Pedersoli's
Blackpowder Nº 1. magazine
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Tips and tricks
Working on your rifle musket load

BP Hunting
Back to Namibia

BPCR
Designing a bullet

Viewed and proofed
Pedersoli's New Springfield

Pedersoli's Blackpowder No 1. magazine

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Dear Shooters, Collectors, Firearm Enthusiasts all over the World,

In this issue, we are celebrating the 150th anniversary of the Civil War that divided the United States. The firearms of the conflict were always one of the main driving forces behind historical shooting, and maybe there is not on blackpowder shooter out there who do not have a cap and ball revolver, or a rifle in the gun cabinet.

Our company has always been committed to cultivating the heritage of the history of these firearms with exceptional quality and accurate replicas for target shooters, collectors and hunters. This period is especially important for us as we are launching our new product family, the rifle muskets.

Our articles in this issue are dedicated to the first item of this line, the U.S. 1861 Springfield. We will help our shooters to learn how to maintain, load and fire this gun while initiating them into the history of this great period.

Pierangelo Pedersoli
editorial director

Balázs Németh
editor in chief

It is here!

It is here. The 150th anniversary of the war that divided the American nation, the bloodiest war in the history of the United States of America. The Civil War is considered one of the first modern wars, and in the case of technology, this is true. However the tactics the sides used were based on obsolete disciplines from the Napoleonic wars.

The rifle musket saw service first before the Civil War in the Crimea, the rifled artillery pieces were also used in wars before, many breechloading arms were in service in Europe a decade before the war, repeating arms' concepts were on trial in many armies by that time. The train was used by the French for transporting troops to the battlefield in the battle of Solferino 1851. So why was the Civil War so unique? The answer is simple: this was the first war where advanced technology was used by both sides with deadly effectiveness. Two modern armies clashed together

Our company is celebrating the anniversary with a new family of products connected to the war: the family of British and American rifle muskets. It is not an easy task to develop this category of military arms. The competition in this segment is very stiff and current items on the market are unfortunately very far from historical accuracy, and sometimes from target shooting accuracy as well. Our company's plan was to take over the manufacturing of Euroarms, and launch the complete portfolio in a short time. From the economical point of view, this seemed a wise decision, but the Pedersoli philosophy is different. Our goal was to launch a product category that is suitable for target shooters and re-enactors. We had to put historical accuracy and target shooting accuracy to the same high level, while keeping the prices at a reasonable level to meet market expectations.

We studied the current models on the market, and gathered information from the shooters, re-enactors, skirmishers and collectors to identify their requests. We are very grateful to all friends all over the World who helped us in this project with opinions, inputs, and sometimes well-intentioned criticism. We try to listen to your words and do everything that can be done. We would like to save the shooters, re-enactors and skirmishers that 3-400 USD they usually spend on relining the barrels, accurizing the guns.

The inputs about the current guns on the market can be divided into two large groups: 1st inputs about the overall look of the gun, 2nd inputs about the accuracy of the barrels.

The 1st point needs extensive historical research. This is the point where collectors, re-enactors and shooters gave great contributions to the project. The second issue is the more difficult one. After examining the commercially available rifle muskets on the market, we discovered that almost none of their rifling reproduce the correct profile and twist rate of the original bores. This is an important question as this is the basis of historical accuracy. According to the rule book of MLAIC (Muzzleloaders Associations International committee): Rule 353 / A / 1:

“1) Replica Military rifles shall closely follow original military service patterns, specifications and tolerances. The rifling pitch and number of grooves should replicate the appropriate original pattern but the depth of the rifling grooves may be different.“

The rule is clear. Our company is producing guns for the winners of international matches so the new barrels must meet all the rules and the highest expectations of shooters as well. This is why all Pedersoli rifle muskets will be manufactured with PMG (Pedersoli Match Grade) barrels.

We used all available historical data and our

experiences collected with the many times World Champion 1857 Württembergischen rifle to determine the best rifling method for these barrels. We kept the original rifling profile and twist rate of the original barrels while setting the depth of the grooves to the same that which we use on the 1857 rifles. The only original parameter we do not replicate is the progressive depth. It is not impossible, but due to the time consuming production methods, it would increase the price of the rifle dramatically, while the same accuracy can be achieved with constant depth as well.

One of the biggest problems of the military rifle shooters is fouling. If you found the right bullet and right load for your rifle, maybe it will hold a tight group for 3-5 shots, but open up as you shoot 10 or 20. There is no wiping between shots neither in NSSA shooting nor in MLAIC shooting. A good lube can be a solution for this matter, but to eliminate the core of the problem we have to get back to the bore itself. If the lands and the grooves are not polished adequately, the little scratches, signs of machining will help build up fouling. To solve this, the rifle must have a bore that is mirror bright not just on the lands, but in the grooves as well.

This is not an easy task, but a beautiful project. The first item is hitting the market in the next few days. It is the improved and modified 1861 Springfield rifle. The other rifles will be introduced in 1,5 year's time one by one. So check your local gunshop, and if they don't have at least one, tell them to contact us.

We are still gathering information, advice and, inputs about the new rifle family, so please, if you have any comments on the project, do not hesitate to contact us: info@davidepedersoli.com

It has been exactly 30 years since I was last in Namibia. It was during the time that I completed the practical part of my agricultural studies that I also learnt about the facets surrounding farm hunting. After that, hunting in Namibia no longer appealed to me: it was just too easy, too much hunting from a vehicle or at waterholes, is rather something for the older generation and so on.

Blackpowder hunting in Namibia

ANGOLA
ZAMBIA
BOTSWANA
ATLANTIC OCEAN
NAMIBIA
SOUTH AFRICA

Two years ago, I began hunting with a muzzleloader in my local hunting concession and after 30 plus years I rediscovered hunting. The handling of the weapon, the thousand small details, the secrets and the desire to hunt as our forefathers did fascinates me to this day. Hunting with a muzzleloader is difficult: the shooting distance is a lot shorter; there is no scope to enlarge your target, nor does it allow for the possibility to hunt at dusk; the firearm requires constant training in order to hit the target at least once. To perfect the balance, the hunter must continually renew his hunting skills. Muzzleloaders are available in many different variations, from modern in liners without a historical resemblance so they look and handle like a modern rifle to replicas that resemble in the finest detail a historic firearm. It was above all, especially particular Italian manufacturers who produced better quality firearms. It was through an article in an American hunting magazine that I learnt that hunting with a muzzleloader was being carried out by a limited number of American hunters in Namibia and that the minimum legal energy regulations was 2.700 Joule. Hunting probably the toughest game on earth

with a muzzleloader and while stalking, now that was something that appealed to me. As a muzzleloader shooter and hunter, it is important to me to be as historically correct as possible. It was so that I purchased a .72 (18.2mm) caliber firearm from the Italian manufacturer Pedersoli which resembles the original English big game rifle from the 1860's. I was looking for information, but there was nothing that could help me further. It was then that I began to experiment. For three months, twice a week I spent hours at the shooting range trying out different things. Sport shooting knowledge only helped me a bit with certain conditions, as the hunting requirements are very different.

It must have been a difficult time for my shooting friends from the Wetzlar Kreis Schützengesellschaft when I ignited large amounts of powder and the shooting range was clouded in thick smoke after 3 shots. But they indulged me, and one or the other hunter observed all this in silent interest. I also found that the firearm, even with a load of 180grs, shoots accurately. I also tried round balls of varying hardness, patches of varying thicknesses measuring the speed and energy. The final result was a load of 180grs WANO black powder, which increased a 36Gramm round ball made from hard lead to a muzzle speed of 485m/s and resulting in a muzzle energy of approximately 4.200 Joule. At 50m, the gun shot 5 shots with a continued 5cm dispersion diameter, making it sufficient for hunting as I wanted to limit my shooting distance to a maximum of 70m. When shot into wet newspaper, the heavy round ball had a much higher impact than a bullet from a standard caliber.

Thereafter I went in search of an outfitter who would want to enter this unknown terrain with me. It was by chance that I heard about the Rogl Family (www.Otjiruze.com) who hunt in the 130.000 ha Swakoptal Concession area. I quickly made personal contact with Werner, the youngest of the 3 Rogl brothers, who is currently studying veterinary medicine in Giessen. I learned from him that all 3 brothers are professional hunters as well as licensed bow hunting guides and that they mainly hunt while stalking. That exactly met with my idea and as bow hunters they should be in a position to bring me close enough to the game. We soon agreed and this is how I finally got to know Marcus Rogl who would collect me from the airport in Windhoek on Sunday morning.

Sunday 5.9.2010 the first stalk.

I am on a stalk with Markus and Ronnie, the bushman, on a worn out path along a dried up riverbed. It is late winter, the partially high grass is dry and each step we take makes a lot of noise. We leave Ronnie behind and he returns to the vehicle to wait till we need him.

After stalking 300m, Markus is suddenly expectant; I am behind him and almost walk into him. This is our first stalk and our coordination still needs to align during the course of the next few days. To the right of us in-between the low Camel thorn trees about 80m away, a single Oryx, his head facing away from us, grazes in complete assurance. He has not seen us, who would disturb his peace in the hot afternoon sun?

Markus immediately sank to his knees and I instinctively did the same. The Oryx slowly turned in our direction, so we, in a laid back seal tempo, headed in the direction of a wait-a- bit bush to give us some cover. It was 20m to the bush and from there it could work. We finally reach the cover of the bush and very slowly Markus aligns himself and indicates for me to do the same. In the meantime the Oryx is grazing in our direction and would pass directly in front of us. Markus hands me my shooting sticks that I have been using for a number of years made from Black thorn branches. I slowly lean the firearm on the shooting sticks; the Oryx starts to move faster and is probably 50m away. The heavy antelope completely fills the sight and it's difficult for me to identify the shoulder. So totally out of aim, I re aim and then pull the heavy firearm trigger._ With the shot the Oryx jumps up with both front legs in the air and then takes off. I see the big bloody hole just behind the shoulder. Damn, I think, did I hit too far back? I have heard a lot about the Oryx's toughness and am uncertain. Would it go well hunting Oryx with a muzzle loader?

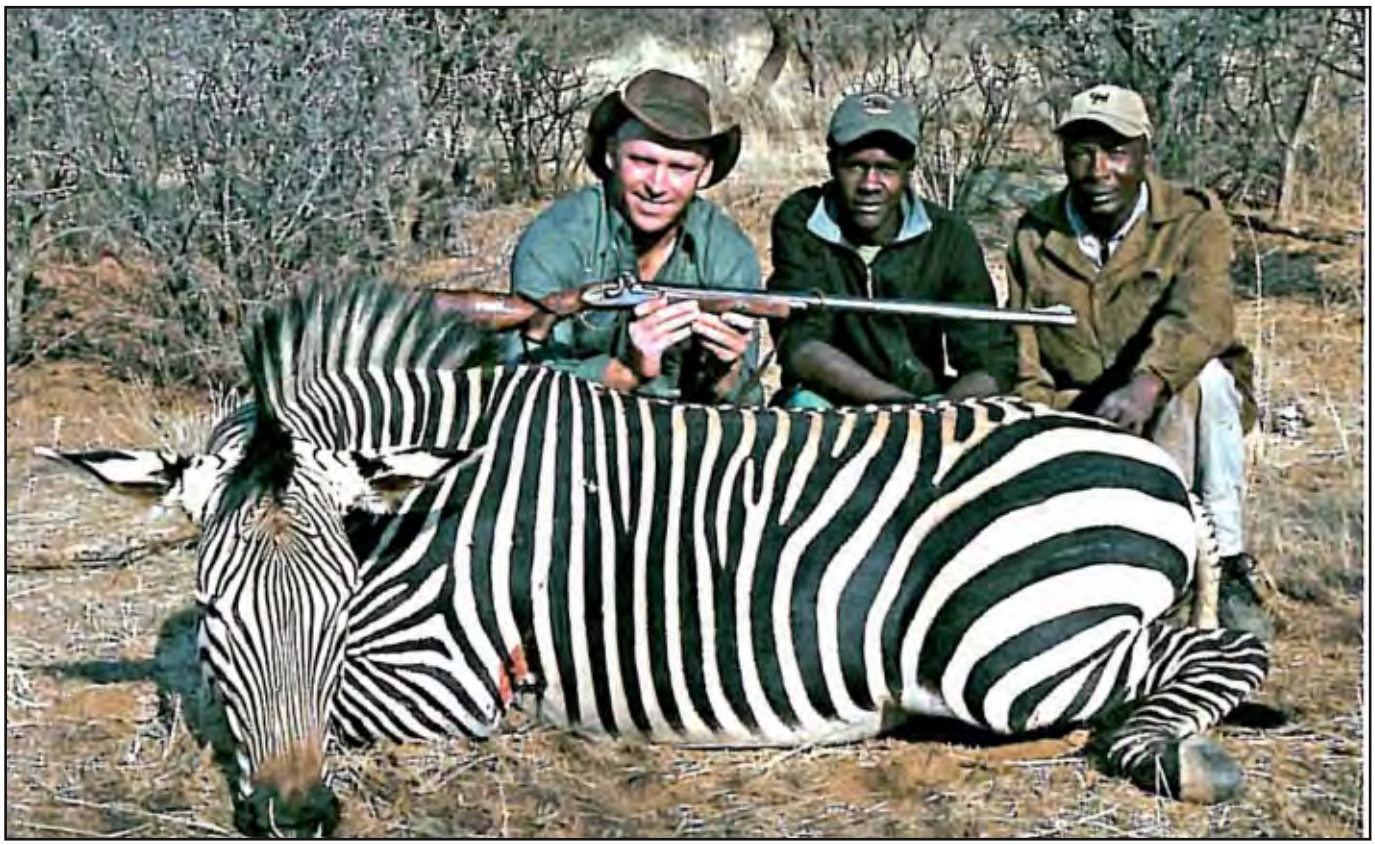
Markus is totally relaxed and pats me on the shoulder: "he's down". We collect Ronnie and the two cross- bred terriers Nala and Leika. Both dogs immediately take up the spoor and within 100m the Oryx is lying at the edge of the river bed._ The heavy .72 round bullet made from hard lead has done a good job and has passed smoothly through the heavy body. Markus says to me that the effect is good and that with a standard caliber it would have probably gone further. In fact he had, with his thoughtful manner precisely reviewed the firearm, weighed the balls in his hand listened to my versions about ballistics when we were sighting it in behind the house. When he took a shot himself and it raised him lightly from the chair, and he saw that at 70m all shots could be covered with one hand, he must have had confidence in the firearm. I was amazed that he took no firearm with him on the stalk and evaluated this as a vote of confidence. He made a dry comment of "That will work".

