relied on libraries, books, knowledgeable subject matter experts, etc. When it came to firearms and gunsmithing in particular, books and experienced gunsmiths had the answers. There are dozens of books on gunsmithing subjects in print as of 2022, some of which are reprints of much older texts.

It might surprise some in the gunsmithing trade that the reference books many of us "gunsmiths of a certain age" learned from and routinely turned to came from one source: Thomas G. Samworth, who is single handedly responsible for creation of the firearms technical literature genre. Especially noteworthy for gunsmiths,

most of the important hardbound references published on the gunsmithing trade between 1928 and 1950 were done so by "Mr.

Sam." Many gunsmiths age 50 and older probably have some of these titles on their bookshelves. Those significantly older (raising own hand) likely have many of them. A few younger gunsmiths may have one or two as well, and probably recall seeing them on shelves in older gunsmiths' shops when they were younger and became interested in firearms building, finishing, and repair.

It is truly remarkable that nearly every significant reference work on the subject published and in use by gunsmiths in the 20th century came from one source: Samworth and The Small Arms Technical Publishing Co. History Thomas Garvine Samworth was born on October 28, 1888 on the family's dairy farm near Wilmington, Delaware. Samworth's ancestors could be traced back 100 years to post-Revolutionary times.

His father has a contract to supply milk to the Union Army during the Civil War and served eight days in the Union Army in 1863 at a sleepy little farming community in southern Pennsylvania called Gettysburg. Samworth's childhood was noseto-the-grindstone with

endless farm chores, and his limited free time was spent outdoors. At an early age he was introduced to firearms and rapidly developed proficiency with Samworth at the time of his marriage to the former Dora Cloud.

The South Carolina summer climate likely dictated his choice of office attire. a rifle and became keenly interested in any pastime that required the use of one. Later in life, "Mr. Sam" would remark that the only limiting factor in his hunting pursuits was the amount of ammunition in his pockets. His frugality and outdoor sporting interests prioritized how he spent his money; he preferred buying rimfire ammunition to candy or tobacco.

A childhood with the minimum of schooling left Samworth nearly illiterate, but he taught himself to read and eventually landed one of his first full-time formal jobs as a printer's assistant in Roycroft, New York. Demonstrating prowess, young Samworth was soon promoted to printer. Approximately 1908, Samworth enlisted in the Delaware National Guard, eventually attaining the rank of First Lieutenant. He married the former Dora A. Cloud of Wilmington on July 31, 1913.

THE FIRST OF TWO DAUGHTERS WAS BORN JUST OVER A YEAR

THE HISTORY OF SATPCO CONTINUED

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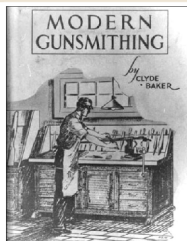
Above left: Samworth enlisted in the US Army in 1916 and was assigned to the 6th Cavalry and took part in the Punitive Expedition into Mexico. He took a number of photos of 6th Cavalry units making preparations in Texas that survive to this day, including the one above. Above right: The 1,275 acre Dirleton Plantation near Georgetown, South Carolina was the final residence of Samworth. The plantation house is shown, which became offices for state wildlife biologists after Samworth deeded Dirleton to South Carolina as a game preserve. Samworth moved to a mobile home on the property until his passing in 1981.

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Below: J. A. Mattern's Handloading Ammunition was the first title published by the Small Arms Technical Publishing Co., and was an instant success for Samworth. Right: The first of 12 books on gunsmithing published by Samworth was Clyde Baker's 1928 Modern Gunsmithing, which was another brisk-selling title that was often reprinted. It was a mainstay reference on the subject until Roy Dunlap's and Walter Howe's books were published twenty-some years later, both by Samworth.

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He took a number of photos of 6th Cavalry units making preparations in Texas that survive to this day, including the one above. The plantation house is shown, which became offices for state wildlife biologists after Samworth deeded Dirleton to South Carolina as a game preserve. Samworth moved to a mobile home on the property until his passing in 1981. later and named for her mother. A second daughter, Mary, arrived in February 1917. Samworth resigned from the Delaware National Guard in 1916 to enlist in the U. S.

