



- The Single Shot Black Powder Cartridge Rifle Club of Great Britain -

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Affiliated to the N.R.A. – No. 1285

BLACK THUNDER

The Official Newsletter

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**Our second
year ... let's
make it a good
one!**

Well, here we are then, a year on since we shot our first Silhouette match. I don't know about you, but for me it seems a long time ago.

We had some really excellent shoots last year, resulting in our prestigious Silhouette, Buffalo and Creedmoor trophies going to different parts of the country. Who can say where they'll end up this year. I know where I'd like them to go, but nothing is ever that easy! The standard of shooting is high and getting higher. A wise man knows that you have to put in the work in order to reap the rewards. But it's not just the work ... in the immortal words of Steve Garbe "In this game, you still need a healthy dose of luck". Never a truer word spoken my man!

This coming season sees the introduction of a new and exciting competition ... "THE Man Down Under", one definitely not to be missed. If that sounds like an intriguing title, all will become clear in good time!

The Shiloh Rifle Manufacturing Co. of Big Timber, Montana, has supplied a most suitable and impressive trophy which I know will be vigorously competed for every year.

Shiloh makes some of the finest 1874 Sharps rifles available. The quality is second to none ... I should know, I've been using one with some degree of success for a few years! There's a direct link to them on our web site.



**The Shiloh Rifle
Manufacturing Co.
silver buckle for
"THE Man Down
Under" shoot.**



And, speaking of our web site, it continues to receive hits from all over the world. Clive Taylor, Mr. Webmaster, has put in lots of "overtime" getting the site to its present standard. Judging by some of the complimentary comments in the Guest Book, we should all pat him on the back for doing such a splendid job. For those of you who haven't got computers or access to the Internet, get down to your local library and ask them to show you. You'll be amazed by what you see. It gives the Club a whole new dimension.

The address you'll need is: www.ssbpcrc.co.uk

MID-WEEK PRACTICE AT BISLEY NOVEMBER 13th. 2002

The mid-week practice which took place last November, lured out 12 hardy shooters who had the whole of Century range to themselves ... all 108 firing points! Not surprising considering the weather ... the 600 yard firing point was really boggy and it overlooked some new lakes which had recently formed out in no-man's-land! It was the sort of day that sorts out the men from the boys.

We welcomed John Grover, Gerry Haines and Dave Clareboets to the Club. They particularly wanted to shoot this practice with us before the end of the year and travelled some fair distances to do it. Good to have you with us.



Sid Bennion, who along with "Jacko" Jackson, travelled the best part of 200 miles to shoot. That's dedication for you! Here, Sid looks as if he's trying to decide whether to bounce one in off the water, Dambuster-style.



Sid spots for Jacko who decided to get some sight settings and do some load testing with his .40-65 Hi-Wall. Having achieved that successfully and putting them almost into the same hole at 600 yards, all that remains to be done is for us to break his trigger-finger before the "serious" competitions start!



Sid, Jacko, Pat and Geoff having fun and keeping the markers busy at 200 yards ... a good distance for testing if your loads are the optimum for your rifle, or whether they need "tweaking". That's a well known shooting term, by the way!

Also, Sid Bennion, Jacko Jackson, Geoff Hoden, Alan Stevens, Frank Pfeil, The Three Musketeers (Pat Farey, Richie James and Perry Goodacre) all turned out for a most enjoyable day of relaxed shooting. Regrettably, Clive Taylor had an important meeting in another part of the country and couldn't make it. I really missed those teeth-rattling shock-waves he generates with that .45-3¼". Next time Clive.

Because of the excellent turn-out for this mid-week practice, we'll definitely try to hold more of them this year. In my opinion, it's the best way to experiment with load development and record sight-settings for the different distances at which our regular matches are shot ... all in a relaxed and informal manner.



"New Boys" John Grover and Gerald Haines wasted no time in setting up home under cover! There's nothing worse than getting soaked while shooting ... the "roof" makes it almost pleasant!





The Three Musketeers ... Pat Farey, Richie James and Perry Goodacre prepare to do battle. No need for all those water-proofs lads, the sun's come out!



Dennis Chambers puts the final touch to his clay arrangement before going on to breaking half of them with his ten shots. He did better in the Turkey shoot, winning as much as £5 with a score of 110/150. His 5-shot 1" group in the "heart" was most impressive.



FUN SHOOT AT WEDGNOCK NOVEMBER 30th. 2002

It was dull and damp ... the sort of day when the smoke just hung in the air without clearing (was this how it was like on those 19th. Century battlefields?). Quite an appropriate setting for the main event, a skirmish shoot at ten orange clays arranged on target boards 100m away; not the easiest of targets but then everyone needs a challenge once in a while!

The winner of a fine bottle of wine with a score of 8 was Malcolm Seller. Runner up with 7 clays was Phil Morgan, followed by Dennis Chambers with 5, Nick Steadman, John Brocklehurst and Gerald Haines all scored 3. This shoot was a lot of fun and will definitely be a regular event in our calendar.



Why waste words when the picture says it all! Nick looks on to make sure the jolly red fat-man adds his score up correctly ... and to tell him what he wants for Christmas!



On the firing line, from front to back ... John Brocklehurst, Nick Steadman, Len Jackson, John Grover and Gerald Haines



John Brock looks pleased with his win. He shot well at this buffalo target which was almost invisible down-range. Unlimited sighters in the top buff followed by a single shot at the yellow head-spot on the bottom buff. Oh what fun we had!



THERE IS NO BETTER AID TO STEADY HOLDING THAN REST STICKS. WE BUFFALO HUNTERS USED THEM ON THE PLAINS YEARS AGO AND THEY WOULD BE IN USE TODAY DID MODERN RIFLEMEN BUT REALIZE THEIR VALUE.

Making the Big-Bores Shoot

By Frank H. Mayer

Since the publication of my article, "The Rifles of Buffalo Days," I have received a large number of letters from owners of these old-time guns requesting more information on reloading ammunition for them. I therefore submit herewith as comprehensive a description as my memory permits of the reloading practices we employed in actual field work. Time was when we deemed these old coal-burners the acme of excellence in the work for which they were designed; and super-dependable they were in the assurance of our livelihoods and the preservation of our lives. They served us well, and are, even in this day of faddish ballistic exaggerations, outstanding exponents of a craftsmanship that seemingly has vanished with the long-gone buffalo. Cheerfully admitting the indisputable advance in the mass-production of firearms designed to meet the modern requirements and demands for flat trajectory, increased velocity and more or less questionable energy, I am old-

fashioned enough to maintain that the old smokesticks to which we were wedded with indissoluble ties have never been approached as regards the satisfactory performance of the work for which we employed them by any type, class or make of weapon evolved in subsequent years.

I readily concede the absence in modern rifles of many vexatious features which we old fogies had to learn to overcome in the effective use of the old black-powder fusils. Many things which we had to thrash out for ourselves have now been solved by the manufacturers: things such as the proper sight elevations for unknown ranges; the proper "lead" for running shots; the much-to-be-desired rapidity of fire, etc. All of which is commendable in this age of speed, easy money, and nationally rooted predilection for letting the other fellow do it for us to the last imaginable degree. With the flat-shooting high-powered rifles of today there is little danger of either

over- or under-shooting, at all distances at which game should logically be taken. These rifles require little or none of the lead so essential with the low velocity types that were the best to be had in the buffalo days. Like the new-fangled automatic fishing reels, they dispense with all the craftsmanship that characterized the old-time sportsman who in his employment of rifle or rod deemed it ethical to give fin, fur, and feather at least a fair break. That is why, in the foolish senility of old age, I consistently refuse to go astream or afield with any man who uses either an automatic reel or an automatic firearm. I like to play all my games according to Hoyle.

I am not criticizing either modern sportsmen or their modern appurtenances; every man to his own cheek. All that I urge is that there were real rifles – and real riflemen – in the buffalo days. And now to our muttons.