I reloaded the firearm and after the usual photos and, loading the Oryx we continued with our stalk. After stalking for an hour in the open bush, another lonely Oryx suddenly appears as assured as the first one. Again the same procedure; we crawled for cover and watched the animal slowly approach. "She's approaching broadsided" said Markus, and in actuality at nearly 40m the old Oryx cow came diagonally past us. I have been in an aiming position for some time, and as she moves faster, I let fly. Without showing any sign, the Oryx cow takes off. "It's a bit far back" says Markus. The bad thing about German hunters is they practice shooting just behind the shoulder, which of course is totally out of place here, but is somehow in our minds. We search the area where the Oryx was shot and follow the spoor for a while. Shortly after 80m one recognizes the long spears of the Oryx's horns in the tall grass that are moving slowly from side to side, the Oryx is on its deathbed. We approach slowly. Markus whispers that I should go ahead and make the final shot. He is certain that the Oryx is badly wounded. I go closer, but am not careful enough. The Oryx sees me; she is on her legs like lightening and flees. Markus

is also surprised. What follows is a typical search for this hardy game. We follow the blood spoor for a bit and then fetch Ronnie, Alfons the Herero and the two dogs. Markus straps the dogs and they immediately disappear on the spoor. Together with Ronnie and Alfons we follow the spoor for at least 2km._ There is little blood, but the two trackers find the spoor again with infallible certainty. It is getting later and later, in 30 minutes it will be dark. My hope sinks and even Markus is not as optimistic as he was in the beginning. There is suddenly baneful loud barking by the two dogs about 600m away. Ahead, says Markus and takes off at a trot in the direction of the loud barking. I am happy that I am somewhat fit as I ran a half marathon about 6 weeks previously in Marburg. We eventually recognize the Oryx amongst the trees. A stunning image; the two brave dogs strike constantly at the Oryx, dodge, attack, but don't let the Oryx get away. The Oryx in turn tries to impale the dogs with its long horns but keeps on stabbing into thin air.

I pass my gun to Markus. No, you do it he says. So I stalk closer, threading my way through the thorny bush and don't make the same mistake like the first time. I finally get into position behind a bush about 15m away. The Oryx is distracted by the dogs and doesn't see me. For a brief moment the Oryx presents me with its shoulder, the dogs are slightly to the side. I shoot, the Oryx shows no reaction, flees, the dogs behind it. After 80m the dogs again bay the Oryx and then finally, before I can reload, the Oryx falls forward and then collapses in slow motion to the ground. The dogs are exhausted and lie down immediately and I go to the animal. It was as Markus expected, the first shot was situated too far back and destroyed the liver. Despite this the Oryx was totally fit three hours later and hardly impaired. I had loaded soft leaded balls and neither of the two shots had exit points. I later only used soft leaded balls for the final shot. An investigation of the bullets' flight path revealed that the shots had penetrated the shoulder and then became so deformed that they behaved completely uncontrollably in the animal's body. Despite all our efforts we couldn't recover any shots from the animal's body as the bullets were completely fragmented.

The balls made from hard lead are completely different. I cast them from hard



printer's lead and, like all alloy bullets, they are minimally thicker than soft leaded balls. I always load them for the first shot, as the second shot loads with difficulty because the black powder residue forms a crust in the barrel. For the final shot I mostly load a soft leaded ball because they are easier to load. The effect and penetration force of the hard balls is impressive: The shoulder of a 900kg eland and the shoulder of a zebra stallion are completely penetrated. The shot almost pierced both shoulders every time without being deflected and produced a good blood spoor. Markus estimates that the effect is better than that of the most standard calibers and compares the penetration force and blood spoor with the .375 Holland and Holland that he uses. He would not shy away from using the firearm to guide a buffalo hunt.

Tuesday 14.09.2010

We have taken no trophies in 3 days. It is very windy during the day and with the storm at night one sleeps badly. The game is restless, standing in the thick bush and then quickly moving over the open plain. There was little chance of getting within shooting distance. It appears as though it will be better this afternoon, the wind has settled and on our trip to the hunting area we had lots to see. We are hunting on a neighboring farm along a dry river bed where there are a lot of Oryx. The Oryx have proliferated in recent years and at the moment are displacing the other antelope species, especially the kudus, which are being plagued tenfold by a particular disease. Markus would like to reduce the number of Oryx which of course suits me and because of their impressive appearance and hardiness they have become my favorite prey. The farm is being managed by an elderly woman. The State purchases farms and then leaves them to be leased by the locals. Unfortunately the woman doesn't understand anything about agriculture and has only 30 head of cattle on 1250ha. The game, especially the vital Oryx uses the available land and has increased substantially. We see some zebra's, kudu cows with calves and stalk a poorly assetted young kudu bull in vain. We finally bumped into a herd of Oryx that were trustingly grazing on the open savanna. It is difficult to stalk a herd of Oryx as there are all too many alert eyes and normally one or other animal will see us and the herd will flee. As we have to get closer because of the muzzleloader it makes things really difficult. We are 300m away; bent down and crawling on all fours, we approach the herd. The animals are still

trusting, some have moved closer, others moving about and grazing. Markus suddenly starts running. He saw an Oryx cow amongst the bushes about 100m away moving diagonally away from us. We block her path, the wind is good and at about 70m she changes direction and comes past us. I've had the firearm ready on the shooting sticks for ages and let fly. The cow shows that she has been hit and flees behind a wait-a-bit-bush about 100m away. I no longer see her. Markus saw her stagger behind the bushes, he is certain that she is down. We then saw a group of 3 Oryx about 300m away from the incident, apparently not taking notice of the whole episode._ One should make use of such opportunities and so we encircled the group in a wide arc getting closer with the wind blowing towards us. Meanwhile all 3 Oryx have laid down. One then suddenly jumped up obviously having seen something. We lower ourselves to the ground. Endless minutes pass, back and knees in pain. The game finally relaxes and lies down. We continue to stalk, and sometime later get to the Oryx. With unerring instinct, Markus suspects that they will move in our direction,and indeed, now theydo just that. Markus hands me the shooting sticks and I slowly prepare myself. 110m he says. In the last 10 days I have shot 12 animals at a distance of up to 90m and each time the firearm was convincing. Possessed by the devil; as the Oryx bull moves another bit, I let fly at an estimated 125m. Frivolous and without thinking I hit the shoulder high up. The Oryx indicates that it has been hit and takes off with the other game. At the point of impact there is blood on the right hand side of the body. Markus saw that the right leg had been hit. Considering that at the time of the shot the game was facing the other way, the bullet must have passed through the body. We follow the spoor for 500m; there is a lot of blood smeared over the bushes. It is probably a high leg shot and hopefully a lower chamber shot. In the meantime, Ronnie the Bushman had gone to fetch the

two dogs. Both dogs immediately pick up the spoor and 10 minutes later have the animal bayed. We sprint the 400m and see the Oryx behind a bush. It is exactly the same scenario as with the first follow-up search, only that the Oryx has been badly disabled by the shattered leg and is repeatedly caving in. Again I must place the kill shot. I slowly approach; in the meantime the light in the bush has become very bad. I can hardly see the animal through the sight.
The shoulder is free, and the couple of thin branches in the flight path will not matter I secretly say to myself and shoot. The Oryx doesn't respond at all to the shot, I reload and apprehensively realize that this is my last load. In the meantime 2 minutes have passed and the light is getting worse. The Oryx finally comes out a bit from behind the bush, showing its neck and head. I shoot, the bullet shatters the spine and the Oryx dies immediately. I am finished, my nerves are on edge and the adrenaline in my body keeps me awake half the night. Over and over again the scenario plays in front of my eyes and robs me of my sleep. The bad shot does not leave me in peace. The shot was a high leg shot and penetrated the body level with the rumen without opening the abdominal cavity. The extreme deviation makes me feel unsure so I download a ballistic calculator from the internet for advice. The results frighten me and show me the firearms limits. At a sighting in distance of 50m, the heavy round bullet drops about 30cm at 125m. The deviation allows for easy correction through the aid of a rangefinder. The cross-wind deviation is however more dramatic. At a wind velocity of 10m/s (noticeably less than a fresh wind) that we had on this day, the round bullet deviates almost 40cm in a semi-cross wind in the direction of the wind. The result shocks me and subsequently I will only take shots at a maximum distance of 80m.
The second finding concerns itself with the sensitivity towards obstructions in the flight path. The first kill shot totally failed, although I was well prepared and it went off well. Should the small obstacles in the flight path have played a role? It occurs to me that I read that shotgun cartridges, despite their heavy mass, react very sensitively to obstacles in their flight path because they are not spin stabilized. My firearm has a so-called round ball spin of about 190cm, therefore being similar to a shot gun cartridge but with little spiraling stability. So that was the reason and simultaneously the reason for another missed shot that I could absolutely not place. I have deduced from the experience that, when hunting with a muzzleloader, every little detail must be in place and that every mistake can have dire consequences. Indicative of this is an experience days later.

We have been stalking a single Oryx bull for the past hour, Gerhard, the tracker, saw him from the vehicle and we spontaneously decided to tackle him. It became a typical Oryx stalk. We approach a small bush that would provide us with some cover, first bent over, then on all fours and the last 30m on our stomachs. The Oryx lies down in front of a couple of trees, he's mistrusting and keeps on looking in our direction. In front of us is an open area of 30m that we must still cross. Markus indicates to me to lay the firearm across the back of his thigh and so we progress forward centimeters at a time. We pause time and again because the bull is looking in our direction. My body is in pain, my knees, neck and especially my back. We eventually reach the small bush and I somehow manage to sit and support the firearm on my knees. I see the Oryx bull clearly for the first time; he is still lying down and now totally trusting. Aseemingly endless 10 minutes passes before the Oryx moves, he becomes restless and stands up. The mighty head and neck face his hind quarters. Only shoot when he is standing broadside, I say to myself. He then eventually stands broadside but only a tiny moment before disappearing behind the bush with his next step. I aim high up in the shoulder and far forward and pull the trigger. Being in an unusual shooting position, the firearm's strong recoil hits me with full force. The Oryx bull takes off but after 80m he stops and

stands with his head lowered 40m to the right of us between two bushes. Markus observes him through the binoculars and wants to order the kill shot. I have no ramrod I whisper. Markus looks at me totally dumbfounded. Markus, who had indeed normally carried my shooting sticks and ramrod, had now given Gerhard my ramrod, who as always stayed 100m behind during the final act. Without the ramrod I cannot load the bullet with a patch. „Rolled bullets“ shoots through my head; that is how the old trappers did it when things got hectic during an Indian attack. They usually had bullets in their mouths that were not loaded with a bullet and the saliva remained fixed on the powder and held the ball in the barrel. The ball had, of course, less precision and energy. I tried it once on the shooting range; the bullet just reached the black area at 50m. So I filled the barrel with powder and threw the saliva-moistened bullet in behind it. The Oryx is still standing with its head lowered. I approach to about 20m and shoot him in the shoulder. The Oryx flees and collapses after100m . The ball has penetrated the heart and brings him down.

Saturday, 11/09/2010

It’s early Saturday morning, my 7th hunting day. We have been hunting for 1 week without a day off. We go out at 6:00 in the morning and hunt till around 11:00. Then its lunch, an afternoon nap and out again at 15:00 and hunt till it's dark. It is going well for me and I think that, in 3 weeks time I still won’t be bored. I don’t even feel my back, which has been giving me problems since falling from an elevated hide about a year ago. Without the stress of my career, the pain in my back has disappeared. Markus today applied a different strategy; we climbed a mountain which was approximately 100m high in order to glass the surrounding area. The mountain is situated between the thick bush where the animals spend the night and the water points. In the mornings especially, one can see the game from our elevated position ambling slowly across the savanna landscape. About 400m from us on the plain, we see a group of 4 blue wildebeest; the wind is in our favor and so we begin our approach by slowly descending the mountain in the approximate direction of the wildebeest. The animals are unsuspecting and occasionally move to graze, enabling us to locate them easily in the bushy terrain. When one spots an animal before it notices you, it gives one a better chance to get quite close. As we are probably close to the presumed location, Markus moves slower and crouches to view the animals with the binoculars. He whispers “they are up ahead”. I see nothing. Then everything happens all of a sudden. From the shade of a bush, something black slowly moves into the open. Markus passes me the shooting sticks and pushes me aside before taking cover behind a bush. “Shoot, its good for go”. The wildebeest continues to move ever so slowly into the open, then turns toward me and peers in my direction. I stand upright in the open and rest the rifle on the shooting sticks; just 50 m away the wildebeest is still peering at me. “Shoot!” whispers Markus. I shy away from a frontal chest shot. The wildebeest then turns slightly sideways, facing left and shows me a part of its shoulder. I shoot and the wildebeest takes off. I could not mark the point and am totally at a loss. Markus calms me down and says that it was a good shot. We investigate the animal’s location at the time of the shot and follow the trail for a bit. Suddenly out of the blue, the wildebeest appears 20m ahead of us. It is seriously ill and no longer has the strength to escape. It stands with its head downcast, and faces me with its sad eyes. The sight touches me deeply and will haunt me in my dreams for some time. I aim again at the shoulder, this time ending the wildebeest’s life.
It is an ancient wildebeest cow, at least 16 years old. Markus suspects that she was partially blind and therefore stood her ground. The solid entered the chest cavity from the side and travelled the length of the wildebeest and came to rest deformed in the hind quarter. An impressive performance.