Army. He was assigned to the Sixth Cavalry and sent to Texas, taking part in the Punitive Expedition into Mexico. This posting kept him from being transferred to Europe during the First World War, an experience that Samworth was oft heard to regret missing. A. Mattern's Handloading Ammunition was the first title published by the Small Arms Technical Publishing Co., and was an instant success for Samworth.

It was a mainstay reference on the subject until Roy Dunlap's and Walter Howe's books were published twenty-some years later, both by Samworth. The young officer had ample exposure to contemporary military firearms, to which he took with relish. His boyhood and military

experiences led to some ideas for improvements in munitions, and Samworth was assigned as an Army liaison with E. I. Du Pont de Nemours in Wilmington, DE.

Numerous Samworth recommendations were incorporated into the production of smokeless power and ammunition, and Samworth became widely recognized as an expert in the firearms industry as a result. He became employed with the chemical giant following his discharge from the Army. At approximately the time he joined Du Pont, Samworth was elected to be a director of the nation's largest organization for shooters and the shooting sports, the National Rifle Association.

Samworth's consuming passion for every task he performed was amplified when it came to shooting. His ability with a rifle caused him to be inducted into the President's Hundred, one of the shooting competitions held during the annual National Matches recognizing the top 100 riflemen in the country. His favorite rifle was certainly the M1903 Springfield.

If another shooter happened to remark in a positive manner regarding the merits of a Mauser, Mannlicher, or Winchester High Wall in a given

chambering, Samworth could and would lecture at length on the respective strong points and shortcomings of those rifles. A Samworth defining characteristic was that he spoke his mind regardless of subject matter or persons present. Samworth was well known to not suffer fools gladly and his command of colorful language was such that he seldom left any expletive deleted.

His strong personality and will and equally strong opinions were at odds with corporate politics, and he eventually resigned from Du Pont and made a brief stay at the family farm at Pike Creek near Wilmington. In 1922 Samworth was contacted by a fellow shooter and friend, Colonel A. J. "Sandy" Macnab, also an official of the NRA. The conversation they had centered on the topic of the Association's membership, or more correctly, the lack of one.

With only 2,000 members at the time, the NRA faced the real possibility of dissolution. Samworth shared Macnab's beliefs, and agreed with the urgent need to sign on as many new members as soon as possible. The journal of the NRA at the time was called Arms and the Man and Samworth had ideas for its improvement. Samworth accepted Macnab's invitation to come to Washington, DC

THE HISTORY OF SATPCO CONTINUED

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Far left: Firearm Blueing and Browning was one of the smallformat Samworth books on gunsmithing; it contains dozens of formulae and procedures on metal finishing techniques for firearm components. Left: Walter Howe's Professional Gunsmithing was another of the extremely popular books on the trade produced by Samworth. The colorful dust jacket featured a grizzled hunter whose gunstock had broken at the wrist, discussing repairs with the gunsmith while the predictable group of gunshop "hangers-on" watch from near the stove. The hunter's dog looks on.

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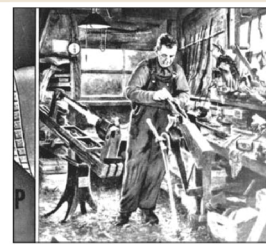
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Far left: Gunsmithing is the simple but descriptive title given to Roy Dunlap's famous work, published by Samworth in 1949. The original book and its reprints were hardbound in a mint green buckram cloth, and the dust jacket had the title wraparound from the spine to the front cover. Left: Vickery's Advanced Gunsmithing was joined by Dunlap's Gunsmithing and Howe's Professional Gunsmithing as mainstay references for gunsmiths from the late 1940s on. The author can recall seeing these texts at every local gunsmith's shop as a young shooter in the 1960s.

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to take over editorship of the NRA magazine. One of the first steps Samworth took as editor was to change the magazine's name to The American Rifleman. The new title better fit the spirit of the organization and the publication's new editor, rather than the title of a George Bernard Shaw comedy play. Samworth actively recruited leading contemporary shooting authorities as contributors. Articles appeared with the bylines from then and future shooting world notables as Townsend Whelen, Julian Hatcher, J.