Shells

There were, and are, many different makes of cases suited to the now-obsolete types of low-pressure rifles. Unfortunately, they were too often of different metal thicknesses, some being extremely thin, while some others were of greatly varying thickness of metal. This necessitated the use of different thicknesses of paper patches, these ranging from .0001” to .0025”. In the case of the rather thin shells furnished direct with the rifles by the Sharps people (shells that I understand were of Sharps manufacture), the patches were of the greater thickness – mostly .002” to .0025”. With cases of Remington and Winchester make, which were of thicker metal, the thinner patches were more satisfactory. This of course refers only to those cartridges using paper-patched bullets and intended for use in shallow-grooved barrels. When lubricated, grooved, naked lead bullets were used, these worked best in deeper-cut rifling, for which the paper-patched projectiles were unsuitable. The shallow-grooved barrels best adapted to paper-patched bullets and having grooves only .002 to .0025-inch deep in .40 and .45 caliber would not properly spin the naked grooved and lubricated bullets, which stripped badly in the shallow rifling. Conversely, the paper-patched bullets were entirely unfit for

the deeply rifled barrels, the deep grooving – from .003 to .005-inch in depth – cutting and destroying the patches, with very unsatisfactory ballistic results.

Another annoying feature lay in the employment of widely different types of primers in different makes of cases. The primer originally used in Sharps, Remington, and Winchester cases was the Berdan. This was of rather large diameter, in the form of a flat saucer-like brass or copper cup containing only a film of mercuric fulminate, and contained no anvil, the base of the primer pocket being raised instead. Later the Berdan was discarded in favour of an anvil-type primer similar to those in use today. This last type of primer was scarcely half as large in diameter as the Berdan, and was more satisfactory in every way.

Later still there came into general use the solid-headed shells of Remington and Winchester manufacture, which, however, did not properly fit the chambers cut for the original shells. This latter condition was in a measure remedied by rechambering, but I must confess that this failed to give me satisfactory results. The new shells worked well only when the rifling in the barrel was cut deeper, and naked grooved and lubricated bullets used. Cartridges as originally made for paper-patched bullets were as follows:

Sharps	.40-50-200(*)	with	1½	inch	case
“	.40-70-330	“	2½	“	“
“	.40-90-370	“	¾	“	“
“	.45-105-550	“	⅞	“	“
“	.45-120-550	“	¾	“	“

(* Special to order)

These were all “straight” (slightly tapered) cases. In addition to these straight cases, all of these .40 and .45-caliber Sharps cases were made in bottle-necks of varying lengths, the dimensions of which I have forgotten as I used bottle-necks only for a short time. They proved unsatisfactory, the cases when reloaded often rupturing at the necks and swelling badly. Bottlenecks of .44-77 and .44-90-caliber, with various weights of bullets (made originally for the Remington rifles) were also used in Sharps rifles with specially cut chambers and rifling. In

fact, almost every known large-size cartridge adapted to other makes of arms was used in Sharps rifles, chambered and rifled to suit. The .45-70-405 cartridge with naked grooved bullet was of common use in the Sharps rifles that were furnished in the heel of their manufacture. The Ballard .40-90-370 employed a 3-1/16-inch case, and was especially adapted to Ballard rifles. This too used paper-patched bullets.

In addition to these standard cases, many “everlasting” shells were made to special order in all these calibres. My good friend John H. Barlow of the original Ideal Manufacturing Co. furnished me with .40-70, .40-90, and .45-120 hand-made cases, all of which are still in serviceable condition, despite the fact that they have been reloaded many hundreds of times. Barlow was a genius. Peace to his ashes!

Patches

As originally supplied these were made of peculiarly tough parchment paper (unsized and I believe chemically treated), furnished either in cut patches of proper dimensions, or in large sheets. This paper is probably not obtainable today, but a fairly good substitute is the modern unsized “bond” paper which can be had in any thickness desired. I am of the opinion that if patterns by which to cut these patches are desired, these can be obtained at a very nominal price from Mr William C. Almquist, P. O. Box 162, Harlowton, Montana, who may also be able to furnish cartridges and empty cases in any of the above-described sizes.

Once, in lieu of regular patching material, I used patches cut from a sheet of oiled silk of the thickness of onion skin, which I had used for the protection of certain valuable papers. While not exactly what I wanted, these patches worked very nicely, and I killed every buffalo shot at with the silk-patched bullets.

Powder

For these old rifles the best powder of American manufacture, as far as my own personal knowledge and experience go, is the American

“Dead Shot” black, preferably in Fg grain, with a small quantity of FFFg or FFg for priming, as described later. It is quite possible, and in fact probable, that an equally good propellant may now be obtained from most any of our American powder companies, but I am personally acquainted only with Dead Shot. It should be understood that I am recommending only black powder for reloading cartridges with paper-patched bullets, for I have never yet come across any smokeless or semi-smokeless propellant that works satisfactorily with paper-patched projectiles – and I have tried them all. However, in using naked, grooved, lubricated bullets in barrels grooved sufficiently deep to spin these projectiles, I have achieved remarkably fine results with du Pont No. 1 low-pressure rifle powder, its performance being beyond reproach. With the newer and more modern kinds of smokeless powder such as No. 80 for example, I have had no experience in these large calibers. To learn to use these would require experimentation for which I have not time, albeit I have a strong desire to do so. Let some of the youngsters with more leisure – and money – try them out.

Wadding and Lubricants

Only enough wadding should be used between powder and lubricant as will insure perfect protection of the powder against grease. One thin cardboard wad of about 1/16-inch is enough if the ammunition is intended for immediate consumption, whereas if cartridges are to be stored for indefinite periods the wad had best be 3/32-inch in thickness. The best lubricant I have so far found is one composed of beeswax, tallow, and finely ground pure graphite, in the proportions of 1/4 wax, 5/8 tallow, and 1/8 graphite, by weight; all thoroughly mixed and combined by gentle heat and thorough stirring. When cold this lubricant should be quite hard and firm at ordinary temperatures. The thickness of lubricating discs of this mixture should be about 1/8- or 3/16-inch.

Bullets

Naked, ungrooved and non-lubricated bullets for paper-patching should be composed of lead 16

parts, tin 1 part. This for bullets of all lengths and weights. Bullets for paper-patching must have a slightly hollow base into which the “tail” of the patch is twisted in order to retain the patch on the bullet.

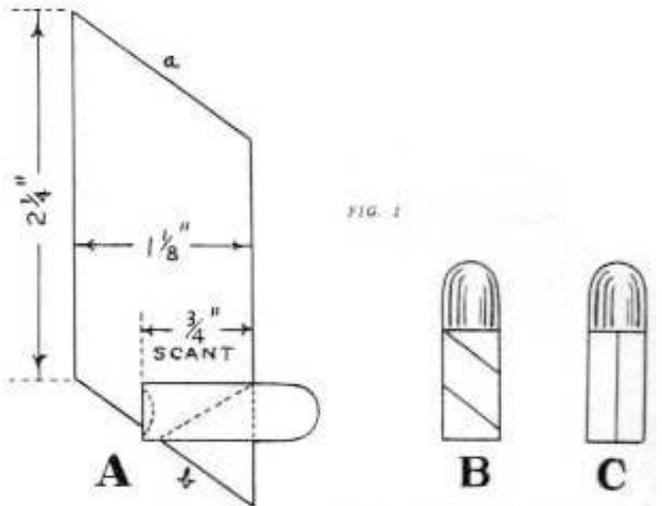
To persons today wishing to prepare ammunition for rifles using patched bullets, my advice is briefly as follows: Get a mould that will cast bullets of such diameter that *when patched* they will be just a trifle too snug a fit to enter the muzzle of the rifle but will still permit fairly easy entrance of the cartridge in the rifle chamber, - “Ballistic Nature” will take care of the rest. Of course, swaged bullets are the best, and these, before patching, should measure about .002-inch less than the bore diameter of the barrel, and should slip down into the barrel very easily. The patch should be of such thickness that the patched bullet fits the bore very snugly, and can be pushed into the muzzle only with difficulty. These rifles all being shallow-grooved, the theory was that the bullets were upset into the grooves by the hammer-like blow of the black-powder explosion, the throating of the barrels being such that the raised lands of the rifling came down to practically nothing at the forward end of the chamber, and took effect very gradually as the bullet progressed forward.