Markus explained that wildebeest are very hard to kill, nearly as hard as a zebra and even harder than a gemsbok, all other species following. This statement proved to be true during the remainder of my hunting experience.

Summary

I hunted intensively with the muzzleloader for 2 weeks, and never before have I experienced hunting with such intensity. The close proximity to the game, the fascination of the firearm and the hunting skills of a bow hunter have brought me an unforgettable hunting experience. Something that was run of the mill for our ancestors, I had to work out from scratch, and as Markus once put it, we were, in a sense, actually pioneers. In those two weeks I in total hunted 17 heads of game including eland, zebra, wildebeest as well as 8 oryx. I believe without a doubt that a muzzleloader is also suitable when hunting difficult and resilient game. One must however accept the firearm's limitations and be prepared accordingly, then the gun will do the job.

Tips for muzzle loading hunters

1.Use enough gun.
For the traditionalists that hunt exclusively with round balls it should at least be a Cal. .62 (15,8mm), even better would be Cal. .69 (17,5mm) or Cal. 72 (18,2mm). I use a Cal. .72 firearm that uses 36 gr round balls. The impact and penetration at a distance of over 100m was also good and met the requirements. Smaller calibers, for example Cal. .54 (13,7mm) I think, despite many conflicting opinions in American literature, are completely inappropriate as far as firing the classical round ball is concerned. The round ball used in smaller calibers, because of the bad ballistic performance values of round bullets, lose a tremendous amount of energy and have too little mass (Cal. .54 15gr) to ensure sufficient penetration. Muzzle loading hunters who hunt with a long bullet have it easier. When an accordingly stronger load is used for every caliber up from Cal. .45 it will have sufficient performance so that the bullet mass will be 30gr. For a long bullet I would personally choose a Caliber .54 firearm.

2.Only use hard leaded bullets.
An extremely important point for successful hunting; I have used both hard lead balls (cast from printer's lead) as well as soft lead balls. The hard lead balls pierced hardy game like eland or zebra. The bullet passage was perfectly straight without any deflection. Soft leaded balls are just not suitable for big game over 100kg. When coming in to contact with bone, they deform uncontrollably, losing a large amount of their mass and partially changing their passage by 90 degrees or more.

3.Take along patches and bullets of varying strength.
The humidity in Namibia is far lower than ours, therefore a crust forms on the powder residue within seconds. When shooting off two or three quick rounds, one is not able to load again. Therefore, for the second shot, I packed a somewhat thinner patch with the bullet in an airtight packet so that the second

shot would also load without any problems. You should try this optimal combination straight away.

4.Use a powder that leaves little residue behind.
Preferably use the Swiss powder as it leaves very little residue behind in the barrel and is very rich in energy, but is not readily available in Namibia.

5.See to it that you have a supply of black powder in time.
Black powder may not be transported in the aircraft and is often only available months later in Namibia. One sometimes reads in American magazines that it is advisable to load the powder as a propellant agent in shotgun cartridges and then to decanter the ammunition straight away. I cannot judge whether this is a contravention of the law. When one gets the resident outfitter to get the powder in time, then one is always on the safe side. At least 500gr black powder should be available. The usual load of 10-12 gr is used for the customary sighting in; choose the correct patch strength, otherwise the firearm discharges a large amount of powder and so the 500gr is used up quickly.

6.Pay attention to obstacles in the flight path.

The idea of being able to shoot with a clod of a firearm in the bush is regrettably false. Muzzle loaders often have an extremely long twist length, especially the renowned round ball barrels. For example my firearm has a 190cm twist length. The bullets have minimal stability and are similar in their performance to shotgun slugs which also have a higher tendency to rebound. I had several unexplainable misfires until I understood this principle.

7.Limit yourself to the shooting distance.
A maximum shooting distance of 70m should not be exceeded, as the hunting experience is far more intensive over such a short distance. Although I have hunted successfully up to 125m, most muzzle loaders are not really optimal for shooting at that distance; the reason being the heavily curved trajectory. (With my weapon the bullet trajectory drops by about 30cm at 125m). When sighting in at 50m there is a high energy loss of the round bullet as well as the enormous crosswind sensitivity (at a slight crosswind and an average wind speed at 125m it can be up to 40cm!). When using long bullets, these disadvantages are of less importance, but still need to be observed.

8.Clean the firearm every night.
To make sure that the firearm functions without any problems, one should clean the firearm every night, especially when you have shot with it during the day. The powder residue forms a very heavy crust in the dry air and this could lead to ignition problems. At home, in at least 600 shots, I have never experienced my firearm failing to ignite or to have a slow shot. In Namibia I promptly experienced a delayed shot that luckily still hit the target.

9.Use a rangefinder.
Based on the described disadvantages of foreign ballistics of a muzzle loading bullet, it is important to know the exact shooting distance so that the stopping point can be accordingly corrected.

Heinz W. Faude

Working up your load for your rifle musket

Shooting a rifle musket on MLAIC or N-SSA events is one of the greatest fun in shooting sports. These old smoke poles are kicking and roaring but they sure can be loved. The shooting World starts to celebrate the 150th anniversary of the American civil war and Pedersoli just started to introduce its new rifle musket line. The first items – the 1861 Springfield rifle-muskets – are just hitting the market these days.

Shooting the Minié ball is much more difficult however than shooting a gun with simple patch and ball combinations. It is much harder to get fair accuracy from the military rifle than any muzzleloaders. There are many problems that the shooter is facing when he starts his adventure in this field. To get the job done, first we must understand how the bullets work.

The Minié concept

The undersized Minié ball is basically a large air rifle pellet with expanding skirt in the back and some grooves to hold some grease. It was easy to load, but upon firing, the gases of the burning blackpowder upset the skirt into the rifling. The expanded bullet sealed the bore and made mechanical contact with the rifling.

Old service loads and modern rifles

Unfortunately we cannot just open the old regulations to check the bullet size and powder charge of the original rifles. These loads will not work for many reasons. The first reason is that the replica riflings are different from the originals. The Springfield rifle musket had a 1:72” rifling with progressive depth (0,005” at the muzzle, 0,015” at the breech). The better replicas do reproduce the twist rate, but not the progressive depth. Some replicas do not even reproduce the original twist rate for some reasons. Old powders are different

from new ones as well, so we cannot just drop the same charge into the paper cartridge.

The material of the bullet

Use only 99% pure lead. You can experiment with harder lead - tin alloys, but what for? We need easy expansion of the skirt, so I don't see any reason why tin could help. I can only think about one positive point: the harder bullet is easier to store and transport. But the practical value of the advantage is questionable.

If you buy your lead at the local junkyard, it's ok. But keep in mind that even a 1% difference in the mix of the alloy can cause variations in bullet path. So always take care to use the same lead for competition that you used for casting Miniés for practice..

The weight of the bullet

Minié bullets are real heavyweight champions. With 400 – 600 grains weight, they are the heaviest we use in competition shooting. But no matter how heavy your bullet is, you have to weigh them and keep only the ones within +/- 0,5 % deviation.

An original Minié

Minié bullets are not easy to cast. You need a very hot alloy and very hot mold to have perfect fill and sharp edges. Try something: choose a perfect looking, but 3-4 grains lighter Minié from your bullets and cut it in half until you find the cavity, the small air bubble in the middle. If you are lucky, the bubble is close to the center of mass, so it will not affect the bullet's horizontal deviation. 3-4 grains difference is not really a big difference in the case of vertical deviation. At 50m, it will not cause more than a few centimeters higher impact. But why should we play the game of chance, when we can also hit the center of the the target ten times out of ten shots?

The diameter of the bullet

Shooting Minié bullets without sizing them opens up the group. Sizing the bullet eliminates the ovality of the object, so the gases of the burning powder charge will not be able to escape between the bore and bullet, or if they escape they will escape the same way everywhere around the bullet. This is important, as the escaping gases damage the base of the bullet, and when the bullet leaves the muzzle, the Minié will be tipping. It is the same case, when the muzzle crown is damaged or the bullet is not cast in the proper way.

Sizing is also used set the accurate diameter of the bullet. For best results I suggest you size your Miniés 0.001-0.002” under the diameter of your bore measured between the lands. To know the exact diameter you will have to slug your barrel. This is not an easy task. I strongly recommend you give the rifle to a qualified gunsmith, as he will remove the breech plug to do the measurement. Slugging the bore means pushing an over sized greased soft lead bullet through the bore, and measuring its diameter. If you want to attempt this at home without removing the breech plug, try the following: choose a bullet that is 0,01-0,02” over your nominal bore caliber, and with a wooden hammer, push it into the muzzle till it's half way down. Remove it and

Repro Enfield and Springfield cartridge

measure it. This is not a really accurate method, but can work.

The required size of the Minié depends on the weight of the powder charge and thickness of the skirt as well. I used my original 0.581” bore Bridesburg rifle musket with bullets sized to 0.575” with very good results. If your bullet has a thin skirt, the service charge will easily upset the bullet into the rifling. Don't forget that not only the skirt expands. The fired bullet will be shorter and fatter while it's travelling in the bore. So if you choose a smaller Minié, you will need a stronger charge. But be careful: if the charge is too much, the Minié can lose the skirt. If the skirt is left somewhere in the barrel, you won't be able to push the next bullet firmly on the powder, and you will have a dangerous air gap behind the bullet.

The powder charge

There are many good powder charges for the same rifle. This depends on the bullet, lube and the shooting style of the shooter. Some shooters like the fast bullets that leave the bore before the barrel can move. Some shooters are more stable and prefer the light loads that do not have significant recoil. It doesn't matter which kind you are, you will have to spend a few days at the shooting range for sure. The load for your rifle musket will be somewhere between 30-70 grains of 3Fg, 2Fg or 1,5Fg powder. You will notice which load burns clean, and which builds up fouling faster in the bore. Start the process with measuring 5 - 5 loads by weight in 5 grain increments with 0,1 grain tolerance. Try the charges from the shooting rest. If you find a good 5 shot group stay with it, and start to refine the system with 0,5 grain increments. Always shoot at least 5 shots with the same load. If you have a tight group, load 13 charges with the same load and shoot them from the rest. If the group opens up, you have a fouling/lube problem, so modify (soften) your bullet grease. Usually it takes at least 100 – 120 shots to find the proper charge, but it is worth it. Don't forget: always change only one component of the load.

Casting the Minié bullets

Many good articles have been written about bullet casting. They are 100 % true with regard to Miniés as well. But to cast perfect Minié bullets, you have to watch for a few other things. First you need a very hot alloy, and a very hot mold. I usually preheat my molds over a small camping gas heater, and while casting bullets, I put them back over the fire every 5-6 minutes. Your mold

This mold was too cold...

temperature is good when the lead on the top of the cutter hardens in 4-5 seconds. Don't forget to heat the cone also, not just the mold.

Be careful if the cone is loose in the base of the mold, the skirt will not be concentric with the bullet. This will open up the group. So examine the cone each time. If it is loose, go to the local gunsmith and ask him to make a new one.

As described previously in this article, all bullets have some ovality, no matter how good the mold is. Sizing can eliminate this problem, but some bench rest shooters have an alternative solution. They mark the inside of the mold with a puncher at the top of the bullet. This small mark is used as a reference. Using this reference point, they insert the bullets into the sizing device the same way, and into the muzzle upon loading.

The grease

The old military recipes work today as well. The mix of beeswax and tallow can work for the 21st century shooter, but we need hole-in-hole accuracy, we don't just want to hit a man-sized target at 100 m. First of all, we need a soft lube, something like the type revolver shooters use. The soft grease will help to keep the fouling soft even on dry summer days.

We need a uniform layer of blackpowder residue in the bore to have the same gas pressure during the competition. Do not wipe the barrel between shots, as it is not allowed in military rifle events. It is much easier to develop an accurate load for a barrel which is always clean, but this method is no use to us.

I tried many good lube recipes, but I found that the easiest is the best: 2 parts of beeswax, 4 parts tallow, 4 parts synthetic motor oil. This recipe is easy to make and

A handy box for transporting Miniés, sizer and grease dispenser

Measure and record everything...

has never let me down. Thereare many other “secret” ingredients that can be added, but these have never improved the group size for me. If you want, you can adjust this lube to the seasonal weather conditions by modifying the rate of the three ingredients. More beeswax and tallow will mean harder lube, while more oil will soften then lube. The grease I use is really soft, so I grease my bullets just before shooting. I use a Pedersoli bullet greaser – a very clever little device – that makes the job easy, and can make sure that every bullet holds the same amount of grease.