Randall Mattern, Charles Askins, Sr., Edward C. "Ned" Crossman, and relative newcomers like Elmer Keith. Their knowledge and expertise was made available to NRA members through The American Rifleman, with a dramatic increase in both Association membership and the shooting

sports. As editor of The American Rifleman, Samworth believed that reasonably priced hardcover reference books on shooting subjects would be popular and a source of income for the Association.

Macnab was less enthusiastic, but gave Samworth the go-ahead to produce such a book as an experiment. Samworth collected six articles by Townsend Whelen that had previously been published as a series in The American Rifleman. Far The colorful dust jacket featured a grizzled hunter whose gunstock had broken at the wrist, discussing repairs with the gunsmith while the predictable group of gunshop "hangers-on" watch from near the stove. The hunter's dog looks on. titled "Amateur Gunsmithing".

The book was published in 1925 and turned a modest profit of a few hundred dollars after the first printing had sold out. Macnab wasn't impressed, and forbade Samworth any further hardcover publishing efforts. Characteristically, Samworth reiterated his positive opinion regarding reference book publishing but was again shut down by Macnab. Samworth resigned, and the February 15, 1926 issue of The American Rifleman was the last to list Samworth as editor.

At the time he left the NRA editorial offices, Samworth remained an Far The original book and its reprints were hardbound in a mint green buckram cloth, and the dust jacket had the title wraparound from the spine to the front cover. The author can recall seeing these texts at every local gunsmith's shop as a young shooter in the 1960s.

THE HISTORY OF SATPCO CONTINUED

ORIGINAL PAGE 19



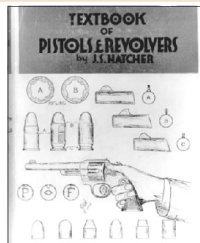
Far left: Elementary Gunsmithing filled the spot in the SATPCO lineup of gunsmithing offerings that catered to the interests of non-professional DIY-ers in the mid-20th century. Its content advised people with practical skills on how to make basic repairs, modifications, and some improvements. Left: Donald Newell's Gunstock Finishing and Care was another popular Samworth title that was reprinted and on bookstore shelves into the 1990s. It covered all aspects of wood gunstock finishes, refinishing, repairs, bedding, and alterations.

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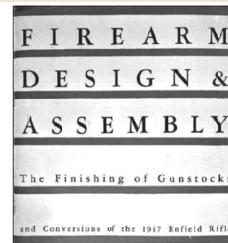
Far left: Elementary Gunsmithing filled the spot in the SATPCO lineup of gunsmithing offerings that catered to the interests of non-professional DIY-ers in the mid-20th century. Its content advised people with practical skills on how to make basic repairs, modifications, and some improvements. Left: Donald Newell's Gunstock Finishing and Care was another popular Samworth title that was reprinted and on bookstore shelves into the 1990s. It covered all aspects of wood gunstock finishes, refinishing, repairs, bedding, and alterations.

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Far left: The Firearms Design and Assembly series consisted of four large-format softbound booklets on the topic of stockmaking and finishing; the third in the series The Finishing of Gunstocks is shown. The first three were authored and illustrated by famous stockmaker Alvin Linden and the fourth was written by Monty Kennedy. Left: The author recalls that Julian Hatcher's 1935 Textbook of Pistols and Revolvers was constantly referred to by gun magazine writers of the 1950s through the 1980s. You won't find Glocks covered, but the wealth of detailed historical and technical information on handguns from the late 19th century to 1935 is enormous.

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enthusiastic but critical NRA supporter, and eventually held two Life memberships. Capitalizing on his relationships with Rifleman contributors, Samworth encouraged some to produce book-length manuscripts. Moving back to the Delaware farm from DC, he immediately began work on editing and publishing the second manuscript he solicited while at the NRA, a then-authoritative text on ammunition handloading by J. Randall Mattern.

Simply titled Handloading Ammunition, it appeared in December 1926 under anew publishing imprint; Small Arms Technical Publishing Co. (SATPCO) of Marshallton, DE was born. The Mattern ammunition handloading book was an overnight success; nothing like it had been published before, and subsequent printings sold quickly. Dozens of reader testimonials were received, and were incorporated into the young company's advertising campaigns and materials. Who says customer reviews area new thing?