Patching the Bullet

As the process is similar in all cases, we shall illustrate the patching of only a .40-70-330 bullet. The difference in the patching of the .44 and the .45 calibers lies only in the greater length and width of the patch pieces for the larger calibre. The paper patch should be of such length and width that when wound on the bullet and its loose end twisted firmly into the hollow base of the bullet, the edge *a*, Fig. 1, will fit exactly against the inner-wrapped edge *b*, thus retaining the perfect “round” of the bullet. The patch is cut, as illustrated, in the form of a rhomboid, with opposite ends and sides equal and parallel. Its exact dimensions are in this case; length, $2\frac{1}{4}$ inches; width, $1\frac{1}{8}$ inches. A complete patched bullet is shown at B. As to the thickness of patches, our practice was to use a patch of such thickness as would insure a snug fit of the bullet in the resized shell neck, and at the same time

permit of easy entrance of the cartridge in the chamber of the rifle. Once “in,” with the breech-block closed, that bullet took care of itself.

Another form of patch much affected by purely target shooters is the butting-edge straight-wrapped patch shown at C, whose ends, when wrapped, lie in a straight line parallel with the axis of the bullet. These patches as cut are true rectangles in form, instead of rhomboids. I personally could never see their advantage, but some of my gun-crank friends were insistent upon their superiority, and so I illustrate the type. They were harder to adjust correctly on the bullet, and infinitely harder to twist into stability. I will admit that they shot well, but then those fellows were expert shots anyway as I more than once learned to my pecuniary cost. The patches were cut to such exact size that when wrapped on the bullet the outer edge lay exactly in line with, and against, the inner edge.



The patches, before applying, should be *very slightly* – almost imperceptibly – dampened with a scantily-wet sponge on the side to go next to the bullet. Then, with the patch lying as shown at A, Fig. 1, lay the bullet in the position shown, with its point projecting to the right about $\frac{7}{16}$ -inch, which will enclose in the patch, when wrapped, about $\frac{1}{2}$ -inch of the base end of the bullet. With the forefinger of the right hand, roll up over the bullet the triangular tip-end of the patch, as shown by the dotted line; then with the first two fingers of the right hand, roll the bullet forward and away from you with a firm pressure (but not too firm or the patch will tear), and when the paper is all wrapped snugly and evenly

around the bullet, with the fingers of the left hand twist the projecting loose end toward you until it is snugly ensconced in the base hollow of the bullet. That is all there is to it, and the process is far simpler than this description of it. With a little practice the operation can be performed in less than two seconds, and a perfect job achieved. When wrapped and twisted, let the patches dry as slowly as possible, and they will adhere firmly to the lead.

Some don'ts:

Don't use mucilage or any other "stick-um" on the patches;

Don't roll the patch on crookedly;

Don't get the patch up so far toward the pointed end of the bullet that it leaves some space between the forward edge of the patch and the lead;

Don't get less than approximately $\frac{3}{4}$ -inch of the base of the bullet enclosed in the patch;

Don't twist the loose end of the patch into the base hollow of the bullet too energetically; just enough to seat it snugly.

And finally, always roll the patch on the bullet so that its spiral line agrees with the twist of the rifling in the barrel; inclined to the right for a right-hand twist, and to the left for a left-hand twist of rifling.

When perfectly dry, slightly rub the forward end of the patch with a soft bit of chamois slightly *soiled* with pure graphite. This promotes true and easy passage of the bullet through the barrel, and to some extent waterproofs the paper wrapping.

When patched bullets were superseded by "naked" grooved and lubricated bullets, without patch, reloading was of course made somewhat simpler; but I wish to go on record as stating that with these un-patched bullets there was a loss in accuracy not compensated for by the greater ease of reloading. No man has ever yet produced a rifle for naked lead bullets that shows the accuracy of the old-time patched-bullet rifles. I make that statement without reservation, for I

personally have shot, and seen shot by other riflemen, many hundreds of rifles of both types, and I know whereof I speak.

Loading the Cartridge

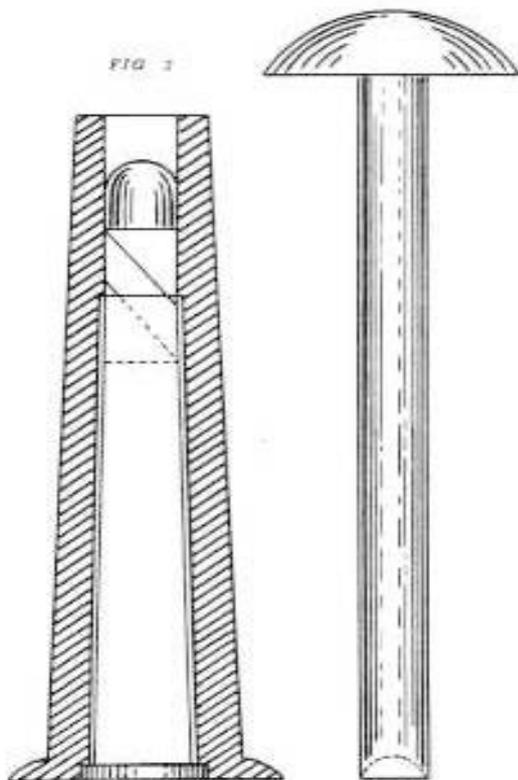
The fired cartridges cases, perfectly cleaned by soaking in enough washing-soda solution to entirely cover them, followed by a good interior scrubbing with a round brush (a revolver brush is ideal), and then dried at room temperature and *not in an oven*, the heat of which would anneal and soften them, are first reprimed with primers suitable to the cases and firmly seated. Then into each shell pour from 3 to 5 grains of fine-grained black powder (FFg or FFFg preferred) as a booster for the primer. On this put a scale-weighed charge of (black) powder – 40 or 50 or 90 grains or more, according to the standard weight for the cartridge being reloaded; this full charge to be of Fg grain. Tap the shell lightly on its base to settle the powder uniformly in each case. Put upon this, with about a 5-lb. pressure, the cardboard wad, followed by the disc of lubricant evenly seated upon the cardboard. To conclude the operation, seat the bullet snugly on the lubricant. No crimping is permissible.

A good die-and-plunger bullet-seater is very desirable, especially where paper-patched bullets are used, and the makers of rifles using such bullets regularly supplied with their rifles a bullet-seater of this type, as shown in Fig. 2. The die also automatically resized the necks of the shells as the latter were pressed into it. In the reloading procedure a primed shell, fully loaded with the exception of the bullet, was inserted in the die from the bottom, and the bullet forced down into the shell mouth and firmly seated on the lubricating wad by careful pressure on the plunger.

This die, of case-hardened steel, served also on occasion, as a full-length shell resizer, any over-expanded shells being carefully driven into the die with a wooden mallet until the head of the shell was flush with the bottom of the die, as in present-day practice. The shells, previously lubricated by a dry rubbing with a graphited bit of buckskin, were easily removed from the die by means of the bullet-seating plunger, which was long enough to reach to the head of the

shell. After insertion in this die the reloaded shells went into the rifle chamber with ease, and their necks held the bullets very firmly.

Before reloading any case, see that it enters the rifle chamber easily, and that its open end is not jagged or deformed so as to resist bullet insertion and cut the patch. A light outward pressure of a round bit of iron, ivory, or bone against the inside edge of the shell will sufficiently chamfer the mouth. Then, after such chamfering, see that the shell enters the chamber nicely.