Seating the bullet – the tip of the ramrod

The Minié must go down the bore with the weight of the ramrod. To achieve uniform gas pressures from shot to shot, you have to push the bullet to the powder charge with the same force every time. If your ramrods jag is not matching the form of the bullet nose, you can easily destroy its cone. So after you have found the perfect Minié for your bore, make a perfectly countersunk jag for that ramrod.

Military rifles usually do not have powder chambers, so be careful, push the bullet down gently, do not crush the powder particles with hard taps, as this will ruin the uniform gas pressure we need. The blackpowder particles burn on the surface. Crushed smaller particles mean more surface, more gas and more pressure.

The speed of the bullet

To check your loading method use a chronograph, and measure at least 20 shots, starting with a clean barrel. The muzzle speed deviation will tell you some secrets about your load, and how you load your rifle. First it will tell you how many shots will foul the barrel. Start shooting, and you will realise that the speed of the first few shots will be different from the rest. When the speed settles to +/- 5 m/s, your barrel is ready for target shooting. From this point, your rifle must be capable of shooting at least 15 shots with the same speed. If you see that the speed starts to change after 5-6 shots, then you have a problem with your lube. In military rifle matches, wiping the barrel is not allowed, so you need a lube that can keep the fouling soft for the duration of thecompetition.

You will also see that the speed of the

bullet depends on the forceused to push the bullet to the powder. Practice loading until you have only +/- 2-3 m/s deviation. Push each bullet down with exactly the same force.

Be careful if your speed is close to the speed of sound (331,5 m/s), as the bullet loses stability when it breaks the sound barrier, so go over, or stay under by at least 10 m/s.

Storing and transporting your Miniés

So you selected the most accurate Miniés for the competition? You can easily ruin your previous work if you don't store and transport your bullets in the proper way. The skirt of the Minié is very vulnerable. If you store and transport them close to each other, the constant shaking will deform the skirts and make them hexagonal rather then cylindrical. The best solution is to take a cheap plastic box and insert felt or a hard sponge interior that allows you to store the bullets individually.

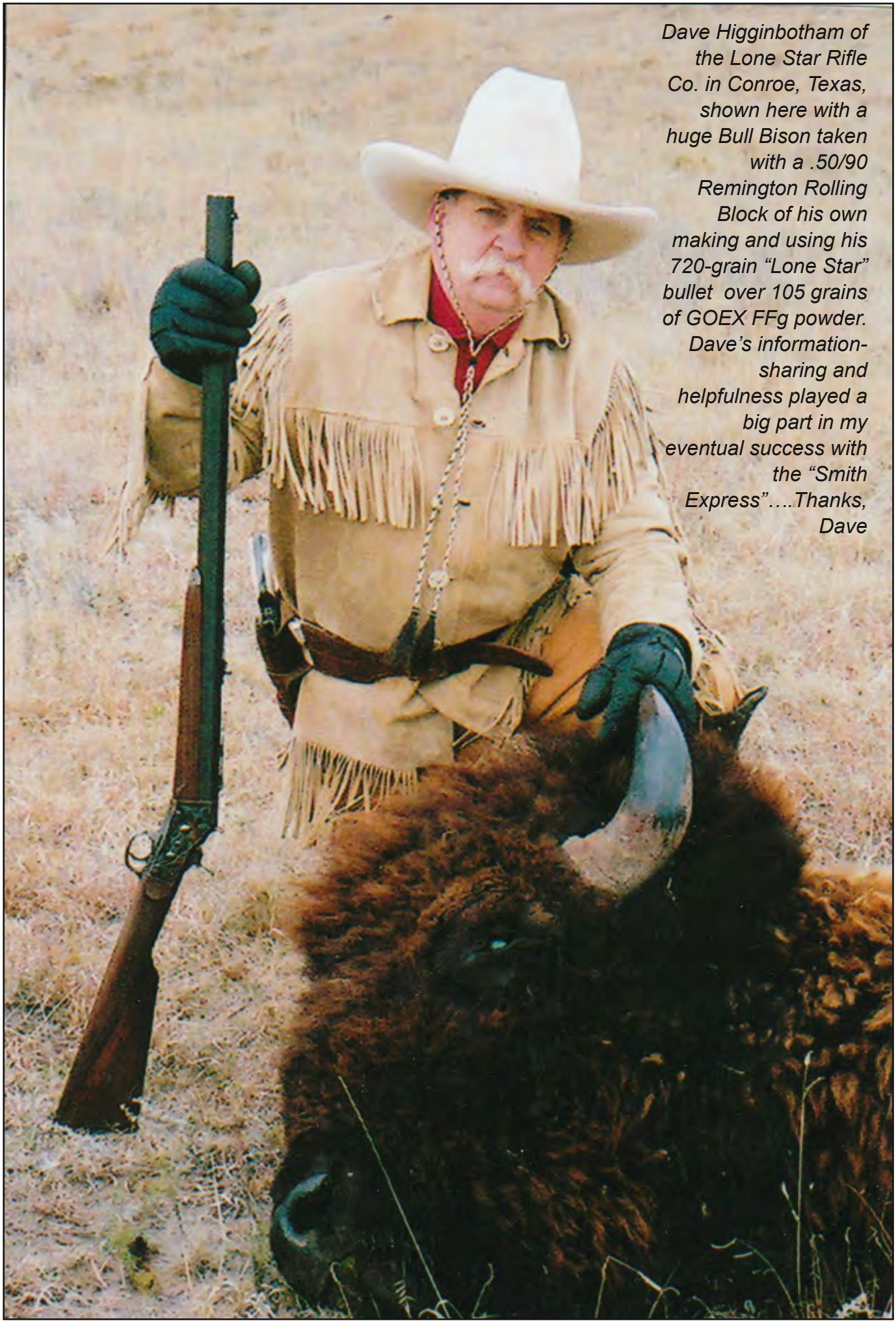
Trouble shooting: the rifle musket is losing accuracy

If last year you had a perfect group size, but this year it's a mess you probably have some hardware problems. There are a few things you can check. First of all check the muzzle crown with a magnifying glass. If you see any damage, you have found the cause. Reworking the crown can only be done by a qualified gunsmith. Don't try it at home, you'll just create a bigger problem. The second thing to check is rust in the barrel. If you left the gun uncleaned and unoiled for a longer period, you can have some corrosion problems in the bore. If it is just light surface rust, a proper cleaning with a brass brush can solve the problem. If it is deep rust that is a bigger issue. If the rust is down deep in the bore, you are lucky, maybe it won't cause too much problem. If it is in the last section of the bore, close to the muzzle, your are in trouble. The last few inches of the bore is the most important part. Your bore can be relined, but in this case you'll need a bigger caliber bullet, and you can start working up your load from the beginning. The wood can also twist and pull the barrel. This problem can happen if you don't store your rifle in a room with constant humidity. So remove the bore and check if the full stock is twisted. If it is twisted, try steaming it and bending it back to its original shape.

Recording the progress

This is the most important part. Whatever you do, always make notes. The best way is to record everything: weather, position, direction of light, powder, bullet and grease in a small booklet. This will be your Bible. Change only one thing at a time, or you will certainly lose the line sometime.

Balázs Németh



Dave Higginbotham of the Lone Star Rifle Co. in Conroe, Texas, shown here with a huge Bull Bison taken with a .50/90 Remington Rolling Block of his own making and using his 720-grain "Lone Star" bullet over 105 grains of GOEX FFg powder. Dave's information-sharing and helpfulness played a big part in my eventual success with the "Smith Express"….Thanks, Dave

Designing your own blackpowder cartridge

Why Not? Absolutely why not……It's fun to experiment…….and the results?….I'll let you be the judge...

This was definitely not a good situation. The herd of Water Buffalo had come swarming out of the woods and were now trying to encircle us as we retreated for the tree line on the far side of the open field…..They would definitely cut us off before we could get there. Behind me, I heard the tell-tale click of the hammer of Joe Sloan's .45/100 Sharps as he brought it to bear on one of the more aggressive buffs trying to surround us.

Coming straight at me, now barely forty yards away, the huge herd leader kept pressing on. Something had to be done…..and fast. Though definitely preferring a side shot, there was no choice. I turned to guide Bruce Wilson:

"I can take him, Bruce." I said

"If you think you can, do it !" came the response with no hesitation….

I hoisted the 18-lb .50/140 Sharps to my shoulder, thumbed back the hammer and flipped up the Tang sight. I set the back trigger as the Post and Ball front sight settled in on the Buffalo's massive black chest. "What a way to test a new bullet!" I thought …Seven years of experimenting and testing was all coming to a head here and now as I squeezed down on the front trigger……

It had all started in the summer of 2000 when I got the idea to try and design a bullet for my .50/140 Sharps that would kick it up to a new level as a big game rifle. It's an early Farmingdale Shiloh , going back to the early days when Shiloh was still located in New York state before the move to Big Timber, Montana. It was also the first Sharps rifle I ever owned. Most of the experts will advise you to start out with something like a .45/70 and work your way up if you want….rightly so, I'm sure. I just wanted to get my beating out of the way early so everything would seem tame by comparison. I believe they have a term for that kind of attitude, but I'll just let that one slide.

The "Fearsome Threesome": (L)My 770-grain N.E.I. #378H " Smith Express" in .50 cal. (C) Dave Higginbotham's 720-grain N.E.I. " Lone Star" # 378B .50 cal. and (R) the N.E.I. # GC #351 in .45 cal. It was Dave's success with his " Lone Star" design and my excellent results with the # GC # 351 in my .45/120 that motivated me to press on and develop my own bullet for the "Big Fifties". Shown next to the bullets on the far right is a .45 Long Colt round loaded with a 265-grain bullet.

Another motivating factor in my development of the "Smith Express" was the success I had in incorporating the 715-grain #GC #351 into my .45/120 Pedersoli Sharps. Although originally designed for a .460 Weatherby Magnum, this bullet worked superbly when loaded into the cavernous 3.25" cases and could be shoved out the barrel at over 1100 f.p.s. with 110 grains of powder beneath it. After flattening a 900-lb. 7x7 Bull Elk and a 2200-lb Bison with it, I was certain I could come up with something for my "Big Fifties. I was sure the 1:18 " twist in the rifling was the reason the big bullet was moving fast enough to stabilize. I never experienced any tumbling problems in the .45/120.

The .50/140 was never a true Sharps round, technically. It didn't emerge on the scene until after the company had gone out of business in 1881. The round was created by taking .50/70's and .50/90's and lengthening their 1.75" and 2.5" chambers respectively to accommodate the huge 3.25" case of the .50/140.

The original .50/140 round consisted of 140 grains of black powder with a 700-grain paper patch bullet. It arrived on the scene too late to make an impact (bad pun) on Buffalo hunting as most of the great Western herds had been nearly decimated by that time. Its effectiveness on other large, dangerous game throughout the world was soon made apparent , however.

When the Black Powder Revival surged in the 1960's , Shiloh began offering the .50/140's again. However at that time, there weren't any really heavy bullets available. Most bullets on the market were in the 450-500 grain class, and were the same types used for the .50/70's and .50/90's . Not that these couldn't be effective loads, but this was a rifle designed to handle 700-plus grain bullets. The lighter slugs just don't allow the big gun to reach it's full potential……A 500-grain bullet in a .50/140 is akin to taking a thoroughbred race horse and putting it behind a plow.

The SAECO company, to their credit came out with 600 and 650-grain moulds in flatnose bullets that were very effective big game-getters. Unfortunately, they've been discontinued. I used them both, taking Bison with my .50x2.5" and .50x3.25" Sharps. Both Buffalo went down in convincing fashion. Still, there was just a nostalgic part of me that wanted to see the .50/140 returned to its 700-grain heyday…….The proverbial "little itch that needed scratching"….

The first breakthrough came in 1997 when Dave Higginbotham of the Lone Star Rifle Co. in Conroe, Texas designed his 700-grain Lone Star Bullet and put it on the market through the N.E.I. Company . This bullet was basically a scaled –up version of the Lyman #457125 500-grain copy of the original 1881 military bullet used in the U.S. Army .45/70. the main difference being Dave's bullet had the nose rounded off a bit more…….Sort of a #457125 on steroids.

Wanting to know more, I called Dave and he filled me in on how well his bullet had been performing in the field. He told me he

had a great deal of success with it taking several bison with his .50/90 Rolling Block at distances of 160-225 yards and the Buffalo were never making it more than 50 yards from where they were first hit. In one instance, when field dressing the buff, he found the heart had been shot loose! That's power….The load consisted of his Lone Star Bullet cast at 720 grains with 105 grains of GOEX FFg powder.

I should probably interject at this point that although I said his bullet design was for a 700-grain bullet , it is nothing uncommon for bullets to weigh more than their designated weights when cast at higher ratios of pure lead to alloy content.

He was kind enough to send his mould to try some for myself. After some experimenting, I settled on two loads in my .50/140 of 135 grains of GOEX Fg and Pyrodex CTG. I used ElDorado and B.E.L.L. cases, Winchester Large Rifle Primers for the GOEX Fg loads and Winchester Magnum Primers for the Pyrodex CTG offerings. A .060 vegetable fiber wad , and Ox-Yoke felt wad and 1-2 .030 vegetable fiber filed the space between the powder and the 720-grain , SPG-lubed Lone Star.

The results were more than satisfactory. At 50 yards, the Big Fifty was ripping half-dollar size five-shot groups. They were holding under 3" at 100 yards. Later on, I was to find the same results were obtainable with Pyrodex Select, GOEX FFg and Cartridge powders also.