Samworth was buoyed by the immediate commercial success of his fledgling publishing business, and a second title, Wilderness Hunting and Wildcraft by Townsend Whelen was produced. Whelen and Samworth were unofficial partners of sorts in the early days of SATPCO.

While Whelen's book was an excellent treatment on the subject, it had to compete with similar books by more recognized contemporary outdoor authors such as Horace Kephart and George Sears, aka "Nessmuk." As a result, Whelen's book was a slow seller for years and exists only in one 3,000-Far Its content advised people with practical skills on how to make basic repairs, modifications, and some improvements.

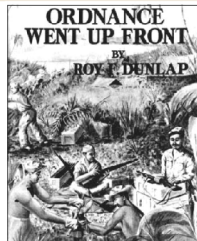
It covered all aspects of wood gunstock finishes, refinishing, repairs, bedding, and alterations. copy printing. Samworth wrote in a 1930 letter that "there aren't enough 40-year-old boy scouts out there to buy the book." Some sixty years later in

the late 1980s, Whelen's Wilderness Hunting and Wildcraft was so sought after by collectors that a limited edition reprint was made by Wolfe Publishing of Prescott, Arizona.

Major General Julian Hatcher was the next SATPCO author to see his manuscript published, with the 1927 introduction of Pistols and Revolvers and Their Use. Hatcher was a regular contributor to The American Rifleman and had one previous Far The first three were authored and illustrated by famous stockmaker Alvin Linden and the fourth was written by Monty Kennedy. You won't find Glocks covered, but the wealth of detailed historical and technical information on handguns from the late 19th century to 1935 is enormous.

THE HISTORY OF SATPCO CONTINUED

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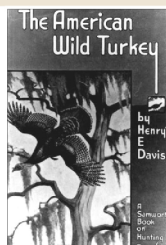
Left: *Ordnance Went Up Front* was the second title written by Roy Dunlap and published by SATPCO. It includes detailed descriptions of American, Allied, and Axis small arms used in WWII in both theatres, written from the perspective of an ordnanceman and gunsmith. This is a must-have title for anyone interested in military weapons of WWII.

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Below left: Noted African hunter John "Pondoro" Taylor wrote *African Rifles and Cartridges*, considered a cornerstone of any book collection on safari hunting. Below center: *The American Wild Turkey* is perhaps the most sought-after Samworth title. Samworth was so pleased with it that he doubled the author's payment to \$2,000, equivalent to about \$23,000 today. Below right: Charles Singer Landis, the dean of American varmint shooters, wrote three books for Samworth, including *Hunting with the Twenty-Two* illustrated by Gayle Hoskins.

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It includes detailed descriptions of American, Allied, and Axis small arms used in WWII in both theatres, written from the perspective of an ordnanceman and gunsmith. This is a must-have title for anyone interested in military weapons of WWII. book published, *Machine Guns* in 1918, published by George Banta. Hatcher was destined to produce two more texts for Samworth, *Textbook of Pistols and Revolvers* and *Textbook of Firearms Investigation, Identification, and Evidence*, both published by SATPCO in 1935.

The latter is actually two books bound into one massive volume, incorporating the entirety of *Textbook of Pistols and Revolvers* as a "Part 1" introduction. Below center: *The American Wild Turkey* is perhaps the most sought-after Samworth title. Samworth was so pleased with it that he doubled the author's payment to \$2,000,

equivalent to about \$23,000 today, to handguns in general and "Part 2" being the actual forensic subject matter in exhaustive detail.

As a grade schooler in the 1960s when I was getting interested in firearms, "old guys" in their 30s and 40s used to refer to Hatcher's *Textbook of Pistols and Revolvers* and Hatcher's *Notebook* (published in 1947 by the Military Service Publishing Co.) in reverent tones, and copies of both were enthusiastically sought by shooters and collectors alike throughout the '70s and '80s.

Some people consider the 1935 *Textbook of Pistols and Revolvers* to be an updating of the earlier *Pistols and Revolvers and Their Use*, but in reality the two books are completely different in many respects and are very complimentary. The decade of the 1930s was to be a watershed time

for Samworth. In early 1929 with the Great Depression months away, Samworth used savings to purchase a 700 acre plantation near Jacksonville, NC in Onslow County.