Should shells become swelled by successive firing, the only remedy is to resize them full length in a suitable die. This, however, is of improbable occurrence, as uncrimped shells loaded with patched bullets do a minimum of swelling as compared with the tightly-crimped high-pressure variety.

The process of reloading cartridges with naked, grooved, lubricated bullets is too well known to call for description here.

In conclusion, a word on the cleaning of rifle barrels may be admissible. A rifle of any kind, modern or ancient, should never be put away dirty, and a black-powder rifle should be cleaned

after every ten shots if the utmost in accuracy and efficiency is to be had. The cleaning at the end of the day is best effected by flushing out with cold water, scrubbing with a bristle (not brass or steel-wire) brush, and finishing up with a drenching with hot water – hot enough to thoroughly dry the barrel by its own heat. Follow this, when the barrel is perfectly dry, with a lightest possible coat of some acid-free oil, and the barrel will last for more shots than the average man fires in a life-time. *Clean out all oil before firing again.* For the ten-shot cleansing while shooting, a simple drawing through the barrel of a properly-constructed field cleaner will suffice. There are many good appliances of this sort on the market, and one can't go very wrong in the selection of any of them.

A good kink is to have at hand, when shooting, a wide-mouthed bottle filled with water in which a good tablespoonful of common washing soda has been dissolved. Into this drop the (decapped) shells immediately after firing, and upon your arrival home they will clean much more easily than if left to dry out and corrode for a time.

Editor's Note ... This article was originally published in The American Rifleman, December 1934 and has been reproduced with their kind permission. Copyright - American Rifleman ©

Frank H. Mayer was born in New Orleans, Louisiana, May 28, 1850. He attended University, and at the age of 22 he arrived in Texas where he bought an 11-lb. Sharps rifle in .40 x 3¼" calibre, from Col. Richard Dodge and went on to become one of the most noted of the buffalo hunters.

When he was 100 years old, Frank Mayer told his story to Charles B. Roth, who published his account in *The Buffalo Harvest* in 1958. Unfortunately, Frank did not live to see his story published. He died on February 12, 1954 in Fairplay, Colorado at 104.



Picture by: David N. Lotz

LETTER FROM AMERICA

I want to share with you, this letter which I received a while ago from Paul Matthews, a man who I hold in high esteem and consider to be one of the wisest and most knowledgeable when it comes to the art of Black Powder Cartridge Rifle shooting. Anyone who has read his various books on BPCR will surely agree with me. I am indebted to him for taking the time to write this article, and for sharing his good advice.

Phil: Here is a short article written as a letter. Hope you can use it. Thanks a million for sending me the latest issue of Black Thunder.

Good shooting!
Paul

November 17, 2002

Dear Phil:

I received the No. 3 copy of **Black Thunder** a few days ago and read it from cover to cover. Thanks very much for your thoughtfulness in sending it.

I am starting my eleventh year at the black powder cartridge rifle silhouettes (plus one 1000 yard match in 1993). I was 66 years old when I got into the game and have just recently turned 77. If I was starting all over again knowing what I know today, the one thing I would do differently is to keep far more thorough records than I have kept for the past ten years.

By this, I mean that I would keep very precise records on all the various loads and bullets tried in any given rifle. I would number each load in sequence as it was developed, and list **all** pertinent information relative to that load – powder charge, primer, cartridge case, overall length, wad used, bullet used, alloy, weight and the lubricant. All load information would be in a single notebook.

In another notebook I would record the results of every match participated in. This would include the number of each target hit, aggregate score, weather conditions and the number assigned to the load used in that match.

And in a third notebook, I would keep a record of every shot fired through a given rifle. By this, I mean that I would have an outline of each silhouette with the number of each shot as it was fired indicated on that silhouette. I would also devise a way of showing wind, light and mirage conditions and where I held for each shot.

All of this may seem like a lot of work, especially the latter. Yet it is the latter that lets you check back and see what you really did during certain wind or lighting conditions and how well or poorly your judgment was in compensating for those conditions. I have shot with Brian Chilson many times, and I know he keeps track of every single shot he fires. More than that, many times in practice shooting with Brian spotting for me, he is able to predict

ahead of time where my bullet is going to strike if I use a dead center hold. And he is usually right.

If a beginner shooter wants to be in the winner's circle, he or she must understand the wind, mirage and lighting conditions. And the sooner one gets into the study of those conditions, the easier it is to grasp what is going on between the muzzle of the barrel and the target. Don't wait for ten years and then attempt to learn it, because during those ten years you will have acquired some habits that are not conducive to reading the conditions, and they are habits that are difficult to break.

As far as keeping records relative to the various loads tried and used, one may start out using a particularly good load and think that is the only load he will ever use, thus there is no reason for a detailed record. Wrong! In this game every shooter is an experimenter searching for some little detail that will give him or her an edge in the next match. And over the years, these little experiments add and subtract to the point that the load you started with is nothing like the load you are using three years later. Then comes the day you change rifles and the new rifle doesn't like the same load as the old rifle. This is where you start checking back in your records to see what loads gave good performance in a match.

Don't think you will remember the details that make a load good, bad or indifferent. You won't. Write them down in detail, the more detailed the better.

For the past year and a half, I have been working with a tapered bullet designed by Ed Schmitt of Lyman and myself. When I first started using this bullet, it performed beyond all expectations. I used it in five matches and did well in each match. Then something went sour and for the rest of the season my scores were far below what they should have been. I went to the local range two and three times a week trying different things in an attempt to restore the performance of that load, but it seemed that no matter what I tried, it was sour.

Tired of poor performance in a match, I went back through my match records checking the various loads I had used to determine which one had given the best performance over an extended period of time. Then I loaded my ammunition as close to that load as possible and went to the match. I shot a score of 26, all over the cross-sticks, and those targets missed were due to poor judgment on my part. (I no longer shoot at the chickens because I no longer have the strength in my left arm to hold the eleven and a half pound .45-70 in the off-hand position.)

The point here is that when my load with the tapered bullet first went sour, I should have gone back to a known reliable load for the matches and worked with the tapered bullet between matches. And had I not been able to go back in my records and see what load I had been using, I would have kept shooting poor scores.

I cannot emphasize too strongly the importance of keeping good detailed records if you take your shooting seriously. It is vital if you want good scores.

Good shooting,

Paul A. Matthews

NEED A BED FOR THE NIGHT?

If you need to get to Bisley for an early morning start and can't face the drive, stay overnight in The Muzzle Loaders Association of Great Britain Clubhouse. You can't miss it, it's the red and white striped colonial building with the canon outside, just next door to the NRA offices.

The Exhibition Hut as it is called, (it gets its name from the days when it used to house all the great shooting trophies) has 6 heated bedrooms with 2-4 bunk-beds in each. There are mixed toilets and showering facilities, and whatever time you get there, you'll be able to make a hot drink and watch TV.

Open from March to September

Rates £10 (non MLAGB members £12)

Book through: Roy Ricketts, Beggars Roost, 70 Victoria Road, Bidford-on-Avon, Warcs. B50 7AR Telephone: 01789 490076



The Exhibition Hut, in all its colonial splendour, is the clubhouse of the Muzzle Loaders Association of Great Britain. Staying overnight can take the hassle out of getting to an early morning shoot on time.

Reading & Viewing

About six weeks before Christmas, while I was "surfing" around some of my favourite shooting websites, I came across one of the best books I've read in a long time. It is:

- SHOOTING BUFFALO RIFLES OF THE OLD WEST by Mike Venturino

This is Mike's latest book which I have read from cover to cover at least twice. It covers the different types of rifles which constitute a "buffalo rifle", basic reloading for all the popular calibres, including a section on reloading match-grade ammunition. I found it to be an invaluable source of reference, giving an in-depth history of these rifles and listing many pet-loads used by some of the well know names in BPCR shooting. 288 pages.

