A ROUND TABLE DISCUSSION OF AMERICAN REVOLVING LONG ARMS GIVEN AT THE ANNUAL MEETING OF THE AMERICAN SOCIETY OF ARMS COLLECTORS, DEAUVILLE HOTEL, MIAMI BEACH, FLORIDA OCTOBER 1, 1960

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MARK AZIZ
THE ROPER GUNS

This short talk on the Roper revolving guns is not meant to be the final work on this interesting firearm. My observations and notes cover a relatively limited number of specimens but it will serve to acquaint you with the Roper family of guns. My survey will continue with the help of collectors like yourself.

THE MAN AND THE COMPANY

Sylvester H. Roper was born in New Hampshire in 1830. Most of his working life he was known and achieved considerable success as a mechanical engineer. He lived at 229 Eustis Street in Roxbury, Mass., with a shop at Magazine and Eustis Streets. Roper, as did many inventors of the day, concerned himself with the major domestic invention of the day, the sewing machine. A knitting machine, hot air furnaces, kitchen ranges and screw making machines were among those credited to him. His most interesting invention, other than his guns, was a steam powered bicycle invented in 1869. A specimen can be seen at the Smithsonian Institution and a photo in the book I have on the table. Roper also invented and marketed a steam carriage. He died at the Charles River Park in 1894 of a heart attack while making a trial of a new steam bicycle.

The Roper Repeating Rifle Company of Amherst, Mass. was formed in 1866, shortly after the granting of patent. number 53881 dated April 10, 1866. At this only a shotgun was made with calibers, or more correctly, gauges of 12 and 16. Until we actually examine specimens gauging much differently than those we call 12 gauge and 16 gauge we must ascribe reports of 13 gauge and 20 gauge as an error due to variations in barrel diameter. The cartridge collectors report specimen of the 12's and 16's only. Incidentally, it is interesting to note that Roper states in second paragraph of his original patent the following:

> "The firearm to which my invention relates is adapted to the use of the well-known metallic flanged cartridge primed with percussion (fulminate) at its base."

I wonder what he means by "well-known metallic flanged cartridge" since both the Roper rifle cartridge and the shotgun case were specific to this arm. Roper manufactured all parts of the gun except the barrel, some of which are reported to be marked "Made by Hopkins and Allen Mfg. Co, Norwich, Conn." On July 14, 1868, two years after the first Roper patent, we find patent No. 79861 issued for the familiar detachable choke. Roper claimed that his personal experiments proved that the scatter of shot depended on the shape of the extreme end of the barrel or the muzzle.

He claimed that his detachable choke could be used on shotguns other than his own. Since these guns were made for over one year prior to the patent on the choke I wonder if any shotguns were ever made without a choke. I have never seen one and doubt that any were so made.

Guns were made by Roper at Amherst from 1867 to November 1868. At that time, due to poor acceptance of his guns, Sylvester Roper sold his patents, tools and fixtures to D. W. C. Perry, one of Christopher M. Spencer's sponsers and to Christopher Spencer. They operated the plant at Amherst for about a year. In April 1869 the production at Amherst ceased.

Perry and Spencer moved the plant to Hartford, Conn in 1869 where the name of the company was incorporated as the Roper Sporting Arms Co. You will recall the previous corporated name was Roper Repeating Rifle Co. Here both shotguns and rifles were made until 1876. During this time the guns were manufactured by Billings and Spencer. C. E. Billings was president of this company and C. M. Spencer was listed as Agent. They also manufactured forgings for pistols, sewing machines, agricultural implements, and the Billings' Patent Forged Sewing Machine Shuttle. A photostatic copy of one of their ads and a letter to the Sharps Rifle Co dated 1870, concerning forgings they were making for Sharps rifles, are also displayed.

C. E. Billings had considerable firearms experience prior to taking over the Roper gun. About two weeks after Roper was granted his patent C. E. Billings of Windsor, Vt was granted a patent on a single shot pistol much like the early Remington single shot. This patent, 54100, of April 24, 1866 was followed on Sept 22, 1868 by a combination pistol and sword (No. 82276) Patent papers on both these guns are also exhibited.

In a few minutes we will refer to still another Billings patent -- the one that indicated that the Roper revolving rifle and shotguns were doomed. I am glad that we can show both the patent paper and a specimen gun in this instance.

THE GUNS

We have seen that all Roper guns were made for a total period of nine years, two years at Amherst and seven years at Hartford. Let's review guns made during these nine years.

THE SHOTGUNS

Considering the Amherst shotguns first, we find both 12 and 16 gauges. In my sampling the 12 gauge all had low serial numbers (34, 44, 97 and 238) with the inside hinge on the loading door. In the case of the 16 gauge guns we examined 9 guns, serial numbers 360 to 1275.

Here we first find a change in the hinge arrangement noted previously. Up to around serial No. 1000 the hinge is found on the outside and after 1000 the hinge is on the inside. Since the 12 gauge guns are found with inside hinges only, we can only assume that at Amherst only 16 gauge guns were made at first and later, at about the time of the hinge change, the 12 gauge guns were made available. Fewer 12 gauge guns

were found and all had the low numbers, the highest being 238.

Later at Hartford we see only the inside hinge. We looked at 5 guns Serial #185 to 466, all in 12 gauge. This proved that a new number series was started in Hartford. We could not find a 16 gauge in Hartford. From the Second Annual Circular of the Hartford company, dated August 1, 1870, we find the price schedule which lists the "Re-moleled plain 16 gauge shotgun" for $35 and the "New Model, improved plain 12 gauge shotgun" for $55. Also a better grade 12 gauge gun for $80. This would indicate that no 16's were made in Hartford and that those sold from Hartford were stock carried over from Amherst and carrying the Amherst address on the loading cover.

