



January, 2019

Mountain Man Monthly

The Authorized Publication of the
Colorado Springs Muzzle Loaders Inc.

The Colorado Springs Muzzle Loaders, Inc. was chartered in 1969 by a group of men and women interested in their heritage and dedicated to preserving and promoting the sport of muzzle loading and buckskinning. CSML is a family oriented club that holds a broad range of functions such as camp outs, potluck dinners, and black powder shoots. CSML is affiliated with the National Muzzle Loading Rifle Association and the National Rifle Association.

Views and opinions contained within articles submitted to the Mountain Man Monthly are not necessarily those of the editor or CSML. The editor reserves the right not to publish any article submitted but encourages articles on any subject regarding shooting sports and subjects related to the fur trade era.

Regular Monthly Meeting
TUESDAY, February 5, 2019

7:00 p.m.

White Elephant Gift Exchange
(bring goodies to share)

Club Paper Shoot - Feb. 3
Club Primitive Shoot - Feb. 17

We say farewell.....

CSMLA Winter Convention
March 9 in Ft. Collins

President

Joy Hicks

Vice President

Robert McCune

Treasurer

Gwen Blanchard

Secretary

Membership Chairman

Ted Beaupre

Range Officer

Ted Beaupre

Assistant Range Officer

Jock Harmon

Primitive Exec.

Doug "Moose Milk" Davis

Assistant Primitive Exec.

Tony "Tenderfeets" Hecker

Cannon Master

Richard "Singe" Stites

Mountain Man Monthly

Editor

Doreen Webb

UPCOMING EVENTS: CSML & Statewide

WHAT	WHERE	WHEN	INFORMATION
Club Paper Shoot	Ft. Melchert	Feb. 2	pistols at noon; rifles at 1:00 pm
Regular Club Meeting	Am. Legion #209	TUESDAY Feb. 5; 7:00 pm	annual white elephant exchange and finger foods to share
4-H Presentation	DOW Building	Feb. 16 th (TBD)	more details to come.....
Club Primitive Shoot	Ft. Melchert	Feb. 17	pistols at noon; rifles at 1:00 pm
Club Paper Shoot	Ft. Melchert	March 3	pistols at noon; rifles at 1:00 pm
Regular Club Meeting	Am. Legion #209	March 5	regular club business
CSMLA Winter Convention	Elks Lodge Ft. Collins	March 9	all day; one-day event & banquet; election of officers
DAYLIGHT SAVINGS	TIME BEGINS	MARCH 10	clocks FORWARD 1 hour!!!!
Club Primitive Shoot	Ft. Melchert	March 17	pistols at noon; rifles at 1:00 pm
Hunting License Application Due Date	Statewide	April 2	must have applied on-line for any limited draw licenses for hunting
Regular Club Meeting	Am. Legion #209	April 2	Ken West presentation
Club Paper Shoot	Ft. Melchert	April 7	pistols at noon; rifles at 1:00 pm
Club Primitive Shoot	Ft. Melchert	April 21	pistols at noon; rifles at 1:00 pm
Regular Club Meeting	American Legion #209	May 7 7:00 p.m.	last planning meeting for THE EVENT!!!!
44th Annual Memorial Day Shoot	Florence Mountain Park	May 25-27 set-up May 24	annual shoot, potluck, club tent and all the fixin's!!!!
Club Paper Shoot	Ft. Melchert	June 2	pistols at noon; rifles at 1:00 pm
Regular Club Meeting	Am Legion #209	June 4; 7:00 p.m.	wrap up of the annual shoot
Club Primitive Shoot	Ft. Melchert	June 16	pistols at noon; rifles at 1:00 pm
Territorial Matches	Ft. Lupton	June 16	CSMLA sponsored event
Regular Club Meeting	Am Legion #209	July 2	regular monthly meeting
Club Paper Shoot	Ft. Melchert	July 7	pistols at noon; rifles at 1:00 pm
Primitive Grainger Camp Out	Grainger Ranch near Victor	July 20-21	potluck Saturday night and breakfast Sunday morning

For CSML scheduled shoots; CALL SHOOT HOT LINE (719) 442-0150 after 9:00 a.m. on shoot day to be sure shoot is on!!!
Schedule is subject to change at any time and is based on information available at time of publication. On-line check csmlinc.org

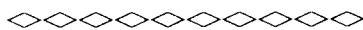
PAST THINGS

The January meeting was a rather interesting one. Lots of different things happened but we survived them all and will charge forward.