During this same time, I had been doing some experimenting with my Pedersoli "Quigley" Sharps in .45/120, trying to make it a member of the " 700 Club " also. N.E.I. Handtools (previously located in Scappose, Oregon; now El Paso Texas) made and still makes a fine line of bullet moulds. I had settled on their GC#351-.458-645 series. It's a huge bullet originally designed for a .460 Weatherby Magnum. The bullet is 1.62" in length gas checked at the base and would weigh 645 grains when cast from Linotype lead. The general consensus from the folks there was it would weigh considerably more if cast from softer lead. They were so right.

Casting my bullets at a ratio of around 25:1 I had a bullet that dropped out at 715 grains . Subsequent testing would produce a .45/120/715 combination that consisted of 110 grains of GOEX Fg and Pyrodex CTG that pushed the 715-grain bullet out of its brass nest between 1104-1114 f.p.s.…Its groups rivaling that of the .50/140 . Within the

My first breakthrough came when I bought a Pedersoli Heavy Model Target Sharps in a .50/90. the rate of twist in the barrels of Pedersoli's line of the Big Fifties is 1:26" which turned out to be perfect for the big 770-grain slugs. Using a variety of Pyrodex and GOEX powders I found they would all propel those big bullets at 1200 f.p.s. or better. The accuracy would run around 1-2" groups at 50 yards for a five-shot group and under 3" at 100 yards. Sometimes better. This is perhaps the slickest, most smooth-handling rifle I have ever used, handling every variety of load and bullet weights I have put through it, from 540-770-grains.All I had to do now was wait for my re-barreled .50/140 to come back

My .50/140 "Parts" Sharps (Shiloh action, Badger barrel. And Pedersoli Medium-Range Tang Sight and Globe Post-and Ball front sight) re-barreled to a 1:26" twist to stabilize the 770-grain bullets of my design, the big rifle is capable of fine accuracy as shown by the half-dollar size group at 50 yards on the left target (only one sight adjustment was necessary at the start) and the 2.5" five-shot group on the target on the right. The 4&1/16" cartridges each contain 135 grains of Pyrodex CTG or GOEX Fg and this will give the bullet up to 1,350 f.p.s. velocity. It is an ideal combination for big and dangerous game.

next two years, I was to have the good fortune and opportunity to take a 7x7 Bull Elk and a 2200-b. Bison with this fine rifle and load combo…..But those are other stories….

Encouraged by my successes with the .45/120 and the .50/140 with their 700 grain payloads, I now more than ever, wanted to design a " Big Bopper " of my own. The itch that needed scratching had become a full-blown rash.

I decided to try and modify the .458-645 bullet for the Big Fifty. My final brainchild would be a projectile almost the same length , but .512 in diameter. The gas check base would be eliminated and replaced with a full base and four lube grooves up the sides. The head of the bullet would be just as long , but with a slight taper that would make chambering even easier, especially after a few rounds had been fired. On July 1, 2000, I submitted my design to N.E.I. for their consideration….

The end result came back in the form of the N.E.I. .512-750 #378H Smith Express. a 1.525" Flat Nose.The tapered head was .700" in length with the flat-nose front (meplate) measuring .252". It was a tall aluminum block mould and casting them out produced a bullet weighing between 765 –775 grains.

" What a beast!" I mused to myself as the casting table began to fill up . Needless to say, I quickly discovered a pound of lead disappeared pretty quickly and I wouldn't have a lot to show for it…9 bullets per pound..I couldn't wait to get to the range. My reloading components remained the same : the only difference being a .030-.060 wad was the only thing needed to fill the gap between the 135 grains of powder and the big bullet. The end result was a 4&1/16" Scud-like cartridge ….rather formidable to say the least.

It was at this point, however, the Bubble of Euphoria burst with a dose of reality. No matter what combination I offered up, nothing could get the big bullet to stabilize. I was getting a real tumbling act from my creation. There might be one or two that were straight and right on target, but after that they began waltzing all over. The bullet was close to stabilizing, but I could achieve no consistency.

The general consensus was that the 1:36 twist in my .50/140 was just too slow to stabilize my bullet.It could digest the 720-grain Lone Star, but 50 more grains was just asking too much .I then decided to have the .50/140 re-barreled with an extra-heavy 34" Octagon barrel from Badger Barrel Company in Wisconsin with a 1:26" twist.

During the 10-month interlude I was waiting for my barrel to arrive, I bought a Pedersoli Heavy Model Target Sharps in a

.50/90. Pedersoli was making these fine rifles with a 1:26” twist and I thought it would be worth a try running my bullet through it. Besides, it was such a great-looking rifle in such a “classic” caliber, I had to have one.

It was a total success! I couldn’t have asked for more. Over the next few months, I ran numerous tests with a wide variety of Black Powder and substitutes. I used B.E.L.L, Gaintwist , and Starline brass, 110 grains of powder and a combination of Winchester Large Rifle and Magnum Primers….It didn’t seem to make any difference what powder or primers I tried. A .030 vegetable was placed between the powder and the bullet which was lubed with SPG. The bullets were seated to an over- all cartridge length of 3&3/8”

These combinations produced five-shot groups consistently of 1.2” to less than 1” at 50 yards., and would hold under 2.5” at 100 . The chronograph readings showed that the 110-grain charges were pushing the big chunks of lead just over 1200 f.p.s. on the average. I found this to be rather gratifying since some of the people I’d talked with told me I could never get a bullet that size to exceed 1,000f.p.s.With results this impressive in the .50x2.5, I was eager to see what would happen in the .50x3.25” when it was finished. The Pedersoli people made a wise decision in speeding up the rate of twist in the barrels of their really big rifles. The 1:26” twist in the Big Fifties and the 1:18 in the .45/120 can handle these big bullets with ease and take these big-game rifles to another level.

At last! In the summer of 2005, my .50/140 was ready to rumble. The results were equally impressive for accuracy with the same variety of powders and the power increase was even more dramatic.

For the time being, I’ve settled on a load that I’m very content with. Using either B.E.L.L. or El Dorado brass, I load 135 grains of Pyrodex CTG into the big 3.25” case with a Winchester Magnum Primer. I place a .060 vegetable fiber was over the powder, SPG-lube my bullet and seat it to a depth where my over-all cartridge length is 4&1/16”. Unfortunately, the Hodgdon Company no longer makes this fine powder, but I have a large supply and will continue to use it as long as I can. I have had equally impressive results with GOEX Fg, FFg, and Cartridge powders also , so I’ll have plenty of options to fall back on. With accuracy equal to my .50x2.5” Sharps, the extra 25 grains or propellant pushes the 775-grain projectile along at 1,350 f.p.s…….That my friends, is a lot of WHUP !

I now had an 18-lb rifle that consisted of a Shiloh action, and a Badger barrel. I felt I needed to make one more addition . That

My prototype N.E.I. Tall –Block Mould with some of my cast 770-grain bullets …..a lethal combination of accuracy and crushing power. Definitely not meant for a leisure afternoon of plinking tin cans. I’m able to cast 9 bullets to a pound of lead, so an afternoon of casting is going to eat up quite a few Ingot bars. I usually cast them at a ratio of 25:1.

was replacing the rather cheap tang sight that was in place with a Pedersoli Medium-Range Tang sight with a wide latitude of windage and elevation adjustments. There was already a Pedersoli Post-and Ball set up for the front sight. A few slight adjustments and the big gun was throwing out five –shot clusters a quarter could almost cover at 50 yards. I was satisfied.

After several hundred rounds and no tumbling acts, I was convinced The “Smith Express” was ready for its first test in the hunting fields….Little did I realize to what degree that level of testing would be. Even at this time, however, I was confident this combination could take down any dangerous big-game animal.

But what to hunt? I’d already taken several Bison and wanted something really different. Africa was out of the question. Although I don’t plan on starving any time in the near future, a safari would take a big bite out the pocketbook…That and the fact I wasn’t overly-thrilled with the idea of having one of my Sharps rifles loaded up on a plane and separated from me on a trip with the possibility of switch-overs…You’ve heard the stories ; and too many of them as far as I’m concerned. A hunter arrives and it’s days later before the rest of his baggage catches up and he winds up losing days at a time or borrowing someone else’s rifle so he can hunt….Just not my cup of tea…yet I had to do something: one can shoot just so many holes through paper…I’d long since ruled out a Prairie Dog hunt.. There just had to be something somewhere….

My rendezvous with destiny finally came in October of 2005. Long time hunting companion Joe Sloan and I were on a Red Stag and Sika Deer hunt at the Wilderness Hunting Lodge in the Cumberland Mts. near Monterey , Tennessee.

Alan Wilson’s Lodge is a first-class establishment offering a wide variety of game from Wild Boar to a variety of Exotics ranging across some very vast and rugged terrain. Vast enough to be given recommendation by the North American Hunting Club: no canned hunts here, it’s all fair chase. One can spend a lot of time roaming those hills and ravines and still not warm his barrel.. Which is the way it should be.

Joe and I had finished our hunt (he had a great Sika Deer and I had lucked-out on a Red Stag), and had a day to spare. We decided to check with one of the guides about finding some good places to fish.

My 770-grain “ Smith Express” bullet (R) shown next to a .45 Long Colt round loaded with a 265-grain bullet. My 770-grain “ Smith Express” bullet (R) shown next to a .45 Long Colt round

loaded with a 265-grain bullet. This gives a pretty good perspective of the size of the chunk of lead being launched out of the big .50/90 and the .50.140…Both excellent big-game rifles. gives a pretty good perspective of the size of the chunk of lead being launched out of the big .50/90 and the .50.140…Both excellent big-game rifles.

The "Big Three" powerhouses: (R) the 3&3/8" .50/90 loaded with my 770-grain bullet and loaded with 110-grains of Pyrodex or GOEX powder capable of pushing the big bullet over 1,200 f.p.s. To the left is the 4&1/16" .50/140 with the same 770-grain bullet. Loaded with 135 grains of Pyrodex or GOEX it will propel it at 1,350 f.p.s. Left of the "Big Fifties' is the 4&1/16" .45/120 with its 715-grain N.E.I. payload. All three of these are capable of five-shot 2.5" groups at 100 yards and deliver crushing power on any big game animal. To the far left, for comparison, is a .45/70 loaded with a 520-grain bullet.The .45/70 has long been considered one of the premier big game cartridges , and rightly so; but its power pales compared to the Big Three. They're not designed for leisurely plinking, but in a tight situation in the hunting fields, they're your best friend.

He began telling us some of the better locations both nearby and on the Lodge grounds. However, he took on a very serious tone when warning us to stay away from the ponds on the southern part of the property…..Naturally curious, we asked why. 'Cuz the Water Buffalo will come after Ya "……He definitely was not joking.

The Bolt from the Blue had just struck! Water Buffalo in the Cumberland Mountains? We then got the full story and a fiction writer couldn't have come up with anything better.

In looks, Asian Water Buffalo are very similar in size and appearance to their African cousins. The main difference being the horns of the Asian strain don't meet over the top of the forehead as with the Cape Buffalo. It's nothing uncommon for them to weigh 1,500 lbs with many of them going well over 1,800 lbs. They also possess the same surly, anti-social attitudes towards people their African cousins are so renowned for . Being herd animals , they can be fiercely protective of their young, each other, and what they consider to be their territory. Little did we realize at the time just how true that would be.

Introduced in 1984, they had not only settled in and adapted, they had developed a downright dislike for any human intrusion into "their" turf. We were told stories of them chasing fishermen into the ponds, running them up trees, and ramming trucks and vehicles that had been driven into that area. I came to the conclusion that a person venturing into this region would probably want to be packing more thaa a Crappie rod and a Zebco Reel.

Joe and I were sold. We began making plans to come back during late October the following year and do a hunt….At last! This would be a great test for my bullet.

Naturally, The Fates decided to throw us a wicked curveball.. Joe wound up having to undergo knee surgery and wouldn't be fully recovered by then, forcing us to postpone the trip for another year. It's a good idea to have two good legs when hunting game like this.

At least I had a lot of extra time to practice, and that I did. I spent a lot of time at the area rifle range shooting mostly offhand with that big 18-lb. Sharps at distances of up to 100 yards. Sitting at a comfortable and

Me with my trophy Water Buffalo taken with my 18-lb. .50/140 Sharps. Ten feet long and every bit of 1,800 lbs. She led a herd of around forty that swept down out of the foothills on us and tried to cut off our retreat into the timber behind me. I shot her at just under 40 yards coming straight on and dropped her in her tracks. My 770-grain bullet, powered by 135 grains of Pyrodex CTC went completely through her. It was the first time my bullet design had ever been used in the field and passed its test with flying colors.

convenient bench rest is a totally different scenario from the reality of the field. As things turned out, I'm really glad I did.

Fortunately, the year passed quickly and the morning of the 29th of October,2007 found us at Wilderness Lodge readying ourselves for the hunt. I would be packing the .50/140 with 20 rounds stuffed with 135 grains of Pyrodex CTG and my bullet. A week before, I cast up a fresh batch that weighed in at 770 grains each. Joe was backing me with his .45/100 Sharps with a load consisting of 95 grains of Pyrodex Select and a 580-grain Postell bullet. I knew my back was covered adequately.

Our guide was Bruce Wilson. He had been our guide on the '05 trip and were glad to be able to have him back with us again. Bruce is the ideal guide because he not only has the knowledge of the terrain and animals you're pursuing, he possesses the ideal demeanor for dealing with people. You're around him for a few minutes and you feel you've known him much longer and you feel very confident in him.