Published by MVL Enterprises, PO Box 914, Livingston, Montana 59047, USA

Priced at \$30 + p&p.

Sample of contents and order form on-line at: www.ycsi.net/users/mlventurino/

Editor's Note: See also Page 18 for the serialisation of Chapter 11 ... Basic Reloading For Buffalo Rifles

- READING THE WIND (Video) by Jim Owens

This video is all about how to read the wind and mirage. It is written for high-power shooters but it can apply equally well to black powder and lead bullet shooters. [make sure your VCR plays US video format]. 75 minutes. Priced at \$29.95

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What are you? A vibrator, tumbler or plain old scrubber?

Speaking as an old ex-scrubber, I was pleasantly surprised when Clive Taylor introduced me to the joys and benefits of TUMBLING ... brass cartridge cases that is.

For years, I'd been quite happy to come home from the range with anything from fifty to a hundred dirty cases, and spend half the evening, de-capping, washing, scrubbing, rinsing and drying my brass. For me it was part of the ritual that goes hand-in-hand with black powder rifle shooting. But, no matter how much time and effort I put into this ritual, I just couldn't get my brass as clean as I wanted, especially inside the cases where it matters most.

So I began to think about buying one of those vibratory case cleaners like the ones Lyman make. I suppose I'd always regarded these as a bit of a luxury item, rather than a necessity. Buying a new rifle or a few bullet moulds, made far more sense to me.



The single-barrel tumbler holds about 3lbs. (1½ kg.) of cases, media and liquid. It is designed to run for days or even weeks when polishing stones, so it is never likely to be over-worked. The manufacturer guarantees the machine for 10 years.

Then, last summer, while I was at Clive's house, he showed me his rock-tumbling machine and the results he was getting after tumbling his brass in ceramic media for just a couple of hours. From that moment, I was hooked! I wanted clean, shiny cases just like Clive's! What I wasn't keen on was the price of his imported American tumbler. So I did a bit of searching and found a British company that manufactures a small tumbler for the hobbyist; the guy who polishes semi-precious stones, quartz, and pebbles.

The following day, I ordered one and by the weekend, I had about 40 dirty cases on which to try it out on.

After de-priming the cases, and giving them a couple of five minute soak-and-shakes in hot water and washing up liquid, transfer them to the tumbler barrel.



Close-up of the ceramic chips after rinsing and overnight drying ... these measure 4 mm x 5 mm and have their ends cut at an angle to assist with the cleaning and polishing process. This size produced no "jamming-up" inside the cases.

Next, tip in the ceramic chips and add enough water to just cover the media. Clive recommended adding a couple of drops of washing up liquid, two drops of lemon juice and a teaspoon of cream of tartar (purified argol, used in baking powder), so I did. (You normally have to know someone a long time before they divulge such secret information).

Make sure the end caps of the barrel are firmly on; to do this you simply push down in the middle while lifting one side up to let the air out. A bit like "burping" Tupperware. Place the barrel on the two rollers and switch on. One roller is the drive from the main pulley and the other is free-spinning. A protruding "stop" prevents the barrel from falling off the rollers.

Leave the tumbler to gently rotate for a couple of hours, like a little cement mixer. (I was curious about its speed so I put a small mark on it and timed it at 48 rpm).

When they are done, tip the lot into a kitchen sieve so as not to lose any of the ceramic chips. At this point it's best to check if your wife is about to come in. Rinse the whole lot under the tap and simply pick out the cases, tapping out any media from them. I usually leave mine upside down on a nail-board to dry overnight. The ceramic media can then be tipped onto a paper kitchen towel inside a bowl and left to dry before storing it away (inside the barrel) until next time.



The chips even cleaned the primer pockets.



A basket full of clean and highly polished .45-70 cases. Even the insides were shiny ... just how you want them. Two hours earlier, these same cases were in a "disgusting" state. They have all been reloaded at least 30 to 40 times and were very badly tarnished.

The whole experiment left me in no doubt that my days of scrubbing the inside of cases and primer pockets were over. My transition from scrubber to tumbler was complete!

Phil Morgan

NOTE: If you are interested in buying a tumbler through the Club, see the advert on the back page.

Rifles & Stuff

Rifle "pin-up" of the month ...



A customised Rolling Block in .45-100 (2.6") built by Martin Tebbs for 1000 yard work.

Shoots at Bisley in 2003

Dates for this year (correct at printing)

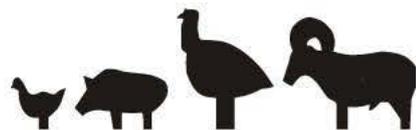
Silhouette	300/500	29 March
Creedmoor	1000	26 April
Buffalo	200/600	10 May
"THE Man		
Down Under"	300/600	14 June
Precision Match	200/500	26 July
Buffalo	200/600	23 Aug.
Silhouette	300/500	27 Sept.
"THE Man		
Down Under"	300/600	25 Oct.

Practice dates and details of additional shoots will be published nearer the time.

Note: We are trying to arrange a friendly match with the USA around the beginning of September ... more later.

Don't forget to book if you wanna shoot!

If you want to shoot, send your entries off in good time. It helps to plan the squadding, makes the shoot run smoothly and avoids disappointment on the day. The Club could be liable for the cost of cancelled targets and markers. Thanks for your co-operation. ☺



Just to whet your appetites for the Spring Silhouette shoot ... one not to be missed!

Thanks to Steve Garbe and The Black Powder Cartridge News for permission to reproduce this article from "Cranks Corner 40".

Thoughts on Primers, Breech Blocks and Air Spaces

We've received many inquires regarding the use of Large Pistol primers and their use in black powder rifle cartridges. I'd like to go into a little greater depth on some of the benefits and drawbacks to this practice. There have also been reports of frequent breechblock cratering that I think can be attributed to the incorrect use of Large Pistol primers in rifle cartridges. We have also received letters in which beginning riflemen have read about the dangers of air spaces in cartridges and are concerned. I personally feel that the air space thing, in relation to black powder, has been made too much of. Let's address these topics then, and hopefully give the reader some clarification.

It's no secret that I have for many years used Large Pistol primers in my black powder cartridge rifles, even in as large a caliber as .45-70. This has been in direct contradiction to the commonly held views of many seasoned competitors. However, I have found that in almost all cases Large Pistol primers give me lower standard deviation figures and more importantly, less hard fouling than Magnum Rifle primers. This is especially true in the cartridges from .38-55 on down. Using Magnum or Large Rifle primers in cartridges such as the .32-40 when shooting black powder is a real lesson in futility. I have experienced standard deviation numbers as high as 175 when using Magnum primers in these smaller cases.

Why is this, especially when some believe that a hot primer acts like a duplex charge and makes the black powder burn cleaner? I think the answer is really two-fold. One, I believe that Large Pistol (and Small Rifle and Small Pistol) primers more closely approximate the "power" or brisance of old black powder primers. There was a clear distinction drawn between primers for black and those for smokeless in the late 1800's. Many riflemen bemoaned the fact that their "pet" black and duplex loads would not work well with the newly introduced smokeless primers.

This fact leads us to the second reason. I firmly believe that primer force must be balanced to projectile weight. This is not only bullet weight but also the combined weight of bullet, powder, and any compression that is applied to the powder. Case shape I feel also plays a role. In the case of the larger calibers such as .45-70 or bigger, Large Rifle primers

are well balanced to the typical load of 500 grains of lead and 65 to 68 grains of powder. However, when one takes this same primer and combines it with a 200 grain .32 bullet and 42 grains of powder the primer force can move bullet and powder an appreciable distance down the barrel before complete ignition takes place. This distance is highly variable depending largely upon the amount of fouling left from the previous shot. I have tested this theory in various rifles and with a variety of loads. I have satisfied myself that using a "softer" primer is absolutely necessary for accurate black powder shooting in smaller calibers.