The wild game potluck featured pheasant, elk, and venison as well as pork and lots of sweets. Everyone seemed to enjoy the food.

Meeting was unusual in that we had to decide about when or where to have our monthly meetings and much discussion held on whether to conduct shoots during the winter months. If you didn't make it, then you missed a lot of discussion and voting on what to do.

Reminder given to all to give it your best effort to attend the regularly scheduled monthly shoots. The range officers go to a lot of work to set up the ranges for us and to conduct the shoots. We need to do our best to be in attendance to make all their work worth it. Remember that during the cold months, the rule is 50 degrees by noon at Ft. Melchert and Doug does send out e-mail notices of whether it is a go or no go for the shoot. Lets all work together on this.



Colorado Springs Muzzle Loaders Regular Monthly Meeting January 3, 2019

The first meeting of 2019 was called to order by Vice President Bob McCune. We asked our guests to introduce themselves. Belinda Irsik from the 4-H group introduced herself and advised us she was there to talk about what they would like us to do for their 4-H group. Kurt and Elyse Murray-Cameron were with Belinda and they introduced themselves. Welcome to these folks! Belinda advised us that the 4-H group will be holding a Dutch Oven cook-off May 4 if any one is interested.

The pledge of allegiance was recited.

Bob asked for a motion to accept the Secretary's report as published in the *Mountain Man Monthly*. Motion was made, seconded and

unanimously approved.

Treasurer Gwen noted that her report was as of the end of December, 2018. We had a small deposit of two months' interest on our account. Due to the increase of postage in January, Gwen purchased 3 months of forever stamps at the old price to make our money go further. There being no questions or concerns, a motion was made, seconded and passed to unanimously approve this report.

Membership Chairman Ted reminded us that it is now time to renew your dues. Several folks were in line to do just that. Ted tells us that we have 61 member families at this time.

Old Business: When asked about old business, the room went silent. Guess we don't have any this evening.

New Business: Ken West advised that he was mentioned in the current issue of *Muzzle Blasts* as the best of the worst. He placed in the pistol category.

CSMLA Winter Convention is looking for classes and presenters. If you have something you can share, please let Gwen or Joy know. Convention is March 9th.

Bob advised the group that there is a problem with us continuing to have our meeting at the new location on the first Thursday of each month. The American Legion advised that we can stay here if we move to either Monday, Tuesday, or Friday. If that won't work, then we will need to find a new location for our meetings. While the group was enjoying their food from the Wild Game potluck, discussion ensued on this issue. When this part of the meeting arrived, there was much discussion on options and what we would do. A vote was taken and it was almost unanimous to stay at this location and change our meeting dates. Again discussion on which day would be best. Another vote was taken and it was an almost unanimous decision to move our monthly meeting to the 1st Tuesday of each month. Hopefully keeping it on the first Tuesday this will make it easier to make the change rather than moving to a different week in the month. This means that our next (February) meeting will be on TUESDAY, FEBRUARY 5, 2019 at 7:00 p.m. Also reminded the group present that this will be the annual white elephant gift exchange so dig out those items now.

It was noted that it is time to renew the license

on the club trailer. It was also mentioned that at the last use of the trailer, the rear passenger axle was leaking. Tom (the other Tom) advised that he will go and check these for us and help make repairs if needed. Thanks to Tom!!!!

Rather than have a board meeting, Joy sent the information to the group for all of us to discuss the upcoming calendar and provide input as it is OUR club. Discussion held on the various months and ideas for presentations so that we can take home something from our meeting rather than just discussions. Due to the change in the day of our regular club meetings, we will adjust the dates of the meeting which will change some of the items on the monthly calendar. Got a couple of volunteers to make presentations for March and April. Still have other months and asked all to consider making some sort of presentation to the group to help grow our knowledge. It does not have to be mountain man related; just items of interest to the group.