It was about a 20-25 minute drive from the Lodge to the area where the Buffalo were. Along the way, Bruce explained that the cows got as big as the bulls and were hard to tell apart at a distance, since the horns were often as big also. I jokingly replied it didn't matter as long as it was the biggest, nastiest trophy critter in the herd……Careful what you wish for ……..

After leaving the truck and hiking into the woods for a short distance, we came upon an open field. About 300 yards on the far side was a vast stretch of heavy timber that extended into the foothills as far as the eye could see. At the other end of the field were two large ponds with a small stretch of timber running up the edge of the first one. As we glassed it, we spotted about a dozen of the big buffs working their way around the water's edge. There were several really big sets of horns there, so we decided to try and put a stalk on them through the woods. Bruce said the ideal situation would be for us to be able to close the deal on one in the woods where we would have a lot of trees between us and them.

We got within 150 yards , but there were just too many pairs of wary eyes and before we could get into position to get set up, the buffalo began heading out from the pond, across the open field and disappeared over a small hill about 100 yards out.

They weren't in panic mode, they just left a leisurely trot and we figured we could sneak up over the top of the hill and still catch them in range.

Sure enough, as we eased up over the hill, there they were, no more than 100 yards from us. I was beginning to think about

selecting a big bull when the flood-gates opened…..

The timber line of the foothills on the far side of the field turned black as at least 25-30 more of the huge buffs came swarming out of the woods. The glint of the sun off a monster set of horns suddenly caught my eye…The last buffalo to emerge was a dinosaur! In body size and horn length there was no doubt in my mind this was the one. "If we could just get close enough to that one …." I whispered to Bruce (Again, be careful what you wish for)

My would – be trophy now trotted to the front of all the others and suddenly, there was this long line of Water Buffalo coming straight for us and wasting no time about it. Off to our right, the other dozen we had originally been after all turned our way too. "We'd better get back into the timber." Bruce said ….No arguments there as we began a steady backpedal towards the woods and some cover. By now the rest of the herd had lined up with the monster that had been the last out. No doubt about the dominant one here.

We were still fifty yards from the timber and the Water Buffalo had closed to within forty yards of us when we witnessed an amazing spectacle. On either side, about 10-12 buffs swung out to encircle us and cut off our retreat into the timber. The rest remained with the leader in the center. There came into my mind a scene from the classic movie "Zulu" where the veteran Dutch Boer officer was explaining to the British commanders at Rourk's Drift how the Zulus would attack in the formation of the head of a buffalo with the head moving forward and the horns surrounding their enemy and closing in on them….Here it was unfolding right in front of us. Fascinating stuff, but I wasn't too keen on where I was getting the view from.

Going back to the beginning, it was at this time the decision was made to take the leader. We were never going to make it back to the timber without being surrounded. That last fifty yards looked like the span across the Grand Canyon.

As the heavy Sharps settled in and the ball sight sat on the massive black chest of the buff, at less than forty yards now, I touched off…..Seven years of theory and experimentation and practice was down to the stark reality of the moment.

The thunderous blast of the .50/140 shattered the uneasy silence. Almost as loud ad the rifle's roar, was the solid SMACK of 770-grains of lead slamming into the huge lead buff…..The Dark Giant's legs buckled

Long-time hunting partner Joe Sloan (L) and I admire my Water Buffalo. Joe was covering me from behind with his .45/100 Sharps as we retreated for the timberline, watching the Buffalo trying to encircle us on both sides…Not an enviable position to be in. He had slid four cartridges between his fingers in case the situation suddenly called for some fast shooting.

Guide Bruce Wilson (L) and I look over my trophy Water Buffalo with a lot of respect .The huge herd leader had caught us out in the open and nearly succeeded in cutting us off until my .50/140/770 caused a serious attitude adjustment. From the start, Bruce had instilled in us a healthy respect for Water Buffalo. We just got a bit or reinforcement that day.

and it collapsed on the spot as if a giant sledge has swept across the open field and struck it….Actually, it had….What followed was like nothing I'd never seen before : any us for that matter.

The herd broke ranks and scattered in every direction . They were bellowing and snorting and in total confusion . In the melee, we made a mad dash for the safety of the timber. We hadn't gone twenty yards when Bruce looked back and stopped, exclaiming …

"It got up!"

I shoved another cartridge into the breech and spun around..Incredible! It had indeed regained its footing and was now running to rejoin the others. I swung the massive barrel of the 18-pounder on the mortally- wounded colossus and when the sights caught up with it around 75 yards out, I unleashed Thor's Hammer again.

As the big gun roared and bucked back into me, the tell-tale SMACK came reverberating back as the Dark Giant was knocked ninety degrees sideways and rolled twice. It was reminiscent of a rabbit being rolled on the run by a 12-gauge shotgun. "Ouch!" Bruce mused behind me.

Once again the leader made it to its feet, but barely. There was no doubt of the outcome now. I closed to within fifty yards and placed a shot behind the right shoulder as it staggered forward. The Big Buff was bowled over (literally) by the double lung shot and expired quickly….It was done.

As we approached the fallen Monarch, it was only then we realized it was a cow , and a monster at that . She was every bit of 10' in length and pushing 1,800 lbs. (some of the staff back at the Lodge thought even more). The horns were even more massive that I thought : no "ground shrinkage" here. It was easy to see why she was the dominant Matriarch of the herd.

Bruce called back to the Lodge and one of the other guides came down with a flat-bed semi and hoist to get her loaded up. While hoisting her on board, he told us that just two weeks earlier several fishermen had sneaked into this area illegally to fish the ponds and had no clue about the Water Buffalo. The herd ran them up a tree and kept them there for three hours before they could be rescued. I would imagine those gentlemen had their learning curve expanded a bit.

Closer examination would reveal my first shot had struck the huge buff directly in the sternum , plowed through the right lung and exited behind the last rib. The second, as she was running had hit squarely in the right back leg. The third was a double-lung shot that had gone completely through and had

knocked out the “boiler-room” for keeps.

There was no chance for bullet recovery of the first and third shots since they had both exited on the other side from where they had impacted. There were half-inch holes at the point of entrance and quarter-size exit wounds . The internal damage was considerable.

I did recover the bullet form the second shot however, under rather unique circumstances. I had given a rump roast to one of my neighbors and we were going to have it for dinner several days later. The next day, he was at my door with a big grin and proceeded to hand me the bullet he’d found in the roast as he was trimming it.
“Thought you’d probably want this.” He quipped…..Indeed I did.

The big “Express” slug weighed 770 grains when it was loaded up for the hunt. It had smashed through bone (there were still some fragments embedded in the lead and many other tell-tale “gouge” marks). The head of the bullet had mushroomed to 1” in diameter and it still weighed 747 grains…A weight retention factor of 97%. Any shooter would be glad to get that kind of performance from any modern ammunition.. It was very gratifying to see these results from my creation.

Everyone was really impressed with the big .50/140 and how it had had man-handled such a large and dangerous big-game animal. I have to admit I was somewhat surprised myself, but also elated. I had done it with a bullet of my own design, spent countless hours testing, and in spite of the skeptics and early set-backs had brought it all to a head in one of the most exciting hunts I could ever hope to have. As I stated earlier, a fiction-writer couldn’t write a better story from start to finish.

I came away from this with far more than when I went into it.

One thing (and maybe the most important) was never to give up on my goal. Sure, I had some set-backs and the inevitable nay-sayers ……But I kept pursuing the dream and made it work. After all, it is what life’s all about, isn’t it?

The second thing is, upon reflection, I’ve been very fortunate to have had the

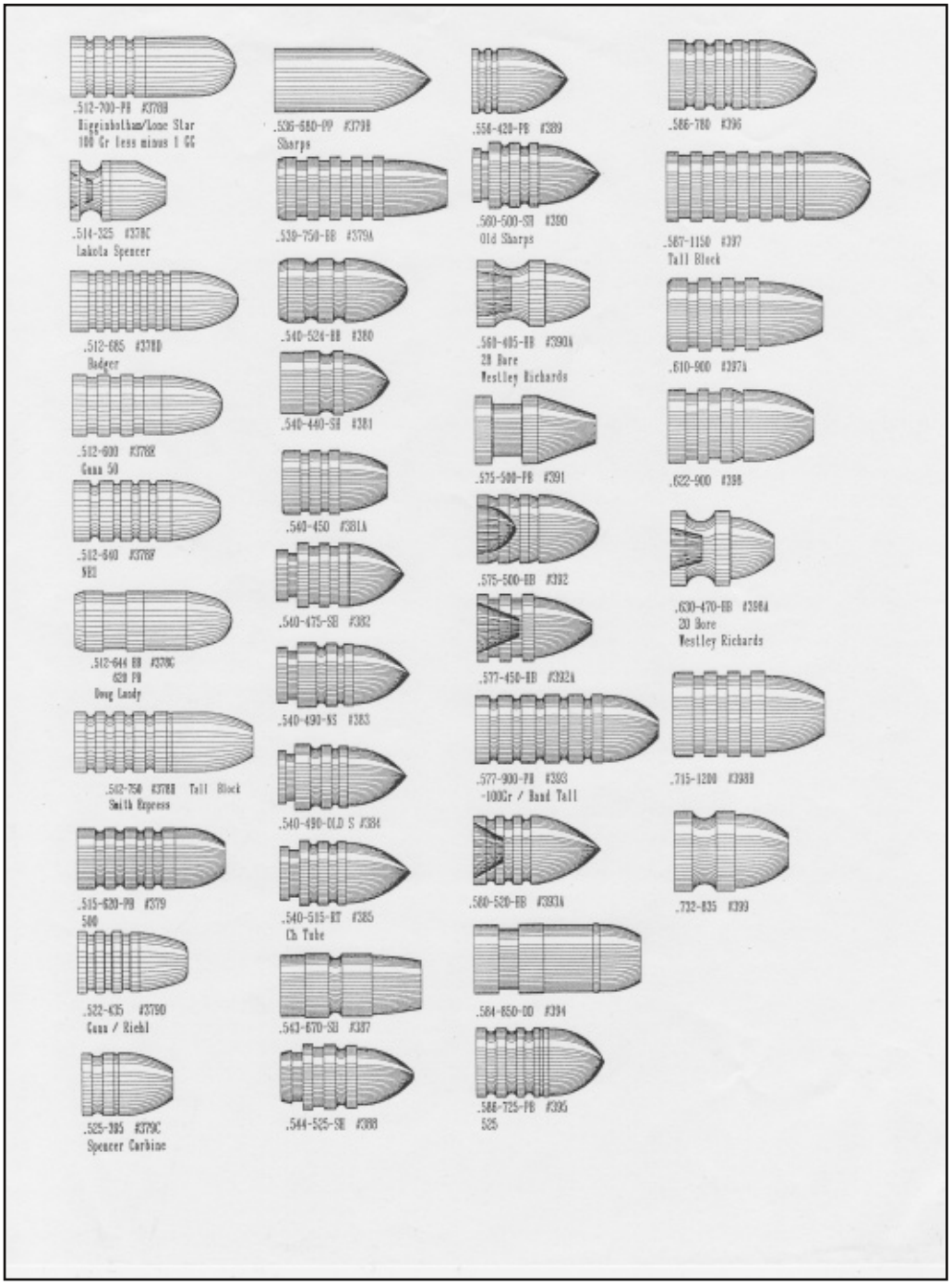
The powerful .50/140/770 cartridge(R).My Buffalo Stopper. The load consists of 135 grains of Pyrodex CTG loaded into the 3.25” ElDorado or B.E.L.L. case over a Winchester Magnum Primer. I place a .060 Vegetable fiber wad over the powder and seat the 770 –grain bullet into the cartridge to an over-all length of 4&1/16 “. This load is capable of moving the big bullet along its way at 1,350 f.p.s. and delivers a crushing payload as indicated by the bullet recovered from by buff.(L). The bullet smashed through bone (some can still be seen) and “mushroomed “ out to over 1” in diameter. It still weighed 747 grains, retaining 97% of its weight. This kind of performance would be welcomed in any type of bullet in any modern rifle. I couldn’t have asked more from my “Big Fifty”….or my big bullet.

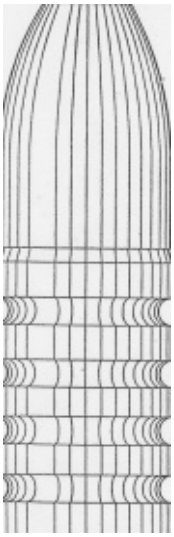
opportunities to have been able to enjoy the sport of Black Powder shooting and hunting to the degree I have. From Caribou in Newfoundland to Wild Boar in Missouri (and a whole lot in-between) I've been given a lot. Well, by designing this bullet , maybe I'm just adding a little something extra to the sport and hopefully giving a little back also. Perhaps down the line, others will try it and benefit from its performance. Believe me, it works. I just hope you don't have to test it under the circumstances I found myself in…Although I wouldn't trade a second of it. Which brings me to the third..

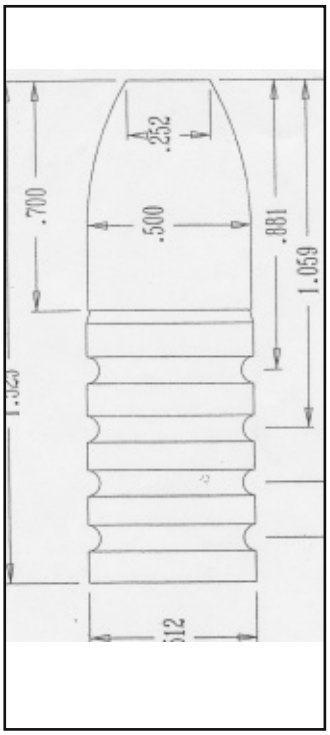
I came away form all this with a very profound respect for Asian Water Buffalo. Robert Rourake once wrote about the African Cape Buffalo that …."they looked at you like you owed them money." I think these guys would be more than glad to help them collect: The interest at least!