THE RIFLES

The 5 rifles examined had serial numbers from 319 to 470. Hinges are all inside, of course. They were made in 5 and 6 shot and sold for $45 and $58 respectively. The .41 caliber is really .40 since the catalog so identifies it.

The combination shotguns and rifles cost from $60 to $105 complete with loader, loading block, mold, and other accessories. One of these .40 bullet loaders is shown here by James B. Smith.

Rifle belts for 24 rounds could be bought for $4.00 and shotgun belts for $5.00.

THE COMBINATION GUNS

In the combination guns it was necessary to turn out the setscrew in the 16 gauge guns and turn in the screw in the 12's. When a rifle barrel and cylinder were used on the shotgun action you got a four shot rifle. One of the two in my collection #388 has a 4-shot spindle and a shotgun type butt. This obviously came from a combination set. The other rifle #470 is 6 shot and cannot be used in combination with a shotgun barrel. Only a 12 gauge barrel can be used with a rifle which would explain why the 16 gauge gun was dropped when the operation was moved to Hartford. I say this even though the catalog lists a 16 gauge shotgun and rifle combination. None of these have been found so far but they might exist and ask that anyone finding one so notify me. Barrels are found both in round and hex shapes and in many weights and with a variety of sights.

The Hartford company ceased operations in 1876 but they must have encountered sales resistance prior to that date since Charles E. Billings tried to stem to inevitable by inventing a gun designed for the regular 12 gauge shotgun case. The patent was filed on May 3, 1875 and granted on November 2 of the same year. The gun on the table is serial number 7. This was a lucky number for me since the gun got into my collection for $28 from one of the sharpest operators in the business.

More Amherst guns than Hartford. Believe 1500 Amherst and 500 or 600 in Hartford.

In conclusion we must mention the cloverleaf types of which Henry Stewart has two specimens, both considerably different. Both are unmarked, and of superior workmanship. Henry has located an old auction catalog with a gun having Amherst markings.

One is a rifle-shotgun combination and has two triggers. The forward one revolves the cylinder and cocks it while the rear one fires it. A rifle barrel screws inside the 26-1/2 shotgun barrel. I have been unable to find a patent on this or the other clover-leaf piece so am not able to state just where these guns fit into the Roper picture. We can only sumise that they are early prototypes of a gun never manufactured. We do have a copy of a real wierd gun patented by Roper on August 20, 1889 for a magazine gun. This was 12 years after the Hartford company went out of business. We have no specimen of this gun.

I hope that this has brought you some understanding of this one-oft-ignored gun. I would appreciate information on guns that you have access to.

JAMES B. SMITH
MILLER REVOLVING RIFLE

When Frank Russell asked me to take part in this program, I was quite pleased to be on a team with men I considered most advanced in the collecting of revolving long arms.

For some time I had felt the existing information on the Miller revolving rifle was rathe sparce and with some research much more could be uncovered. So far, little has been known about the revolving rifles marked "J and J Miller", Rochester, New York. The only available source being the "Gun Collector" issue number 35 which did mention Miller and gave a patent date of June 11, 1829. Many questions remained to be answered regarding Miller's patent, the relation to the Billinghurst and other revolving rifles of the same general pattern.

Little did I realize what a blind alley this research would lead me into. My first contact was with Mr. Tom Hall who was very helpful in locating a listing of the Miller patent in his library at the Winchester Museum. With this listing on patent date and a very brief description and with the aid of a patent attorney friend of mine, I tried to obtain further information from the U.S. Patent Office. Because of the patent office fire in 1836, during which the records were lost, I was unable to get any new or interesting facts on the Miller patent from this source. My next attempt for new information was directed to the Franklin Institute of Philadelphia where I did obtain some data from their old U.S. Ordnance records.

The most helpful information was received from Mark Aziz who, as you know , is also here today with a presentation of his own, which I am sure was a full time job without having to help me. The information he furnished was taken from the Rochester, NewYork, city directories and the local newspapers of the time of the Miller activity. Here is the information I have put together from various sources.

The Miller Revolving Rifle patent was issued to James Miller of Brighton, NewYork on June 11, 1829 and is shown in the U.S. Patent Office listing for the year 1829, listed as patent number 203. This listing describes it as, "An improvement in rifles, muskets and fowling pieces, etc. --- the magazine (cylinder) to contain a number of charges."

Another listing of this patent is found on page 183 in the " Journal of Ordnance Industry", volume 4, dated July to December, 1829, which lists the Miller patent "for an improvement in the construction of firearms, rifles, muskets, fowling pieces, ordnance, etc. to James Miller, Brighton, Monroe County, New York, June 11th". It further states that, "this gun is very similar to Rogers and Wheeler's patent (shown on page 124)". "A revolving chamber containing 7 charges is placed behind the main barrel". "Each of the perforations on this revolving piece has its touch hole, has its percussion Primer". "The improvement relied on in this machine consists in the simplicity of its construction, in every way adapted to hunting and for war purposes". Most of the Miller Revolving Rifles that I have observed are marked "J & J Miller" with a Rochester address on the barrel. In some cases the J &J Miller is also stamped on the lock plate. J & J Miller are the initials of James and John Miller who were operating in Rochester, New York from the years 1827 to about 1852. A few pieces are reported to be marked with J. Miller, others John Miller and are thought to have been made at a later date than the J & J Miller pieces.