I have changed to using the Large Pistol primers in my .45 caliber rifles as I have noticed generally better standard deviation numbers there also. There are a couple of exceptions to the use of Large Pistol primers, however. If one is compressing powder in the larger cases you may have to use Large Rifle primers. There seems to be a point where compressed powder requires a hotter primer for reliable ignition. I prefer to not compress powder unless absolutely necessary as I feel that this procedure merely introduces another variable to the loading process. If one is using a good grade of "sporting" black powder compression can even add to fouling tendencies. For many years we were stuck with using a "musket" or military grade of black powder and compression of this powder (along with a hotter primer) caused higher pressure along with decreased fouling. We need to remember that all black powders are not the same and each has a preference as far as compression and primers go.

While I'm on this subject I might as well get in clear to my neck. Before I do that, I want everyone reading this column to carefully read the next line. **WHAT I'M ABOUT TO TELL YOU ONLY APPLIES TO MY LOADS IN MY RIFLES. THIS INFORMATION IN NO WAY SHOULD BE TAKEN AS A RECOMMENDATION FOR LOADING PROCEDURES IN THE READER'S RIFLES!**

Okay, now that I have somewhat put the lawyers at bay I will tell you that I have routinely, and totally on purpose, loaded black powder cartridges with an air space between bullet and wad. I'm well aware of the dreaded "ringed" chamber syndrome and I'm saying that I have not experienced the slightest ringed chamber **WHEN USING BLACK POWDER**. I think that the ringed chamber phenomenon is something that has been somewhat over-done; the idea that **ANY** airspace will ring a chamber does not hold up under careful assessment of the facts. If any airspace between black powder and a bullet would ring a chamber there would not be one old Schuetzen rifle that did not have a ringed chamber. These rifles were routinely shot with as much as 1/4 inch gap between bullet and powder when the bullet is breech seated. That gap can be much larger when smokeless powder is used. I want to point out, however, that in

this discussion I'm talking about BLACK and not SMOKELESS powder. Given that smokeless powder is still somewhat "experimental" I can't be held accountable for it's unreliable eccentricities.

Yes, I have shot cartridges with an air space between powder and bullet; I did it on purpose because the load shot well. Why? I'm assuming that the airspace affected pressure in some way that gave a more uniform burn to the powder. We are back to balancing the factors of bullet weight, primer blow, and load inertia. Neck tension and crimping the bullet also will add to load inertia and hence contribute to pressure. Pressure directly affects fouling characteristics and of course, velocity, so one can see that there are many factors that need to be balanced in load development. It also makes it obvious that one cannot condemn a rifle's accuracy from merely firing 20-30 shots of a given load.

I would like to include in the discussion of air spaces in cartridges an excerpt from "Shooting and Fishing" magazine, the July 31, 1890 issue. I think modern day cranks will find it interesting.

"I noticed in your issue of July 17 a question in regard to the practice of leaving an air space between the wad over the powder and the bullet. In connection with this subject, the results of a series of tests made by the government at Springfield may prove of interest to some of your readers. The tests were undertaken to determine the truth of the time-honored theory that a space between the powder charge and the bullet was likely to cause either a bulge or a burst. The arm used was the regulation Springfield breech-loading rifle. The bullets were inserted from the muzzle, and were therefore slightly reduced in diameter. The shells used were loaded with seventy grains of powder, and the powder was kept from escaping by pasteboard wads, leaving a space of about one-half inch. Two shots were fired with the bullets just reaching the front of the shells, or thirty inches from the muzzle, and two at twenty-five, twenty, and fifteen inches respectively. After each round the barrel was carefully examined; no signs of swelling or yielding in any manner were visible. The pressures, as indicated by the pressure plug, were as follows-

Distance from muzzle	Pressure per sq. inch	Mean
30 inches	17,750 lb. & 16,250 lb.	17,000 lb.
25 inches	9000 lb. & 6500 lb.	7750 lb.
20 inches	5500 lb. & 5250 lb.	5375 lb.
15 inches	4100 lb. & 4000 lb.	4050 lb.

The pressures obtained with the bullet crimped in the

regular manner were about 27,000 lbs. It would seem, therefore, from these results, that instead of an air space between the powder and bullet being a source of danger to the barrel, the bore is relieved from the strain, owing to the larger space in which the powder-gas is allowed to expand.

A series of velocities were next taken with the bullet crimped in the shell, just down to the shell, and twenty-five inches from the muzzle. The results were as follows-

No. of Shot	Bullet Crimped	Bullet 30" from muzzle	Bullet 25" from muzzle
1	1390.6	1321.5	1170.1
2	1368.1	1311.2	1010.4
3	1382.8	1332.8	1027.1
4	1371	1346.5	1031
5	1371	1307.8	1031
Mean	1376.7	1323.9	1053.9

Two targets of ten shots each, at two different ranges, were shot in order to ascertain the effect on the accuracy of fire, by allowing a slight air-space between the powder and bullet. The shooting was at 300 and 500 yards. In the experiments, the bullets were placed just down on the shells, leaving an air space of one-half inch. These bullets were loaded in the regular manner from the breech, and were therefore larger in diameter than those inserted from the muzzle. The results were as follows-
The accuracy, it will be seen, was fairly good, though

First Target.—300 Yards.		
Centre of impact	B, 2.1 in.	R, 7.8 in.
Mean vertical deviation	5.6 inch.	
Mean horizontal deviation	5.8 "	
Mean absolute deviation	8.0 "	
Second Target.—300 Yards.		
Centre of impact	B, 3.6 in.	R, 5.2 in.
Mean vertical deviation	5.9 inch.	
Mean horizontal deviation	3.6 "	
Mean absolute deviation	6.9 "	
First Target.—500 Yards.		
Centre of impact	B, 1.1 in.	R, 3.2 in.
Mean vertical deviation	7.3 inch.	
Mean horizontal deviation	11.2 "	
Mean absolute deviation	12.5 "	
Second Target.—500 Yards.		
Centre of impact	B, 3 in.	R, 3.8 in.
Mean vertical deviation	8.4 inch.	
Mean horizontal deviation	8.6 "	
Mean absolute deviation	12 "	

not quite so good as with regular cartridges. The effect then of placing the bullet just down to the shell was to reduce the pressure from 27,000 to 17,000 lbs., and the velocity from 1376.7 to 1323.9 feet, without materially diminishing the accuracy. It will be seen from the above that the results obtained here were such as to upset the idea that there was any danger in a space between the powder and bullet,

providing that there were no other obstructions in the bore. There is, however, a great danger in an air space when there is an obstruction left in the bore, and a shot is then fired in the arm. If the obstruction is of such a nature as to require considerable force to start it, as for example, if a bullet were to be fired in a rifle without a charge of powder sufficient to force it out of the barrel, and another cartridge containing a larger quantity of powder was fired in the arm without first removing the first bullet, the result would be either a badly bulged or a burst barrel.

“J.S.”

To further support my statements I'd like to include a excerpt from an article written by one of the most expert riflemen of the early 1900's, W. G. “Doc” Hudson. “Doc” did a small essay for the DuPont folks on loading “Black Sporting Powders” entitled “Fine Target Rifle Ammunition”. There are two paragraphs that will be of special interest to present day rifle cranks-

“As to powder, FG is the granulation used by nearly everyone for this kind of shooting, but different rifles vary in the amount required to give the best results. In some the shell is filled with as much as can be introduced into it by thorough shaking and settling. Other guns do better work when a slightly smaller charge is used, so as to leave an air-space of about one-quarter or three-eighths of an inch between the powder and the base of the bullet. The powder is generally held in place in the shell by means of a wad cut from thin cardboard, blotting paper, or even a thin sheet of lubricating material.”