In September 1930 he moved to the plantation to supervise the construction of a house for the family and office for the publishing business. The sale of the Delaware farm closed in February 1931. The new location was storybookperfect for the publisher. He considered the plantation to be primarily a game and shooting preserve that seconded as a location for his home and business. Sales were not spectacular because of the Great Depression, but 1932 saw new and notable SATPCO titles introduced.

New Titles An Idaho cow-puncher turned hunter by the name of Elmer Keith authored

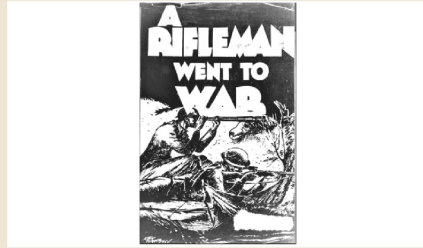
THE HISTORY OF SATPCO CONTINUED

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Above: Samworth recognized that not all firearms reference books could be massive, and he introduced smaller-format, thinner books to suit the quantity of material generated on given subjects by his stable of authors. Some of the more famous “small Sams” are shown. Right: A Rifleman Went to War was the title of a 1935 memoir of experiences in a Canadian Machine Gun platoon in WWI by noted marksman Herbert McBride, a distinguished competitor and member of the Chicago Rifle and Pistol Club. Far right: John B. George was another member of the Chicago Rifle and Pistol Club who authored Shots Fired in Anger, detailing his exploits as an officer with the Americal Division in the South Pacific during WWII. It was reprinted in the 1980s by the NRA Press.

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Some of the more famous “small Sams” are shown. Far right: John B. George was another member of the Chicago Rifle and Pistol Club who authored Shots Fired in Anger, detailing his exploits as an officer with the Americal Division in the South Pacific during WWII. It was reprinted in the 1980s by the NRA Press. Two of the smaller format SATPCO books titled Big Game Rifles and Cartridges and Sixgun Cartridges and Loads.

These were the first books written by the prolific gun writer, and were in a smaller, thinner format than previous Samworth products. Keith fans may be surprised to learn that he penned a third manuscript for Samworth with the title Varmint and Small Game Rifles which Samworth purchased but never published. In a letter in later years, Samworth remarked that “[Keith] was not a very good writer.

I had to heavily edit his manuscripts to the point that the finished products were more or less inspired by [Keith] and essentially written by me.” The manuscript was never found in Samworth’s effects. Samworth enticed his friend Townsend Whelen to write another small format title, Telescopic Rifle Sights, a “who’s who” of shooting glass up to the 1940s.

It was a strong seller due to increasing public interest in rifle scopes at the time, and went into a second printing in 1944, which included two additional chapters on junior and sniping scopes. Ammunition expert Earl Narramore wrote Handloader’s Manual which updated Mattern’s earlier work to 1938. It was a steady seller for Samworth and SATPCO. The late 1930s saw Samworth experience more than his share of tribulations, mainly affecting his beloved plantation.

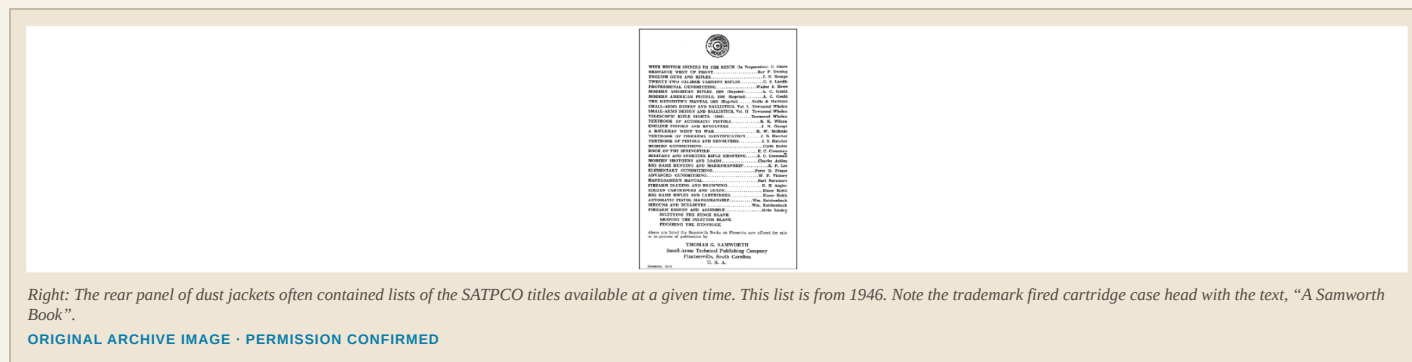
When Samworth bought the place in 1930, he purchased it from landowners Ollie and Mary Marine, and the area near the plantation was known as “Marines, Onslow Co, North Carolina.” In a total coincidence, the now- Samworth property eventually became of interest for a different sort of Marine, the United States Marine Corps that operated a nearby training camp which eventually became the sprawling Camp Lejeune.