From the Rochester directories we find the following information, which I believe, is new and should help us straighten out the mystery of the two J. Millers.

The directory of 1827 lists John Miller, whose occupation was a farmer, boarding with Joseph Medbery on River Street (now St. Paul Street) Rochester, New York. James Miller was not listed in the directory of that year.

In the 1834 directory, James Miller was listed as a gunsmith with a shop at 11 Mason Street Rochester, NewYork. John Miller also listed as a gunsmith of the same address and boarded with James Miller (assumed to be his brother) at 9 Chestnut Street, Rochester, New York. This is the last year that James Miller is listed.

The Rochester directory of 1838 lists John Miller as operating a gun shop on Front Street, Rochester, New York and lists his residence as the Mansion House. You will note he has moved from the address formerly listed as the James Miller home.

The directory of 1841 lists John Miller of the same Front Street address and residing at the Arcade House.

In the 1844 directory it lists John Miller with a gun shop at the same address and living at 9 Chestnut. Note, his home is now at the address formerly used by James Miller.

Directory of 1847-1848 lists John Miller as a rifle manufacturer operating a shop at the Curtis Block with his home address at 9 Chestnut. In July of 1848, the Curtis Building was completely destroyed by fire and a new gun shop was established at 43 Main Street.

Similarly, we find in the 1849 to 50 directory, James Miller not listed, John Miller a gunsmith at 43 Main Street, home at 9 Chestnut Street.

The directory of 1853-54 shows that John Miller has become a fish dealer at 29 Front Streer, retaining his home at the same 9 Chesnut Street.

The records indicate that Miller has gone out of the gun business and turned over his gun shop to Antobres G. Edward, who at one time had worked for Billinghurst. Miller opened a fish market at 29 Front Street but did not continue in the business very long. This is the last time Miller's name appears in the Rochester directory. John Miller is supposed to have moved to Michigan in 1854, to engage in the fish industry. The Rochester newspaper in 1854 reported Miller as being mixed up in some kind of suicide hoax and being seen in Battle Creek, Michigan. Further information about the Millers is lost. You will note that James Miller, obtained the patent, was not listed after 1834. I believe it is safe to assume that he died some time in the year 1834.

We have always suspected that there was a very close business relationship between Miller and Billinghurst. Both the Rochester directory and newspapers of the period threw considerable light as to this relationship. In the directory of 1834 we find Billinghurst listed as working in the Miller shop on Mason Street and living at the home of James Miller on 9 Chesnut Street. Some time after 1834 Billinghurst left the Miller shop and established his own shop for making revolving rifles and others

and by 1841 Billinghurst had established a broad reputation as a maker of fine rifles. The patent of June 11, 1829, though not very broad, does predate the Colt patent. James Miller, the inventor, lived in Brighton, New York, a village near Rochester, at the time the patent was granted. He did not start making rifles in Rochester until about 1834. However, his brother John Miller lived in Rochester as early as 1827. By 1834, Billinghurst was employed as a gunsmith in the Miller shop. We do not know whether James or John Miller were skillful gunsmiths, but we are sure Billinghurst's skill was exceptionally high. Because we know that the number of early Millers produced was very small and of excellent quality, I believe we can safely assume that Billinghurst supervised their construction and probably did the finishing work on the Miller rifles. James Miller is not listed in Rochester directories after 1834 and in all probability died during that year. John Miller continued in the gun business until about 1850. The patent probably expired in 1847. The number of rifles made by him during the years from 1835 to 1850 must have been very small because those found marked "J" or "John Miller" are very few. It is possible that John Miller's interest in the gun business was pretty much confined to the granting of the rights to use the Miller patent and collecting the royalties and the promotion of the Miller revolving system.

Many gunsmiths made rifles under Miller's patent, the most famous being Billinghurst.

Others were:

Elijah Snell of Auburn, New York

Benjamin Bigelow of Marysville, California, formerly an apprentice of Billinghurst.

Antrobres Edwards of Rochester, an apprentice of Billinghurst who later took over the Miller shop in 1853.

Volpous of Cincinnati, Ohio, an apprentice of Billinghurst

Patrick Smith of Buffalo, New York 1835 to 1870

G. A. Brown, address unknow, is supposed to have worked for Billinghurst.

E.S. Ormsby, address unknown, not to be confused with W. L. Ormsby, engraver of Colt cylinders.

A.S. Sizer, address unknown

G.R. Pierce, address unknown

H.V. Perry, Fredonia, New York 1840 to 1860

C.E. Bunge, Geneva, New York

Thomas P. Cherrington, Jr., Catawissa, Pa. 1858

W.H. Smith Rochester, New York, and New York City - apprentice and workman for Billinghurst.

We are very fortunate to have on display, here today, four of the five or six known Miller Revolving Rifles. All of them are excellent specimens. I would like to describe them briefly at this time.

The first one belongs to Mark Aziz and is of the typical Miller pattern except that it has a full length stock of the military type. I believe this indicates that the Millers were trying to get into the military type gun as their patent describes the rifle as being suitable for muskets, etc. It is, in my opinion, one of the very early Millers.

The next one is owned by Frank Russell and I have just seen it for the first time this morning and I don't know too much about it except that it is one of the "J & J Millers" of very excellent workmanship. It seems to have a little bit of a Kentucky tinge to it. It resembles another Miller pattern rifle that I have examined was made by Elijah Snell of Auburn, New York. The Snell rifle was pretty much on the same pattern with the patchbox and Kentucky type inlays.

The third one was also brought here by Mark Aziz and is owned by a friend of his. It shows the highest quality of workmanship with fine engraving. You will notice that the general design, workmanship and engraving is very similar to the fourth one which belongs to me.