“When using Black Powder, Black Powder primers should be used. Smokeless Powder primers will, of course, ignite the charge, but for some reason, which is hard to explain, may cause the Black Powder to burn drier, so that it has a tendency to form a hard deposit in the rifle just ahead of the shell. This does not always occur, but when it does, it materially interferes with accuracy.”

I thought that Dr. Hudson's comments concerning the use of smokeless primers with black powder, especially interesting as they are completely in line with my own experimentation using the old black powder primers and straight black powder loads. It is also obvious that not only was “Doc” not worried about ringing a barrel with an air space between powder and bullet but also the DuPont people were not worried as this article was published in a company circular.

To go to a more contemporary source on air spaces I would like to also quote from the excellent reference book by Charlie Dell and Wayne Schwartz, “The Modern Schuetzen Rifle”. Charlie Dell has especially spent much time experimenting with the chamber ringing that occurs when using light charges of fast-burning smokeless powder. Let me stress again that

we are talking about BLACK POWDER not SMOKELESS POWDER here. Dell writes- “First recognize that even though our forefathers shot black powder in their target rifles and often used the breech seating concept of loading, where the bullet is seated in the bore of the rifle ahead of the cartridge case, today all black powder competition shooting with the exception of black powder Schuetzen matches requires the use of fixed ammunition. This in turn almost dictates, in most cases, at least, a different bullet configuration than would ideally be used for Schuetzen shooting were cleaning after every shot would have been the normal thing to do. The admonition is often given that NO air space should exist between the bullet base and the over-powder wad or chamber ringing can occur. Certainly our forefathers, if breech seating their bullets, could not have followed this rule. As I am currently extensively testing the concept of chamber ringing with smokeless powder it was natural to see if a chamber could be rung by allowing a gap between powder wad and bullet when shooting black powder with fixed ammunition. My testing is by no means complete but to date I can find no tendency toward chamber ringing regardless of how much gap I leave between the bullet base and the over-powder wad. I am not talking about accuracy, fouling, or any other factor except ringing. To date I cannot find any tendency at all indicating a ringing force strong enough to damage a barrel when using fixed ammunition loaded with FFG black powder where a gap exists between the bullet base and the over powder wad.”

Here in Cody, Wyoming, many of the local riflemen have experimented with air spaces in black powder loads and largely with a degree of success. Dave Casey, of Rocky Mountain Cartridge, in particular has an original .32-40 Winchester Single Shot that won't shoot any black load but 29 grains of 1F Swiss with a 1/8" air space, in fixed ammunition. This load has worked in several other .32-40's and the same technique has worked in my various .38-55's with no hint of chamber ringing. Dave's barrel, as well as several of mine, are old originals so the argument that “modern” 4140 barrels will resist the ringing effect of an air space does not hold up. We do not understand everything about air spaces and chamber ringing but it would appear that, at least as far as black powder is concerned, that this phenomenon has been greatly overstated. Okay, the lawyers recommend that I say it again- I'M NOT RECOMMENDING LOADING AMMUNITION WITH AN AIRSPACE FOR ANY REASON IN ANY RIFLE, PISTOL, SHOTGUN, OR CANNON! However, it would seem to the intelligent rifleman that in as far as black powder is concerned an air-space is not the bugaboo that many modern day experts would lead us to believe.

Back to Pistol primers and their use in black powder cartridge rifles. I have heard of several breechblocks

being “cratered” when pistol primers have been used. When one examines the mechanics involved he shouldn’t be surprised. Before we go into that, let’s get some definitions straight. “Color Case-Hardening” refers to the process of packing a given iron or steel part in wood or bone charcoal (or a combination of both), heating that part to the critical temperature where the carbon in the charcoal migrates to the surface of the metal and imparts a degree of hardness to that surface. When the part is quenched, a by-product of this process is the beautiful “colors” that we all love. In order for a part to be truly “color case-hardened” it must have a hard surface with a minimum of warpage; there must be depth to that surface (typically .002-.003 thousandths), and the part must exhibit the brilliant colors that we associate with color casehardening. The most important feature of color case-hardening is that it produces a part with a hard external surface that resists wear while having a softer, tougher center for strength. True color case hardening is really more of an art than a science and “recipes” for charcoal and quenches are jealously guarded.

“Case-Coloring” on the other hand merely refers to the different processes (and there are many) of producing the colors associated with color casehardening. These colors are only cosmetic; most often one finds that “case colored” parts are dead soft. This is acceptable in some applications but leads to problems in others.

In the case of using Large Pistol primers in Large Rifle primer pockets the first pitfall is a “case-colored” breechblock. The average thickness of a center-fire primer pocket is .120 when measured from the edges of the pocket. The average Large Rifle primer cup measures .115 while the average Large Pistol primer cup is .110. When a Large Pistol primer is seated in a Large Rifle primer pocket there is in effect .010 headspace to the face of the breechblock. If one squares the primer pocket using one of the various tools being marketed this measurement can be increased to .020. Upon firing the cartridge the primer will have .020 space to back out and slam into the breechblock. If the breechblock is soft, it will be seriously cratered around the firing pin in as few as 100 shots. A hard breech face generally will withstand this battering. If one is going to regularly shoot Large Pistol primers he must be sure that his rifle’s breechblock is sufficiently hard to resist deformation from the primer.

I prefer on my own rifles to reduce the depth of the primer pocket to that of the Large Pistol primer allowing a few thousandths for clearance. This requires that the rim cut on the chamber be made shallow and cartridge cases faced off in a lathe to the correct thickness so that there is not excessive “primer-headspace”. This is the best scenario when combined with a properly hardened breechblock to eliminate cratering on the breech face. If this is

impossible it is far better to use Large Rifle primers which are milder than most of the Magnum primers. I have also used cases from Rocky Mountain Cartridge, which were special ordered with Large Pistol or even Small Rifle primer pockets. In the long run this may be the easiest solution.

What can you do if you have a cratered breechblock? There are several gunsmiths who can install a tool steel bushing to fix the problem, Dan Phariss (406) 932-5191, Dave Casey (307) 587-9693, and David Mos (307) 587-8999 are three that come readily to mind. A replacement breechblock can be obtained from many manufacturers and should be checked for proper hardness. If you can cut it with a file (in an unexposed place!) then it is too soft. Doug Turnbull, Ohio Color Case Company: PO Box 27, 14435 Unity Rd., New Springfield, OH 44443 / Ph: (330) 542-2062 and the Ballard Rifle Company: 113 W. Yellowstone, Cody, WY 82414 / Ph: (307) 587-4914, all offer color casehardening services. Bottom line is...if you have a soft breechblock *DON'T* use Large Pistol primers!

That’s probably enough pot-stirring for one issue...if you’ve got any opinions and/or data that would provide further enlightenment on these topics send it in and we will air it here at the “Crank’s Corner”. Until next issue... stay on the square and Hold Center.

Editor’s note: If you would like to subscribe to The Black Powder Cartridge News please contact:

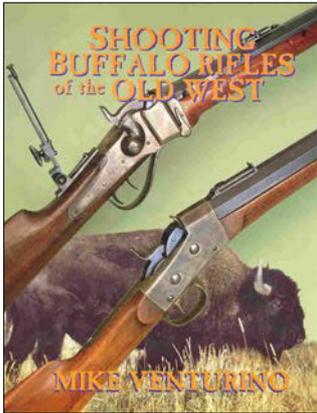
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◆ ◆ ◆ ◆ ◆ ◆ ◆ ◆ ◆ ◆ INTER-CLUB CHALLENGE

We’ve been challenged to a 400 yard square plate and 800 yard buffalo steel shoot at Diggle ranges near Manchester on Saturday 2nd August. To ensure that we have a team worthy of “thrashing” the opposition, we’ll be looking closely at the results of our first few matches. Our honour is at stake!