To the USMC, the virtually next door 700 acre Samworth property looked like prime land for an expansion, and it commenced legal proceedings to have the land condemned under eminent domain. Samworth fought tooth and nail in court, but his attorney did not prevail and the judge even

criticized Samworth for being unpatriotic for contesting the government claim to his property. He was compensated approximately a third of the purchase price he had paid Mr. and Mrs. Marine in 1930.

The undaunted Samworth picked up and headed further south to Plantersville, north of Georgetown, South Carolina. There he purchased Exchange Plantation on the Pee Dee River. The war years were another challenge for Samworth; because of the war, paper stock was a rationed war materiel.

Taking advantage of connections, Samworth convinced the appropriate government authorities that sales of SAT- PCO firearm and ammunition titles to customers in government and the expanding supply chain were contributing to the war effort. The presses continued to run. In the middle of all the correspondence, editing, proofreading, packaging, and shipping, Mr. Sam once again pulled up stakes and relocated, this time to the larger 1,275 acre Dirleton Plantation on the Pee Dee River outside of Georgetown, SC.



Right: The rear panel of dust jackets often contained lists of the SATPCO titles available at a given time. This list is from 1946. Note the trademark fired cartridge case head with the text, “A Samworth Book”.

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At Dirleton, Samworth became fast friends with a neighboring plantation owner and construction contractor, Alex Quattlebaum. Evenings would find Quattlebaum at Dirleton, or Samworth at next-door Arundel Plantation. Quattlebaum introduced Samworth to Henry E. Davis, a Florence, SC attorney and noted outdoorsman who was at the time the leading authority on the wild turkey and the hunting of that bird. Mr. Sam offered Davis \$1,000 for a manuscript, and was so pleased with the result that he doubled the payment amount.

The American Wild Turkey was published in 1949 and became widely recognized as the premier text on the subject. Among hunters, it is the best-known SATPCO title and was in such high demand in the 1970s and 1980s that prices for original copies often brought \$300 to \$500.

Demand led to its republication by Old Masters in 1984, and by Premier Press in 1990; original and reprint copies still bring very high prices. 1948 saw the publication of another high-demand hunting book, African Rifles and Cartridges by John “Pondoro” Taylor. Popularity with safari hunters over the years led to reprints by Stackpole Books and Wolfe.

The dean of American varmint hunters, Charles Singer Landis, wrote three titles for the SATPCO imprint between 1932 and 1950: 22 Caliber Rifle Shooting, Twenty-Two Caliber Varmint Rifles, and Hunting with the Twenty-Two. The three texts are mostly complimentary, and their contents represented the collected contemporary knowledge of .22 caliber varmint cartridges, rifles for those cartridges, and how to use those rifles and cartridges. This list is from 1946.

Note the trademark fired cartridge case head with the text, “A Samworth Book”. In the field. A few years ago a close friend and varmint hunter borrowed reading copies of those Landis titles from me, and when he returned them he commented on “how much was forgotten” about varmint rifles and cartridges in the past 30-plus years. He showed me a notebook he made, the majority of the pages of which were filled with his observations of information gleaned from and “rediscovered” in the Landis books.

A complete list of all SATPCO title is provided here, but I’ll turn now to the SATPCO gunsmithing titles that were the hottest sellers for Samworth. 1928 saw the introduction of the first Samworth book on that subject, Clyde Baker’s Modern Gunsmithing. An instant success, Samworth reprinted the original Baker text five years later with no additional material and called it Modern Gunsmithing—1933 Edition.