Finally, in closing, I would offer one last bit of advice. If you ever hunt Water Buffalo, I don't care what you're using….Watch out for the ones you DON'T see!!

Good hunting and shooting
Bruce Smith







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1864
U.S.
BRIDESBUR
1861
U.S.

Pederesoli's new
U.S. 1861 Springfield
rifle musket

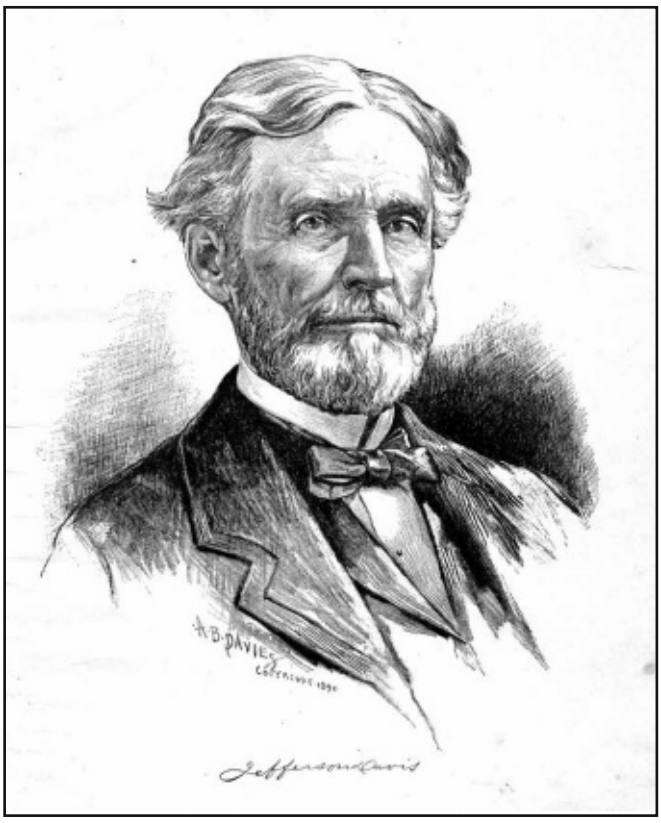
My first muzzleloading arm was a Springfield rifle from Euroarms. Maybe it was not the best choice to start blackpowder shooting, but I enjoyed every moment of caring for this iconic rifle. It is a good question why to start with a rifle from the American Civil War, but unfortunately I have some really good reasons to that. First of all, thousands of veterans from the 1848-49 Hungarian revolution against the Hapsburgs fought for the Union. Hungary gave many good officers to the Union, like Charles Zágonyi (commander of the legendary raid on Springfield), Géza Mihalótzy (commander of the Lincoln's Riflemen) Julius H. Stahel (colonel of the 8th New York Volunteer infantry), Antal Wékey (commander of the Garibaldi Guard), Alexander Asboth, etc... They are heroes of both the Hungarian and American nations. The second reason is simple as a rock: the rifle looks beautiful, and to be honest, by the time I started muzzleloading shooting, this was the most important for me.

The American Civil War and the history of the arms of the Civil War is a really popular topic nowadays, with very good books and articles on the market. However there is also a load of low quality information with many times copied stock phrases. Let's stop for a second to deal with one of these myths. This myth is especially about the rifle musket and its combat effectiveness. „The soldier could hit a man-sized target at 800 yards." Have you read this sentence before? I am sure you have. We all know that the rifle musket with the proper bullet and blackpowder load can do this job, but not the average soldier...

In fact, the bullet injury and death rate, and the volley distances of the Civil War were not significantly higher than the previous European wars that were fought with smooth bore arms.

Modern combat?

The rifle musket offered a chance to modernize Napoleonic warfare rules. Its effective range and accuracy multiplied the possibilities of the individual soldier. However, it was not an easy task to move theory out to the battlefields. The new rifle musket was introduced in 1855, the year when lt. colonel W. J. Hardee published his book „Rifle and Light Infantry Tactics" to modernize the late Napoleonic tactics of Winfield Scott's 1835 manual.



Jefferson Davies

Hardee's book became the Bible of the „amateur officers" of both sides. Let's not forget that the majority of professional officers (former West Point cadets) fought for the Confederate side, there were only a few veteran officers who had real battlefield experience, so the commanding posts were filled with amateurs, who learned the job from books. Hardee's tactics lacked much vital information about musketry. It taught the soldier to load the rifle musket in 9 steps, taught how to aim and fire in standing or prone positions, but did not deal with ballistics and the theoretical background of shooting the rifle.

Until the eve of the conflicts, nobody realized the need for a modern musketry information manual. Only Cadmus M. Wilcox, lieutenant of the 7th cavalry had

different thoughts about this problem. He learnt the business in the School of Musketry of Hythe in England, and travelled all across Europe to gather information about the newest rifle theories from the contemporary armies. Rifles and rifle practice was the title of his book on the subject, based on his English experiences.

Another pioneer of rifle shooting was Henry Heth, a captain of the infantry. He used French musketry information books as basics, and translated the vital parts to create a practical information source for the US Army. He wrote his book - A system of rifle practice – in 1858, but it was only 1862 when the book was published.

This was the first real musketry manual. It taught the soldier to shoot the rifle up to 1000 yards from standing, kneeling and prone positions. He was the first to point out the importance of accurate range estimation – a key to shooting the rifle musket at longer distances. This book offered state of the art information. Unfortunately the practice was much different,

Close or far?

Earl J. Hess in his excellent book The Rifle Musket in Civil War Combat examined the average distance of the firefights of the Civil War. He calculated that the average distance was only 94 yards – a distance where the smooth bore musket with singe ball or buck and ball load was just as effective as the rifle musket. Buck and ball was a deadly projectile: one full size ball and 3-5 smaller round balls were fired from the bore. It's aim was not to kill but to injure. The sad fact is that an injured soldier needs another two men to take him away from the battlefield, and his crying demoralizes the others. Much more effective than killing a man instantly...

There wore quite a few reasons for this short distance. The lack of proper education for the amateur commanding officers. They knew that the volley would be effective if they saw the whites of the eyes of the enemy, but they did not know what to do with that extra few hundred yards of effective range.

The second reason is the lack of proper musketry training for soldiers. Many soldiers fired their arms first in combat. A good picture of this problem is presented by the guns collected from the battlefield of Gettysburg. 37000 rifle muskets were collected from the fields. 24000 were loaded:

6.000 had one load
12.000 had two loads
5.999 had 3- 10 loads
1 had 23 loads in the barrel

Another reason for the short distances

is the diverse terrain of the conflicts. Only a few battles were fought in places where there was at least a few hundred yards of open field between the sides.

A safe place on the battlefield

It is not a question that the rifle is superior to the smooth bore musket. The question in the case of Civil War battles is the how the effectiveness of the rifle decreases while using smooth bore tactics. The bullet of the smooth bore musket leaves the bore with a significantly higher speed (450-500 m/s), while the speed of the Minié bullet is only around 290 m/s. The trajectory of the lighter and faster round ball is flatter than the slower and heavier Minié. The basic rear sight of the 1855 rifle musket was set to 300 yards. Examining the flight path of the bullet within this distance is the key to understanding why the soldiers usually shot high in the heat of the battle. The bullet leaving the bore passes the line of sight twice with this sight setting: first at 60 yards, than at 300 yards. The bullet ascends up to 190 yards. Within 100 and 225 yards, the bullet flies above the average height of a man. This means that, with the lowest - 300 yards - sight setting, this part of the battlefield is safe for the attacking enemy. The bullet will fly above their heads.

This problem did not exist with the flat trajectory round ball muskets. So even if the commanding officer had battlefield experience with the smooth bores, it was not enough for rifle musket combat.

To overcome this problem the soldier needed extensive musketry and range estimation training – something that cannot be done properly while in continuous combat.

History of the development of the Springfield

The United States was not the first to issue rifles to the soldiers. France, England and many Germanic states in Europe already had rifle muskets in service by that time as a general issue firearm for the infantry. The first small caliber US rifle to enter service was the U.S. 1841 rifle, or the „Mississippi”. The short - 33” - barrel percussion, .52 caliber rifle was not manufactured in the state arsenals, but made by private companies like Tryon, Remington, Robbins and Robbins & Lawrence. The rifle had a progressive depth rifling depth and 7 grooves with a 1:60” twist rate. The charge of its cartridge was 75 grains of gunpowder, that fired the patched round ball.

Testing with the French Minié bullets started in 1849, but the powder charge had to be reduced to 50 grains to achieve the

desired accuracy. These rifles were produced until 1859, and they can be considered the antecedent of the U.S. 1855 rifle musket.

By 1850 the Ministry of War, led by Jefferson Davis, collected the necessary parameters for the new rifle, that was intended to replace all the muskets and rifles in service:

- progressive rifling depth with 3 grooves,
- 1:72” twist rate
- .58 caliber (copying the English rifles)
- percussion lock with Dr. Maynard's tape primer
- 40” barrel length
- option to attach a bayonet
- Minié bullet cartridges

Jeff Davis described the rifle perfectly that would conquer his country a few years later...

The first Springfield

The new rifle entered service in 1855. The arsenals in Springfield and in Harpers Ferry started production immediately. The expected accuracy for the rifles was dramatically increased compared to the smooth bore muskets:

4” at 100 yard
9” at 200 yard
11” at 333 yard
18,5” at 400 yard
27” at 500 yard

The rifle was capable of hitting a horseman size target at 600 yards. The new barrel had 3 grooves with a 1:72” twist, and a progressive depth of rifling with 0,015” at the breech and 0,006” at the muzzle. All metal parts were made of steel, not iron.

The Minié cartridges

The new cartridges that entered service in 1855 held 60 grains of blackpowder charge and a 500 grain Minié bullet lubricated with the 1 to 3 mixture of beeswax and tallow. The diameter of the bullet was 0,5775” for the .58 nominal caliber bore. The cartridges were made of 3 sheets of brown paper, and packed in tens. One wooden box of cartridges held 100 packs, 1000 cartridges. The Union purchased

470.851.079 cartridges during the conflict.

The caliber was a copy of the English bore diameter, but the cartridges were completely different designs. The U.S. Minié bullet had greased grooves, and it was loaded without paper patching, not like the Enfield cartridges.

In 1863 a simplified cartridge entered service, that was rolled from two identical paper sheets - a much easier method than the original design.

Special cartridges

There were experiments on both sides to increase the damage capabilities of the Minié bullets. Samuel Gardiner Jr. Invented an exploding projectile, that held a small amount of fulminate in a brass chamber inside the bullet. The charge was ignited with a time fuse that exploded the bullet 1-3 seconds after firing. The bullet was intended to injure with the shrapnel effect, but unfortunately did not perform well. The inhumanity of these bullets was one of the first reasons to start discussions on international treaties to set the humanitarian rules of wars. Ius in bello – rules of engagement Was a great development of the 19th century politicians. One of its first acts of the western World was to sign a treaty in St. Petersburg in 1868 to ban all exploding projectiles under the weight of 400 gramms.

Another exciting invention was Reuben Shaler's sectional bullet. It was intended to act just like the buck and ball cartridges of the smooth bore muskets. The close range effect of the old buck n' ball was unmatched. Shaler's bullet weighted 700 grains and was driven by 60 gr of blackpowder. The bullet itself had 3 sections which when left the bore formed 3 independent conical bullets. The cartridge had a device for opening the paper, so the soldier did not have to tear it.

We have to mention another special purpose bullet as well: the Williams cleaner bullet. Fouling is a great problem of the rifle musket. The tight fitting Minié ball is hard to ram down after 15-25 shots. Elliah D.

Williams patented a bullet in 1862. His basic idea was to offer a new design, a more accurate bullet to the Union Army, than the Minié. His bullet consisted of the bullet itself, a pin, and a sheet metal disc made of zinc. Upon firing the pin straightened the concave-convex disk. The straightened disc's diameter was as big as to fill the bore completely. This bullet had a stronger contact with the rifling than the standard Minié ball. The new bullet performed well, but did not replace the Miniés already in production. The Army ordered large quantities, but its price was 25% more than the regulation bullet. These bullets in fact were capable of something that Miniés were not: they were able to clean the fouling from the bore. During the official test, several hundred shots were fired from rifles without any cleaning.

There were rumors on both sides about using poisoned bullets as well, but there is no evidence that any of the opposing armies every used such projectiles. These stories were rather made up by soldiers encountering strange bullets like the Wilkinson or Shaler or Gardiner.

How the cartridges were made

The Minié balls were not cast but pressed with machinery. This method gave more accurate, more solid and more uniform bullets in weight and diameter. First, the lead was cast into cylindrical .58 diameter bars 21 inches long. This was later rolled to .56 diameter and 25 inch length,. These 25 inch bars were fed into the pressing machine. One man in a ten hour work shift made 30.000 balls with one machine. The balls were lubed on a tin frame holding 50 bullets. They were immersed into the molten grease mixture. The cutting of the paper and rolling of the cartridges was usually done by children and women. One boy was expected to make 800 paper cylinders in a ten hour work shift. Another worker filled the cylinders, while another pinched the cartridge.