My Miller is slightly unusual and different from the others. It has a leather packing in the forward end of the cylinder which may be one of the patented features of the Miller rifles. It is a feature which was to prevent multi-discharge and excess discharge between the cylinder and the barrel. Aside from that the only unusual part of this rifle is the top strap which is attached to the barrel and dovetailed into the top of the frame, holding it together. I think this has some advantage over the regular Millers and Billinghurst.

Now, the next one is a Cherrington which we don't know too much about and there is a question as to whether it was made by Cherrington or Billinghurst. I am quite sure it was made by Billinghurst and this opinion is confirmed by Mr. Stewart. In any event, I think as you go through our display of the Miller type rifles you will agree with our conclusion that all the various marked names are very closely related to the Miller and Billinghurst arms.

FRANK N RUSSELL
WARNERS REVOLVING RIFLES

The subjust that I chose to talk about is Warner's. But there are several makes of revolving rifles that had quite a few manufactured. The Porter and Colt for instance. There are probably around 1,200 Porters, the first half of them are pillock and about half of them are percussion, the first half of them are 8 shot and the balance are 9 shot. This change took place at about serial 660. They are rather a complicated gun of several models. I feel that a lot of time could be spent on them, as they have had very little research. Nobody has really made a complete survey on Warners, Porters, or Colts. Warner, of course is well known. Our good member, Tom McHugh, has talked on Warner handguns off and on. Warner made many guns even into the cartridge period. But no book has been written on them. He operated from about 1839 to about 1869. His pieces have never had much publicity until recently. The family were gunsmiths. He had a brother that was a master armorer at Springfield and worked for many of the other armories. I don't know whether another Warner was a brother or not, but a Warner was one of the incorporaters of the Massachusetts Arms Company.

It appears that there are four distinct models of percussion revolving rifles that were by James Warner. The earliest is the Jacquith patent model. I have not found any marked with Warner's name. But as hand guns are marked with both "Jacquith Patent" and "Springfield Arms Co.", one would assume the revolving rifles were also made by Warner. Warner used the name Springfield Arms Company as a sales company name for his products. So only on that assumption are they included here.

The Jacquith gun has about one-half its cylinder above the frame, with a hole thru the cylinder for sighting. The trigger guard is in two pieces. The front half stationary, the rear is used to cock the gun, in the rear of this half is a notch which is engaged by a trigger to it's rear. This rear trigger is used to shoot the gun. The Jacquith speciman owned by Tom McHugh is 7 shot, 52 caliber, 31 inch barrel, has a loading lever but no serial number. These pieces are very scarce. The patent was taken out by E. Jacquith of Brattleboro, Vt. in 1838.

Warner took out patents 7894 dated January 7, 1851 and 8229 dated July 13, 1851. These principles were used on his hand guns and revolving rifles. He made two models of revolving carbines that appear to have a production of a few hundred of each. I have found serial 30 in each model.

One type of carbine has the entire lock built onto the right side plate. The front of the lock plate has a projecting lug which slides under the frame. At the rear of the lock plate is a half hole with the other half in the frame. A bolt goes thru these openings, covering part of each. There are no bolts going thru the left side of the frame, on this model. When the hammer is cocked, a crank turns inside the lock, which rotates the cylinder mechanically. The hammer on this model is outside the lock. The topstrap form thebarrel lug towards the rear, takes an offset towards the left. So there is an arc cut out of this top strap, thru which the hammer hits the nipples. There are no grooves between the nipples. The cylinder pin has a groove in it, towards the front end. The inside of the barrel lug, has a piece of iron the width of the above groove. On one side, at the end of the cylinder, is a flat section that slides over this part of the barrel lug, when they are put together. Then the barrel is turned on the cylinder

pin into its fixed position, the groove then slides over the extended iron in the barrel lug, locking the gun together ahead of the cylinder. A bolt from the top of the barrel strap, into the frame, holds it in this fixed position for use. The rear of the cylinder on this type has a groove around the back end. The notches for turning are to the center of the groove. So a circular ring is fastened onto the front of the frame, which the cylinder rides against. This allows the crank lever to work into the cylinder notches freely, to turn the cylinder. The brass trigger guard on thisresembles that of the Remington revolving rifle. It has a spur just behind the trigger and curls up and forward, at its rear end. The description above is serial 126, but several others with lower series are basically the same. A serial 30 exists of this model and a serial 30 also exists of the following model.

Serial 15 is the lowest that I own of a different model which has the following descriptions. Neither serial 15 nor serial 32 have the feature of the locking arrangement of the front end of the cylinder pin with the carrel lug, as previously described. Yet serial 69 and thereafter do have this locking feature. All the cylinders of this type, have a groove between the nipples around the outside of the cylinder.

Evidently Warner made improvements or changes as he produced this model. Serial #15 has a mechanically rotated cylinder. When cocked an arm raises upward thru the left side of the recoil shield, turning the cylinder anti clockwise. The cylinder has been grooved out at its rear, leaving a ring around the outside edge. This eliminates the plate on the recoil shield of the model previously described.

On serial 32 the cylinder turns by hand. Its cylinder has no notches on the rear. It does have a groove around its rear just inside the ring lift around its edge. Then the surface is smooth and flat towards the center, level with the outer ring. A button ahead of the trigger pushes upward. It moves a small block upward to the grooved section of the cylinder. This allows the cylinder to be pulled back and manually rotated. The front end of the cylinder has each chamber grooved so that they fit over the end of the barrel. This holds the cylinder in firing position as the cylinder is held forward by a spring plate at its rear. In general this mechanism resembles a Collier.