Periodic “editions” were brought out through the mid-1940s. 1936 saw the publication of a gunsmithing text by R H Angier, Firearm Blueing and Browning. It is a veritable cookbook of firearm and metal finishing formulae and techniques that was so popular it was catalogued by Stackpole Publishing Co. into the 1980s.

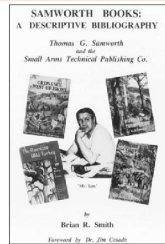
Later 1930’s gunsmithing titles were Elementary Gunsmithing by Perry Frazer which introduced many DIY readers to the rudiments of that craft, providing them with the basic information needed to perform minor repairs and alterations. At the other end of the skill spectrum, Advanced Gunsmithing by W. F. Vickery proved to be as

much a classic as the earlier Baker work, and was another SATPCO title that was later reprinted by Stackpole and Wolfe.

Several new titles were introduced during WWII, including eventual four softcover booklets on stockmaking, the first three by the famous stock maker Alvin Linden, released in 1941: The Inletting of Gunstock Blanks, The Shaping of Gunstocks, and The Finishing of Gunstocks were an instant success. These booklets were part of the SATPCO “Firearms Design and Assembly” series of an intended six booklets, but Linden passed away with the fourth manuscript incomplete.

These were large format, approximately 8-1/2 x 11” and softcover bound. The fourth title was published eventually as Checkering and Carving of Gunstocks by Monty Kennedy is bound with thick babyblue cardboard. Each of the booklets had two fold-out patterns for sporterized M1903 or M1917 gunstocks printed on thick tissue pattern paper that the reader could use as inspiration or a guide for his own stockmaking projects. Samworth also reprinted the 1883 Stelle and Harrison classic, The Gunsmith’s Manual.

It had been regarded as an authoritative reference on the subject until SATPCO published the Baker book in 1928. For post-WWII gunsmiths and those since, 1949 was a notable year in that two foundational “modern” gunsmithing texts were issued by SATPCO: A. D. Newell’s Gunstock Finishing and Care, and Roy Dunlap’s famous Gunsmithing. Most gunsmiths of the past 60-70 years should be familiar with the latter’s mint green cloth hardbound main-



Left: The author's *Samworth Books: A Descriptive Bibliography* contains a complete history of SATPCO, Samworth, and all their books.
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stay text, and even if younger gunsmiths don't have a copy, they likely knew an older gunsmith who did. Dunlap's book was repeatedly reprinted by Stackpole. I don't know many gunsmiths "of a certain age" and slightly younger who are not familiar with this book. Ironically, the last book published by SATPCO was a book on reloading, just as the first title was.

Earl Naramore's epic 952 page *Principles and Practice of Loading Ammunition* became the go-to reference for handloaders independent of manuals issued by powder companies and reloading tool manufacturers, and was reprinted by Stackpole Books in 1962 and again in 1971. Samworth had relationships with a number of well-known contemporary artists who produced illustrations for not only the dust jackets, but also some of the content of the SATPCO books. Some of these talented individuals include: E.

Stanley "Ned" Smith, Gayle Hoskins, Ray Snow, Phillip Plaistrige, Oliver B. Hamilton, John B. Moll, Richard Kroth, Edwin Bender, and Alden Turner. Author-illustrators who contributed illustrations to the texts of their own titles included Townsend Whelen, Julian Hatcher, J. N. George, J Randall Mattern, and Roy Dunlap.

In the mid-1950s, Samworth entered into an agreement with Stackpole Publishing Co. of Harrisburg, Pennsylvania to take over the warehousing, marketing, sale, and shipping of SATPCO titles in exchange for what amounted to royalties on the sales. No more new titles were issued, but Samworth received payments on

various SATPCO titles that were reprinted under the Stackpole Books imprint for the next 25 or so years.

The gunsmithing texts continued to be the biggest sellers, and the most frequently reprinted of the titles. I can recall seeing new copies of Newell's *Gunstock Finishing and Care* and Dunlap's *Gunsmithing* on the shelf of a Waldenbooks or Borders Books as late as 1998. Throughout his lifetime, Samworth was an avid hunter and observer of all manner of wildlife. He claimed to have taken 141 deer with his favorite rifle, a 1903A3 Springfield.