The plan is to travel up on Friday evening and stay in a B&B or similar cheap establishment (if it sells beer, so much the better). This will ensure that we’re refreshed and ready to do battle on Saturday. Watch this space.



Get a taste for Mike Venturino's new book, *Shooting Buffalo Rifles of the Old West* with this first part serialisation of Chapter 11 ...

BASIC RELOADING FOR BUFFALO RIFLES

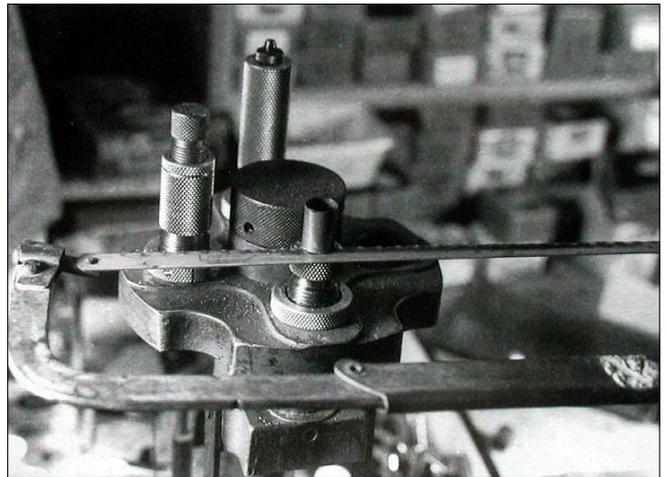
The key to reloading for any buffalo rifle, old or new, is the cartridge case. Powder and primers can be had in great variety. Bullets are no problem as there are several mould makers who will cut blocks for nearly any size or shape of projectile a customer specifies. But, all those components must have a shell to fit into.



Regardless of exact caliber basic brass usually came 3¼ inches long such as the .50-140 cartridge at right. Then it could be cut to 2½ inches to make the .50-90 at center or to 1¾ inches for a .50-70 such as at left.

For many decades about the only type of cartridge case one could get for buffalo rifles was the .45-70. Then in the late 1970s and early 1980s the concept of "basic brass" took hold. These were simply extra long cases built on standard case head sizes. They could be cut or formed into many different cartridges. For example a .45 Basic could be made into the following cases just by shortening and then full length

sizing: .45-120 (3¼"), .45-110 (2¾") .45-100 (2.6") .45-90 (2.4"). Then with the aid of case forming, file trim, and perhaps neck reaming dies, the reloader could also form .45 Basic brass into rounds like .40-90 Sharps BN (2⅝"), and .40-70 Sharps BN (2¼"). Eventually, and by several manufacturers, "basic brass" was offered in .40 caliber (straight) .44 caliber, .45 caliber, and .50 caliber sizes. In those years of the 1980s I formed several thousand basic cases into cartridges for a variety of buffalo rifles. I hope I never have to do another.



When renewed interest in buffalo rifle cartridges started in the late 1970s the only way to obtain brass for many calibers was to shorten it by cutting "basic cases." This was a time consuming method, but better than not having cases at all.

Then as interest in obsolete guns and cartridges grew, other makers began taking a different route. They started offering already-formed and, usually, properly headstamped brass for many different obsolete calibers. For instance, one can now commonly find .40-70 Straight, .45-90, .45-100, .50-70, and .50-90 cases. This route has grown to the point that Starline, the Missouri-based company that started out making only handgun brass, is offering both .45-90 and .45-100 brass in bulk lots. This is good quality brass and costs from a quarter to half per case as what we used to pay for basic cases.



Instead of "basic brass," nowadays many cases for buffalo rifle calibers are available properly headstamped and ready to load.

Nowadays we also have custom operations that alter existing cases by reforming, shortening, and sometimes even redrawing them so that they fit some of the more oddball chambers one can encounter in buffalo rifles. Buffalo Arms Company of Sandpoint, Idaho, is a good example. Among many dozens of offerings they stretch .30-40 Krag cases to make .40-

70 Sharps Straight, .45-70 to make .45-90 or .40-70 BN, and even .348 Winchester to .45-100.

And lastly, cases for obsolete rifles can be made by turning solid brass rod into cartridges. Such cases are usually more expensive, but there is the benefit that small lots for really oddball rounds can be obtained without paying thousands of dollars for tooling. At this writing I am only aware of one company in the business of turning brass cartridge cases from solid stock. It is the Rocky Mountain Cartridge Company LLC, of Cody, Wyoming. They can even supply those extra thick cases needed for Ballard Everlasting chambers.

Now, let's assume the reloader has an adequate supply of brass for his buffalo rifle. The next step is to prepare them for reloading. Trimming to a uniform length is a must, and then the case mouths should be chamfered, expanded and belled. Otherwise the bullets' bases will be deformed in seating. Because black powder's ignition will swell a soft lead bullet into any space, care should be taken not to shorten cases overly much. For example, with 2.10 inch chambers cases should not be cut past about 2.09 inch or for 2.40 inch chambers 2.39 inches is about right. Many reloaders consider primer pocket squaring and flash hole reaming as necessary. I might agree with that for match loading, but for hunting type loads as we are discussing here, I don't bother.

One point where there are three schools of thought is in sizing the cases. Some reloaders do not size their cases at all, simply seating the bullet back inside a fired case, and that was the basic reloading procedure used by most 1870s buffalo hunters. In fact, bullets from the few original rounds of Sharps factory ammo I have can be pulled out by hand. I don't favor this method because bullets tend to fall out of cases where there is little neck tension. I do admit, however, that some shooters get their ammunition to fire very accurately in this manner. Other reloaders like to neck-size the cartridge case only as far as the bullet sits in it. The reasons given are two fold; that the case has a longer life, and that accuracy is enhanced. I am of the third school of thought, and full length resize all rounds that might be used for hunting. In the field I want every cartridge to literally fall in my rifle's chamber. When a wounded animal is in front of you, especially if it is something the size of a bison, that is not the time for a cartridge case to stick because it needed resizing. Another factor to consider is if the shooter is firing more than one rifle in the same caliber. Chambers seldom match, and a cartridge case fired in one rifle often will not chamber easily, or at all, in others. For instance, at this writing I own a half dozen .45-70 rifles, so all my .45-70 cases are full length resized for every loading. To be honest, even with some of my specialized match rifles best accuracy has come with full length-sized cartridge cases.

Once I have a cartridge case full length sized, and its primer pocket scraped clean, I use a stainless steel bore brush of the proper size to clean the inside of the case mouth. Nobody wants to do a chore like this by hand, so putting the brush in a high speed drill quickens the operation. A fast pass of the cartridge case over the brush and back should leave the inside of the case mouth burnished smooth. This will insure that all bullets are seated with the same tension. The brushes will wear out after several hundred cases have been cleaned but they're cheap enough to keep replacing them.

The last step necessary before a cartridge case receives primer, powder, and bullet is that the mouth is expanded and belled. Most off-the-shelf reloading die sets come from the factories with a case mouth expanding and belting die that is fairly small in relation to the bullet diameter usually loaded in that caliber. That is because most reloading die sets today are set up for jacketed bullets. For instance, most .45-70 jacketed bullets are .457 inch, and so reloading dies have .454 inch expander stems. That gives a tight fit on jacketed bullets, which in turn helps smokeless powders ignite and combust properly. But we black powder, cast bullet, .45-70 shooters normally use .458 and .459 inch bullets. Then a .454 inch expander stem might be too tight, even to the point of deforming soft bullets as they are seated. Personally, I like the expander stem to be about .002 smaller than the cast bullet used, and the die is adjusted so the case mouth receives just enough flare so that a bullet's base starts in freely.

Editor's note: My sincere thanks Mike, for allowing me to print this chapter from what I consider to be the best book on modern-day buffalo rifle shooting that I have ever read ... You're a gentleman and a scholar Sir!

IN THE NEXT ISSUE:

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