Serial 69 is the most common of this model. The rear of the cylinder is perfectly smooth. It has notches around the edge at the rear. Ahead of the trigger guard is a U shaped arm. The front of this arm slides into the cylinder notches as a stop. The rear of this arm is kept pushed down by a coil spring. Pushing the arm upwards released the cylinder for hand turning.

All of this model has the same iron trigger guard. They are cut out in front for the cylinder releasing parts, on hand turning models. Several inches behind the ordinary part of a trigger guard, it forms a backwards letter "C". When held in firing position the little finger naturally falls into this "C". The next two fingers fall into the space ahead of the "C" and behind the regular trigger guard. The forefinger of course is on the trigger. It gives one a secure hold on the gun, compared to the common guard which only goes around the trigger.

This model also has a strap over the cylinder, held in position by a bolt at its rear. But it comes back perfectly straight and is not offset as in the previously described model. The strap is about 15/16" wide on most models, with a hole drilled to the right side, for the hammer to go thru, to the nipples underneath.

There is a groove in these straps, underneath and just ahead of the bolt hole for fastening it to the frame. On the top of the recoil shield is a ridge built up. When the barrel is turned into its permanant position, they lock together for rigidity. This locking arrangement is on both models previously described. Some have loading levers while others do not. They also vary in design.

Generally speaking, Warner used very little brass on all these pieces. On many of them he did inset in the side of the stock, a small hinged cover cap box. The barrels usually have the rear part octagon and forward part round. Afew are all octagon but I have never found one all round. On the early ones the octagon section is about 7 1/4" long. But later ones are 8" long for the octagon section. On the pieces of this model, the hammer is just inside the right side plate. It is held by a bolt from the left side of the frame, thru the frame and threads into the right side plate. This bolt does not exist on the serial 126 gun and others of that model. Serial 126 had a lug on the front end of this side plate, but this model has a straight front end except for a small hole that slides on to a pin in the frame. Itis held on by the trigger bolt just described, and a screw to its rear as on the other model described. All these preceeding guns have their rear sight on the top strap. It wedges into a slot. They vary some in design. Front sights also vary considerably. They include wedge type, blade and bead.

On the top strap type, one finds many numbers stamped in various places. They are usually one or two digits like 5, 6, 10, or 12. They are underneath the iron butt plates, underneath the trigger guards, or on the frame underneath the trigger guards. The same part does not carry the same number on different guns. Nor does the same number run thru the same gun. They vary in size, usually of much larger size than the guns serial. I have not been able to figure out what they represent. Barrels are usually stamped with the serial below. But practically always the correct serial is stamped on the bottom of the top strap.

Barrels lengths vary but are usually 22 to 23 inches. Calibers also vary from 40 to 44 caliber on those checked. They seem to be all 6 shots. Barrels do not seem to have any name stamped. But on the frames in various places and of various styles, you usually find either "Warner's Patent" or "James Warner, Springfield Mass." Sometimes both are present and on some models the patent date "1851". Some are unmarked except for serial.

One would probably classify the previously described models as carbines. But Warner also made an entirely different model that was a rifle. It had an entirely different action and a solid frame. The top strap was part of the frame. Its barrel length varied but was usually 26" to 30" and full octagon. The frames were made of brass or iron. Otherwise they were entirely iron. Calibers seem to vary form about 38 to 41. I have not found any serials as high as 300.

The cylinders are 6 shot, smooth on the rear, but stop notches are around the rear at the outside edge. Atrigger just inside the guard is held forward by a spring into these notches. When pulled back the cylinder is turned by hand. This trigger was pinned on the early models but abolt thru the recoil shield form the right side, was used on later models. There is no grooves around the cylinder between the nipples.

The cylinder pin is held by a thumb screw or bolt, from the left side of the frame.

On most models the wood ramrod under the barrel, fits into the end of the cylinder pin. Some early models only have the one pin, but most of them have another rod hinged to the pin which is the handle for the loading lever. The ramrod then goes into the front end of this loading lever handle. Loading levers differ in style. Serial 137 137 resembles the loading lever of an 1851 Colt Navy. Serial 226 is more the style of those on North Savage revolving rifles, with an extension of the ramrod extending past the lever. This extension against the barrel, holds the ramrod upwards, when loading lever is in its firing position. The cylinder must be removed to load it. It. is about 2 9/16" long and 1 13/16" in diameter.

The hammer is center hand on this model. When cocked, you can see an adjusting screw to push the cylinder against the barrel for a tight fit. The trigger guard has two spurs for giving the shooter a solid grasp on the gun. Evidently warner was very conscious of giving one a firm hold on his guns.

In front of the cylinder on the early modles, was a "battery" plate for protection against multiple discharge. This "battery" plate and the adjusting screw for pushing the cylinder against the barrel, are part of Warner's Patent 15202 of June 24, 1856. Evidently this model was the last percussion revolving rifle made by Warner. I am told there are Pill Locks of this general type. Yet a pill lock seems too late for a gun with 1856 patents.

The serials are well marked and most frames are marked on top "James Warner, Springfield Mass."

If James Warner made revolving rifles that are marked "Jacquith Patent", that would be his first model. The pieces of this type does not have any makers name on them. Warner's solid frame model having 1856 patent features, is most probably his last model. But it is questionable which of the carbines with the top strap on the barrel, were before one another. Warner's patent # 7894 of Jan. 7, 1851 covered revolving the cylinder by a "crank-lever in a curved slot" in the recoil shield. This feature was in the first carbines described in this article.