In 1962 he deeded Dirlerton Plantation to the South Carolina Wildlife Department as a wildlife preserve, with the understanding that he could reside on the property until his demise. When the plantation house got too big for the elderly Samworth to handle, it became offices for state wildlife biologists and Samworth moved into a single-wide mobile home by the river where he could spend time with a spotting scope watching migratory fowl.

The state provided Samworth with a full-time personal assistant from the Wildlife Department staff to look after his needs. South Carolina paid Samworth tribute on February 17, 1978 when the Pee Dee Wildlife Management Area was renamed the "Thomas G. Samworth Game Management Area" and presented Samworth with the Order of the Palmetto, South Carolina's highest award. "Mr. Sam" passed away on December 28, 1981, forty years ago as this is written. He was laid to rest at Dirlerton, and Abbie V.

Johnson, a close friend of Samworth's made this observation the day of the funeral: "As we drove from the funeral home, a large hawk flew low out of the woods and over the hearse for several miles to the point where we turned into Dirlerton, whereupon he perched in a tree and watched the rest of the procession pass. It probably coincidence, but it touched me greatly.

It seemed as if nature was paying tribute to this man at the time of his parting..." Most of the Small Arms Technical Publishing Co. titles were recognized as standard reference works in their day, and several continue to hold that distinction, mostly by old-timers like myself who recognize their quality content for what it is.

All of the titles have been sought after by firearm and sporting book collectors, themselves an endangered species given the prevalence of mobile phones and Interwebz how-to videos making the printed reference and book collecting obsolete. Time since Samworth's passing has seen the rise of the Digital Information Age, but it also has shown Samworth to be the single most important figure behind 20th century firearms technical reference literature. Other publishing companies followed Samworth and SATPCO, but "Mr.

Sam" unquestionably invented the genre. I tell a much more complete history in my book, *Samworth Books: A Descriptive Bibliography*, the definitive reference on the 47 titles published by Thomas G. Samworth and the Small Arms Technical Publishing Co. Published in 1990, a very limited number of copies are still available. Email me at brgs01@gmail.com for details. AG

MACHINING

Reader Forum

BY AMERICAN GUNSMITH EDITORS MAY 2022

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Trulock CNC Upgrade As a sign of the times, Trulock Choke Tubes expanded their operations in 2022 by increasing automation. The company has added a Fanuc Robodrill long bed 4 axis vertical machining center, an automated vertical machining unit equipped with a true fourth axis and dedicated to produce a specific firearm parts for one of Trulock's major firearm accounts. "The Robodrill is extremely accurate and rapid, which allows us to increase our productivity.

It offers a special design pallet fixture to facilitate fast changes with short cycle times," said George Trulock, president of Trulock Choke Tubes. Trulock designs builds and tests all their choke tubes at their Whigham, Georgia facility using state-of-the-art CNC manufacturing, allowing them to develop chokes with special exit diameters that produce dense patterns.

George Trulock began manufacturing chokes in 1981 to offer a choke system that could be retrofitted into most shotgun barrels without the use of an adaptor or machine tools. His final design launched the Tru-Choke style choke tube in 1982. Since then, this proprietary system has been adopted by several shotgun manufacturers as OEM and copied by a number of aftermarket choke makers.

Trulock now stocks approximately 2,000 different choke part numbers and has come along way from George's first piece of production equipment, a Warner and Swasey #2 turret lathe. Trulock grew their business from a one-man shop to a family-owned company that employs 30 people producing products 24 hours a day, 5 days per week.

Building Match Grade AR-15s If one is going to use green Loctite as you discuss in your AR-15 projects, how can one make sure to not cause barrel clocking or feed ramp misalignment between the barrel and the upper when tightening the barrel nut? Justin Joe Carlos responds. The locator pin that sits at 12 o'clock on the extension still lives in the cut-out in the upper receiver and prevents the problems you are worried about regardless of whether green Loctite is used or not.

IF YOU HAVE FURTHER QUESTIONS FEEL FREE TO EMAIL ME DIRECTLY AT AG

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Precision Arms Workshop

The American Gunsmith Archive

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