Northern variations

The 1855 rifle musket saw a few modifications during the war. The most important difference between the 1855 and the 1861 version is the elimination of the Maynard tape primer. This invention worked well in good weather, but the paper containing the fulminate was extremely sensitive to damp weather. In 1863 the rifle musket was modified again introducing the smaller and stronger hammer, and elimination of the barrel band springs.

The government contracted 31 companies for the production, and made the purchases from 18 to 21 USD per piece. The most important manufacturers were the Springfield Armory, Bridesburg Pa., Wm. Mason, Colt's Army Mfg. Co. and Remington. The companies and arsenals produced 662.457 pieces during the years of the war.

Southern variations

The southern states created their own version of the 1855 rifle musket. After raiding the Harpers Ferry Arsenal, the Confederate Army moved the machinery and spare parts to Richmond to start their own production.

The Confederate rifle musket had the same characteristics as the 1855 model, but it was produced without the Maynard tape primer. The form of the lock plate remained the same, without the device. The butt plate and the nose cap were produced from brass, not from steel. The Confederate arsenal manufactured only 23000 pieces of this rifle musket. Most of their infantry arms were imported from Europe or collected from the battlefields.

Shooting the new Pedersoli 1861 Springfield rifle musket

Pedersoli's Springfield and Richmond rifle muskets are not new on the market. These guns are well known companions of MLAIC shooters, N-SSA skirmishers, re-enactors and collectors. Nowadays, the company is starting to be heavily involved in Civil War arms. Thanks to the larger production quantities, the price of these two rifle muskets dropped significantly in the past months, while the quality remained the same we expect from Pedersoli.

The Springfield is a beautiful piece of art – although I am quite partial on this subject, as this was the gun that started me on the way of blackpowder shooting. Compared to the original, you can find only a few minor differences. All the proof marks, signs are in place, the shape of the stock very closely resembles the original, the wood-metal fittings are simply perfect.

The barrel itself is manufactured to meet the highest Pedersoli standards. The PMG logo stands for Pedersoli Match Grade, a sub brand for all barrels that are manufactured for competition shooting.

My aim was to find the most accurate low recoil loads for target shooting for this gun. My favorite Minié bullet is the Lyman 575213PH. I prefer this bullet because the skirt is thin, so you don't need too much force to upset the bullet into the rifling, and the grease grooves are deep, so you have enough lubrication to keep the fouling soft. The original out-of-mold diameter of the bullets is .578”.I sized my bullets to .577”, to have a tight fit. Even with this bullet diameter, the Minié goes down the bore with the weight of the ramrod even after 20 shots. Be careful with the kind of grease you use: in military rifle competitions, you cannot wipe the bore between shots, so you need a lube that keeps fouling soft. This will help your next bullet to scrape out the dirt of the previous one. You need a uniform layer of blackpowder residue to have an accurate rifle.

Usually Springfields are not the favorite of target shooters because of the rear sight. The sight is located close to the

Manufacturer: Davide Pedersoli
Type: U.S. 1861 M Springfield
Nominal calibre: .580”
Measured calibre: .578-579” (land to land)
Rifling: 1:72”, constant rifling depth (0,006”)
Barrel length: 40 3/16”
Total length: 55 7/8”
Factory load: 60 gr 3Fg Swiss + .577 Minié (620 grain)
Best load 50m: .577” 560 gr Lyman 575213 PH Minié, 40 gr blackpowder (Swiss 3Fg)
Weight: 4,5 kg

breech, close to your eyes. It is not easy to make a clear sight picture, especially if you are not 18 years old. However this problem can be easily solved using shooting glasses with an aperture. The Springfield is also criticized because of the “U” shape notch on the rear sight. To overcome this problem, Pedersoli offers the gun with a slightly modified rear sight – a good solution for target shooters and skirmishers.

Testshooting

All the tests were fired from sandbag rest. I measured the horizontal and vertical deviation of the best 4 shot out of 5 shots in a row. I started to work up the load from 35 grains in 3-grain increments. The best low recoil load for 50 m was 40 grains of Swiss No. 2. With this load you can shoot all day long without fouling your barrel, or braking your shoulder. The sights are nearly perfect for this charge, as the bullets hit inside the black area of the ISSF 50 m pistol target, a bit to the left and a bit low.

There is one advantage of the progressive depth rifling over the constant depth repro rifling. The repro Springfield need a tight fitting bullet. Size your Minié balls 1-2 thousands under your bore diameter, and you'll be ok. Size it 5 thousands under the bore, and probably they will make keyholes at 50 meters. The progressive depth rifling of the originals works different way. I experimented with bullets sized to .575, and even .570 in the .581 bore of my original Bridesburg rifle musket. The accuracy did not change, and the bullets were not keyholing even after 20 shots. However the sama accuracy can be achieved with the repro Pedersoli rifling as well.

After the 50 m tests I went on with the 100 m shooting. The 40 grains load was too light for this distance, so I started to increase the load to 48 grains 3Fg Swiss. The results started to get satisfying: all the bullets hit within an eight ring size group – a good start for later work. In my opininon the only limit of the gun is the notch of the rear sight, which makes it hard to get an accurate sight picture. A bit of modification will solve the problem for sure. *(In the next issue I promise I'll continue to develope the 100 m load!)*

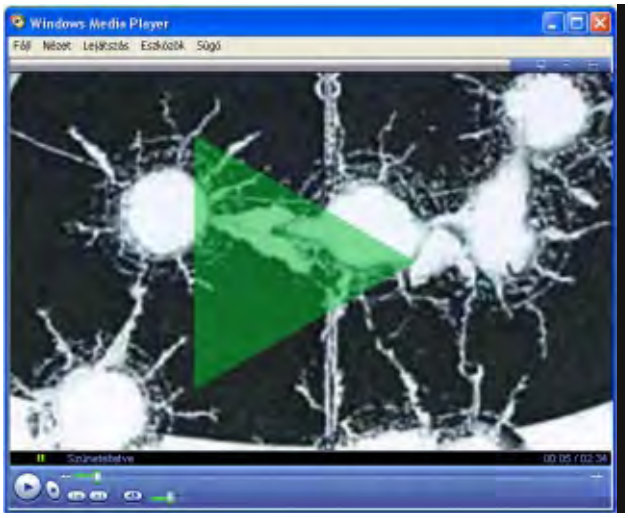
Summary

Pedersoli's new rifle musket is the first member of the American Civil War family. The retail price of this gun dropped significantly, but the quality did not. In fact with the new rifling method it was easier to find the accurate load than for Pedersoli's previous Springfield. The gun performs well even after 30 shots with adequate lubrication. This gun can be a good companion for N-SSA, MLAIC shooters, and re-enactors.

Balázs Németh

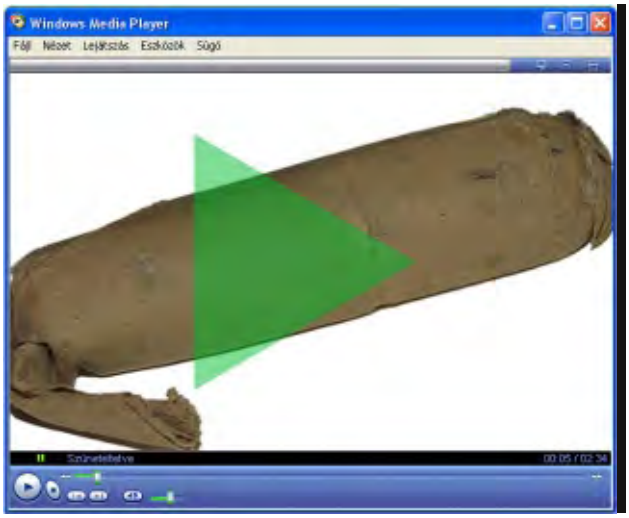
Video documentary for the rifle musket on Capandlall youtube channel

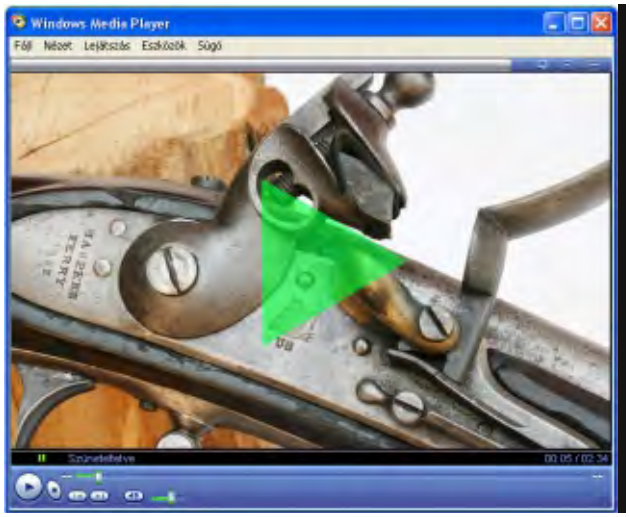
Range testing of Pedersoli's new rifle musket. Fiting the gun to 50 ms and 100 ms, preparation of bullets.



Learn how to make accurate reproduction of the 1855 cartridge

Learn how to make accurate reproduction of the 1861 cartridge





In this video we are comparing the effectiveness of a rifle musket vs a smooth bore musket, with original service loads

Visit Capandball Youtube Channel to see our videos about shooting historical arms

Tatiana Serebryakova displays some targets shot with different Pedersoli guns, while Alexander Vassiliev emphasises the muzzle loading rules.

Muzzle Loading, Russia is getting closer!

The muzzle loading phenomenon, having already expanded into Eastern European Countries, has now also reached into the more distant Russia over the last few years. Some of the local Russian gun magazines have published articles about black powder muzzle loading guns.

One magazine particularly wanted to develop the black powder theme in the widest and most complete possible way. We refer to the Gun Magazine, the Russian equivalent Guns & Ammo of USA. The editors of Guns Magazine believed in the development of the market of muzzle loading guns for hunting in the field, target shooting and for historical re-enactment. A strong relationship between Gun Magazine and Davide Pedersoli began with the first participation of the company at the Gun Show Arms & Hunting of Moscow.

Since 2007 when it was possible to have a close look at Pedersoli's guns in Russia, the company already known both for equipping re-enactors in historical events and for echoing of results that the guns have achieved at international target shooting competitions has been widely published. A serious interest started as Gun Magazine began to look more deeply at muzzle loading guns and the lifestyle that goes with them.

Alexander Vassiliev, who is also the editor in chief and Tatiana Serebryakova, who is also the art director, recently took an interest in a series of investigations to thoroughly understand the muzzle loading world, starting from the simplest basic knowledge. Their adventure began by visiting the Davide Pedersoli company where they studied the guns and accessories, observed the production systems, tested guns and took photographs of many models.

We need to emphasize that due to the laws in their country, their attention was

One of the participants shooting with the AN IX Dragoons musket. The picture shows the moment the black powder ignites in the pan.

focused only on longarms. From May 2009 Gun Magazine started publishing articles about muzzle loading guns and target shooting and with each magazine there is an insert titled Pedersoli's Blackpowder N°1 entirely dedicated to the company, its products and its activities. Tatiana and Alexander report that muzzle loading shooting has developed in Russia with unexpected success and rapidity. As such on the 4th and 5th of June at Nevsky shooting range, located in a picturesque wooded area close to St. Petersburg, they organized a seminar to show our muzzle loading guns and their use.

Shooting with the Gibbs .45 calibre target rifle, the Mortimer Flintlock .54 calibre and the AN IX Dragoons Musket 17.5mm calibre and all other Pedersoli guns, the two resourceful editors showed the loading, the use of the accessories, the safety rules, the disassembling and the cleaning as well as the maintenance of the muzzle loading guns. Particular attention was also given to loading techniques.

Several people attended the seminar with extreme interest both at the lessons taught by Alexander Vassiliev, helped by Tatiana and assisted by the shooting range instructor, Mikhail Panfilov. The lessons learnt then enabled the participants to take their position on the shooting line to fire at targets, which in addition to those of regular bullseye shape, they also had animal silhouettes and plastic containers filled with coloured liquids.

During the two days of the muzzle loading seminar, other journalists and TV networks attended to record the shooting events which proved new and fascinating to

Mikhail Panfilov, Nevsky shooting range's instructor, is about to shoot with the AN IX Dragoons musket.

all in attendance. Among the guests the presence of the Western Show Group was very much appreciated; they displayed their typical virtuosity with humour, the use of the whip, bow shooting and tomahawk throwing.

Demonstrations also took place at the opening ceremony on the Sunday morning. Very much appreciated also among the participants was the presence of the North-West Cossacks led by Ataman Vasily Darnev, among them the well known Denis Streltsov, hunter, shooter and skilled restorer of antique arms at the Naval Museum in St. Petersburg.

The seminar ended with a prize ceremony sponsored by Pedersoli for the first three classified shooters of the competitions organized during the seminar. As a result of the event a wide coverage has been already been given in the Russian news and of course Gun Magazine (www.gun-magazine.ru) published a lengthy article with several photos.

Davide Pedersoli can also include this experience, the first in Russia, among their promotional activities carried out over many years and we congratulate Alexander Vassiliev and Tatiana Serebryakova for the success of the event.

A lady attending and shooting with the Mortimer rifle.

Russia, far away geographically, wanted to get closer to the muzzle loading shooting sports through the Pedersoli company. For the future our attention is focus on the re-enactment event of the 200th anniversary of the Borodino Battle (or Moscow Battle) fought on September 1812 against Napoleon's Army.

A group picture with coordinators and participants. In the middle, holding the wild pig silhouette target, Denis Streltsov, winner of the competition run during the seminar.