His patent 8229 of July 15, 1851 covered the improvement between serials 32 and 69. It was the locking arragement at the front end of the cylinder pin, into the barrel lug. These patent dates being only 6 months apart seem too close to designate models. Warner was about 33 years old at the time. Colt won his suit against Massachusetts Arms Co., which was tried June 30, 1851. Of course this suit effected James Warner as well as every manufacturer of cylinder guns.

One would assume that the first carbines described (Serial 126), which had a mechanically rotating cylinder and also no ring around the cylinder between the nipples, was produced before Colt won his suit., yet this gun has the feature of the July patent, whereby the cylinder pin locks onto the barrel lug.

It does not seem as though Warner would produce the above model, then start with his other carbine model, and not put this locking feature on a later model. Serial 32 of the model with the groove between the cylinders and lock built into the inside of the gun, does not have this feature. This model also started out with a 7 1/4" octagon barrel section, which was increased to 8" octagon section.

The trigger guard on 126 resembles that on Warner's solid frame last percussion model, much more than it does any other.

So most probably Warner's first carbine is the model with the ring around the cylinder, the trigger held by a bolt thru the frame into the tight side lock plate, and hammer inside the lock plate. Of course there are variations of that model.

Possibly Warner paid Colt a royalty to put out the mechanically turning cylinder model, which has the lock fastened to the right side plate. Or else maybe he did not come out with this model until Colt's patent expired in 1856 or 1857.

I would greatly appreciate Warner owners contacting me, so that additional data can be compiled on Warners. At least this paper gives us a basis to correct or add to the subject of Warner percussion revolving rifles.

HENRY M. STEWART, JR.
REVOLVING RIFLES

The good part about being the last speaker is that you can write your speech while the others are talking, which is just about what I have done. I think since this is being taped and will go out to the entire membership I would like to start at the beginning and talk a bit about the early multi-shots.

As we know, there are in various collections the multi-barrel Pike type of hand gun. These are credited back as far as 1346. Actually, they probably are 40 or 50 years later than that. There is one shown in Stone's Glossary of Armor which is attributed to Cambodia as I recall. However, man's desire for multi-shot arms stems almost from the beginning of handguns. The one that I exhibited for several years at the National Rifle Association Annual Meeting display I believe to be genuine. It has all the muzzle characteristics of the early type of weapon, in other words, the weight of metal was incorrectly placed at the muzzle instead of at the breech. The breech plugs were merely hammered-in pieces of rod as there were no screw threads or anything like that in that period. Mine is a three barrel affair, well aged and not artificially, as a word of caution, but by the years. The pike part of it has disintegrated.

Probably Tom Hoopes doesn't remember but about 1949 I had the wonderful opportunity of visiting the St. Louis Museum of Art and going down into the lower rooms and getting a lot of information on the early lever type of multi-shots. History until that time had led me to believe that Cookson was the originator of that type of weapon. That is of course the gravity-loading gun where you tip the muzzle down, carrying the spigot-breech through an arc which permits the entry of the ball into the barrel and then at the next motion thru the arc permits the powder to enter into the barrel. Returning it in many cases, primes the lock, closes the frizzen and cocks the hammer. However, through the great research of Tom Hoopes I was able to get into the Lorenzini story of this type of even earlier vintage. I am pointing this out because that type of gun represented another step in the multi-shot arms.

There are of course multi-shot rifles of the matchlock period.

For the wheellock, I believe Dr. Strassman owns a very beautiful, self spanning, Italian wheellock pistol that was on exhibit at one of the earlier meetings.

You will also find the revolving gun in the snaphaunce, migulet, flint and the percussion. All through the history of firearms you will find man's desire for the multi-shot and contemporary with the long guns you will find in pistols the Lorenzini, the Cookson, the Glass of London, then on up to the Mortimers where the last of the Cookson type as we call it, existed. As far as early revolving arms are concerned you will find them in pistol form in all parts of the world. Even a machine gun was patented by James Puckle in England as Patent #418 of May 15, 1717.

I have been more interested in the English fabrication. I have a revolver by Wilson of Minories, the Polinson of London as well as Collier's guns in both the revolver and the rifle. Recently the Bivens Collection was placed on sale and contained a Powell of Dublin.

In the Smithsonian Institution through the studies and research of Berk Lewis was

discovered the Artemus Wheeler arms. Artemus Wheeler, a New Englander, on June 10th 1818 patented a multi-shot pepperbox type of long arms. Collier, a Boston gentlemen who went to England and developed the Collier Pistol and Rifle. This was under English patent #4135 issued Nov. 24, 1818. At the same time an associate of Artemus Wheeler named Cornelius Coolidge obtained a similar patent during 1819 in France.

We next come into the transition period with a tube-lock revolver by LePage and I once owned a doubtful Forsythe seven barrel type. At least one cased pair of the LePage tube-lock revolvers were made that look very like the Collier revolver. The revolver was quite a common attempt at multi-fire and I don't consider it a great rarity of the very early days.

Now briefly in the early American picture after Wheeler we come to the Miller, the Danields, Faries, Colburn, Strong, Edwards, Cochran, Colt, Nutting, Whittier, Jaquith, Nichols & Childs, Bennett, North & Savage of 1844, Stanton, Porter and the legion of inventors that followed. Those guns all have a place in the revolving arms story and after Nutting many attempts were made to get around the Colt's Patent.

Of interest also in the "Flat Bar" or Harmonica multi-shot pistol. It has been aptly said that the revolver was mere a development of the flat bar when someone bent it into a circle.

I had always heard that Cochran's patent followed Colt's patent. Among other things that I collect are patent models and I was fortunate enough to purchase an original patent model with Cochran's tag on it of October 22, 1834. It turned out that that particular piece was not the Cochran model but it led me on and I obtained the patent papers and found that Cochran's patent actually had preceded Colt in patenting a revolving arm. The piece that carried the Cochran tag turned out to be a Samuel Faries of October 10, 1829 patent model. The tags had gotten switched after the Patent Office fire of 1837. I was more fortunate than I had first thought because this put me back on the trail of Faries who immediately followed Miller and originated the Turret Type of cylinder.

On exhibit here in Miami is the Nichols & Childs which is another attempt to get around Colt's patent. The North & Savage is also on exhibit and it utilized a wedge in back of the cylinder which when brought down revolved the cylinder. Cochran as you know was a revolving horizontal turret. The Daniels which is often confused with the Cochran even by VanRensalaer is also a revolving turret except that there is a jutting nose on each chamber that goes into the barrel and forms a positive seal. Bennett had a sort of sprocket revolving set of chambers that worked on a horizontal plane similar to the Cochran but a series of individual chambers.

The interesting thing about all of these is that you find the Daniels, the Bennett and the Cochran were all of the manufacture of C.B. Allen. Allen made them of course for the inventors. He is also known in the Elgin Cutlass picture. Apparently Allen was a great man for these people to turn to with their ideas to get them developed. Allen also developed the Fisher & Chamberlain, a Harmonica Type multi-shot.

The period of the percussion system was comparatively short for the revolving rifle. I usually leave it wide open from 1825 to 1878. The last recorded shipment of Colt

revolving guns were the carbines that were shipped to England in 1878. From the studies I have made I have reached the conclusion that the last of the Colt revolving rifles were made in 1864 at the time of the fire. They never resumed production of rifles and those that were left over from the fire, since they were very poor sellers, were in storage and eventually were sold to England with serials in the 11,000 to 12,000 range.

So while we do have only a very few years of arms manufacture in this percussion period the preceding names are but a few of a multitude of names like Remington, Spellier, Allen & Wheelock and many other makers of revolving long arms. It is an interesting study and as each of the preceding speakers have said, it is something that has had only the surface scratched up to now.

I would like to note in passing that when I first started specifically collecting revolving rifles which was about 1929 that difficulty in communication between collectors, dealers and anybody that had a gun was so great that I drove 10,000 miles literally before I got my first revolving rifle. On one wild goose chase I drove from Virginia to upper New York State and sat on a milkman's doorstep waiting for him to come home in an attempt to get a Colt revolving rifle from him without success. Today it is comparatively simple because of the large gun shows. Now you can pick up a revolving rifle at about every show but in the early days believe me the first hundred were the hardest, we didn't have the contacts, the dealer lists nor the big shows. Each and every rifle that you did get you studied it very, very carefully and it was truly a treasure to cherish.

Before examining the few models I brought for exhibit may I say that in my general collection there are about one hundred revolving long arms plus patent models and no two are identical. There are nine varieties of the Paterson Colt long guns and Colts of Hartford manufacturer in .36, .40, .44, .50, .56, .58 and .64 caliber rifles plus the .60 and the .75 caliber shotguns. All interested revolving long gun collectors working together could do a very efficient and rewarding job of rounding out this story. For instance in Jim Smith's story he can see in my collection a pure Billinghurst in .44 caliber, a Billinghurst with barrel marked underneath, by apprentice W.H. Smith, in .36 caliber and a complete W.H. Smith model in .44 caliber showing that the apprentice actually improved on the master. Going beyond this is an A.W. Spies, New York model using the Mills latch but a center fire in-line hammer with nipples built in the back of the cylinder.

Contributing to Mark's Roper picture there are examples of the extremely rare Roper Cloverleaf types in shotgun and rifle, hand revolved and separate trigger revolved. Also the scarce accessories are available.

To contribute to Frank Russell's Warner story are the Collier type with the US eagle marking, both brass and iron frame side-hammer rifles, pill nipple model etc, etc.

What we require is a good photographic set-up and a talented writer to take our random thoughts and compile a really worthwhile story. Jim Serven worked with us to develop the Colt story, isthere anyone who wishes to tackle the more involved phase?

As for a discussion of the three models I brought to the meeting, realizing that this may be reprinted by that man of energy Harry Knode I will try to present them like the TV sports broadcaster who has just lost his picture. Since Mark Aziz was unable

to bring the models that I would have like to bring to assist the other speakers I chose three widely variant types for exhibit.

The first model is the Mershon and Hollingworth revolving rifle. This item differs from other revolving rifles in that it represents an early attempt at automatic firing. There is a coil spring chamber behind the cylinder and the shooter compressed the energy in the spring by means of a cranking lever that folds down and is concealed in the top of the small of the stock when it has served it's purpose. This lever connected to a ratchet is turned up and cranked in an arc above and perpendicular to the line of the bore. With spring compressed and cylinder loaded for six shots the user aimed the gun, pulled the trigger and from then on by a series of levers, cams and disconnectors there was an automatic discharge of six shots. The Garand of it's day gave you a real "wham, zam, thank you ma'am" action. Far in advance of it's day it was invention of Ralph S. Mershon and John Hollingsworth of Zanesville, Ohio. Mershon later moved to Philadelphia. These men devoted their efforts to developing power spring drives to revolve a cylinder. Their first two patents were numbers 12470 and 12471 issued February 27, 1855 and this gun is based on those patents. A later patent by them was number 39825 of September 8, 1863 after Mershon had moved to Philadelphia and this one was also on a power drive but developed for an around the 1860 Colt Army Model. You have heard of multi-discharge and it's dangers to the fingers out in front ....these lads tied this up in good style as you will observe, the forestock is actually a tube and the shooter still had his fingers. Clever thinking throughout and an unusual revolving long gun.

The second model exhibited is the rare Roper development that I brought to assist Mark Aziz in his Roper talk. This is the four shot, so called, Cloverleaf Model. The cylinder is a complete exposed conventional type unlike the enclosed revolving cartridge carrier usually encountered. In my collection there are two variants of the Cloverleaf, a shotgun with a hand revolved cylinder and this rifle model that is convertible to a shotgun that has a separte trigger spring-actuated revolving mechanism. Many parts of these guns will intercharge with the Amherst Ropers and have the threaded muzzle for the Roper choke. This does not prove them of Amherst manufacture but my research developed a third similar type that was sold from the Walpole Galleries Catalogue #321 from the Fred Hines collection of April 11, 1924. To quote this item.... "Roper Repeating Rifle made by and marked Roper Repeating Rifle Company, Amherst, Mass., 4 shots, fluted cylinder that throws to side for loading, two triggers, one revolves, other fires." So here we have an official mention of Repeating Rifle Company and all of the pieces used the Roper front loading shell. There is one important difference in all these three from the common type Roper. The garden variety inserts the full length of the cartridge into the barrel and fires it, these models insert only the nose of the cartridge, about 1/4", into the barrel, sealing effectively with minimum camming and extracting problems by this short travel. The model here on exhibit is a combination rifle and shotgun with a rifled liner barrel inserted into the shotgun barrel and screwed into place utilizing the variable choke threads at the muzzle. It is hinged at the front of the frame below the cylinder like Webley's early patent but released from the top strap like Smith's rubber cartridge carbine. This feature facilitated loading and interchange of the shotgun and rifle cylinders. In my opinion these three known examples were made at the end of the Amherst period. When Roper was ready to sell to Spencer and Billings he had these models developed, you will note that none are serial numbered. At Hartford they just dropped this development and went back to the conventional type of which over a thousand had been made and sold at Amherst.

These thoughts and research are offered as links to assist Mark in tying together his story. The fourth item not mentioned by Mark is the hand revolver that our member Ray Riling brought to light and was good enough to have pictured. This is also an important link and from detailed discussion with Ray we feel rather certain that the hand revolver cartridge was a shortened version of the rifle cartridge. This is another very important clue to assist Mark thanks to Ray Riling.

The third and final exhibited revolving rifle is one that I sought after for over fifteen years. In the Colt exhibit is an incomplete rifle of this type not readily identified because of the missing parts. This gun is pictured as the second item from top on page 337 of Edward's book "The story of the Colt revolver". Thru the kindness of our member Keith Neal plus blood, sweat, tears and some extremely rare guns swapped, I own the fine, complete, presentation engraved model before us. It is also pictured in Edward's book, page 291. Incidentally I also own the "Horace Lord" early model attributed to W.G.C. Kimball on the same page as well as one of the rare experimental types pictured third from top in the page 397 picture. More on these at some future time but let us examine this model at hand.

This Colt I believe to be the predeccessor of the Root 1855. It has full octagon barrel screwed into a solid frame that differs from the conventional as it has a lock mechanism similar to the dragoon with bolts thru frame. The cylinder pin does not go thru the cylinder and into the frame as on the '55. Instead it enters the cylinder from the rear and extends only about 90% in with the cylinder blanked at the front. I am currently preparing a study on the Colt revolving gear models that ties in with this cylinder pin. This gun could be from the Crystal Palace Exhibit at London, England as the engraving not only includes the shield of the United States but also a tiger hunt etc. I will dwell no further on this item now but hope some day to prepare a real study on these experimentals.

In closing, as I said at the opening of my remarks, that this talk is more or less off the cuff based on what the more serious research of the preceding speakers have presented to you. In that vein if you will permit me to recall from memory, on the Miller types there are also Pill Lock revolvers (hand guns) by Billinghurst. In my gun room there are several framed portraits of the Dean of early collectors, Harry B. Harmer. One shows him holding the famous Constable dagger, revolving pistol now in the Harding collection of Chicago. A more pertinent picture is of Harry examining a Billinghurst pill revolver with a saw handle grip. With regard to Miller and Billinghurst I would agree with Jim Smith that Billinghurst did the work and that the California models in my opinion were probably made later by W.H. Smith considering the quality of the workmanship. Shell was an early independent maker licensed by Miller which accounts for the "Patent" wording usually accompanying the Shell marking. Mark asked about the Guthrie patent of 1834 on pills. Many items are developed without patenting them, then someone comes along and grabs a patent. A recent example of this is that the Southern slaves knew a piece of cotton hung in the doorway kept out flies, an old and unexplained fact, but recently packaged and I believe patented. Along the same lines, in my studies of the development of the centerfire cartridge at Springfield and Frankford I find test type after test type that was later patented by an outsider. Berdan for instance was accused of doing just this in Ordnance Memo 14 on Chabot on trap-door breech loaders etc, etc. In fact I started my cartridge study back in May of 1944 because of a visit by a friend Elmer Keith and a statement that his idea had been patented for front ignition and variable powder load by Fitch, Patent #58,800 of October 16, 1866, developed in Corliss front ignition.

In closing may I say that the more we learn the more we realize how little we know. It is the contributions like Jim Smith, Frank Russell and Mark Aziz have made that can make all of us humble in this realization but lead to new levels of knowledge. I thank you for the opportunity of chatting with you again.