Discussed the line-up of things to do for the Memorial Day shoot. Everyone agrees that there is lots of work to be done. Ken West and Jay Rathman volunteered to host the spectator shoot for us. Everyone will be looking for additional workers like Boy Scouts or 4-H groups or some youth group who would like to come and help us set up and tear down. We will make great deals for those groups who would come to help.

Doug was then given the floor to discuss participation in the monthly shoots. His basic question was whether to continue with shoots in the winter or cancel them. He explained in his inimitable way, that if no one is going to show up to the shoots, then we should cancel and not waste the range officers time to go to the site and set up and then have no one there to shoot. There was much discussion and several ideas for compromise suggested. Nothing was really determined except that Doug would only do one more shoot and if there were no participants he then will quit. It was reiterated that the 50 degree rule by noon still applies and Doug will send out the notification e-mail of whether the shoot is on or not.

Gwen noted that according to the target printing company, one of our Memorial Day targets is no longer available. It is one used in the Junior and Senior matches. Doreen and Joy will meet and

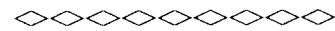
determine what replacement target to get.

The pheasant, elk, and venison brought for the potluck were thoroughly enjoyed by all. Thanks to all who came and brought the good food. Just a reminder that you also should bring your own plate and utensils to the potluck events. That way you are assured of having something to put the food on!

Upcoming events were noted.

Motion made, seconded, and approved to adjourn the meeting. So done.

Respectfully submitted,
Temporary Scribe Doreen Webb



We say farewell.....

For those of you who haven't heard, Miss Kitty, mascot of Ft. Melchert, is no longer with us. She passed away this month. It is reported that she wasn't doing well and a nice veterinarian from Pueblo West was called and responded to her distress.

Miss Kitty was approximately 45 years old and for a mule that is good. Ron owned Miss Kitty's mother as well. Few of us knew Miss Kitty as a youngster but do know her as the mascot and guard mule for Ft. Melchert. We're told that Miss Kitty was small and cute but she certainly had big ears!

Most of us will remember Miss Kitty for her nose in the shop and all of her if the door was left open. She loved apples, cornbread (from the potlucks), and peppermints.

We certainly hope that she is running free in that tall grass in mule heaven. It will be odd for a while, to go to Ft. Melchert and not see this old girl standing guard or waiting to see what treats folks are bringing to her.

MESSAGE FROM THE CSML PRESIDENT

It's a new year and we have some new changes.

Due to a scheduling conflict at our new meeting place (American Legion Post #209, 3613 Jeannine Drive, 80917), we have changed our meeting night from the first Thursday to the first TUESDAY of every month. Our next meeting will be Tuesday, February 5, 2019 at 7:00 p.m. It will be the White Elephant Gift Exchange with finger foods.

After 44 years of first Thursday meetings, this is a big change but it comes with some positive notes. We are meeting in a place we can depend on. It is clean and has plenty of great parking. The location is easy to get to and they are willing to cater to our needs. It is hard to find a meeting place and we are lucky to have this one at a reasonable price; thanks to Richard Stites.

For those of you who were not at the meeting, we need help coming up with ideas for entertainment for the meetings. Do you know how to make something? We are interested. It isn't hard, all you have to do is show how YOU do it. "Make and takes" are always a hit. If you need supplies let us know. Book Reports are interesting. Our goal is to hold meetings that when you leave for the evening, you have learned something. Some people travel a long way; we take an evening out of our busy lives and when the only thing that happens is report - - report - - any old business - - any new business - - upcoming events, we are done; personally I am embarrassed. In order to get people

interested we need to be interesting. Is there something you would like to learn about? Some of us on the board have served for a long time and have shared our talents (several times) which we have been glad to do but we have run out of ideas. WE NEED YOUR HELP!

Memorial Day will be here before we know. Setting up for the event is labor intensive and our set-up team is not as young, strong or healthy as we used to be. We are looking for help! Do you know an Explorer Scout Troop, strong bodied GI's, 4-H kids, and service group? Is there something we could offer them for their help? PLEASE seriously consider asking anyone you can think of. Our biggest need is the Friday set-up.

HAPPY NEW YEAR! LET'S MAKE THIS ONE THE BEST YEAR YET!!!!!!

Your Prez,
Joy

++*+*+*+*+*+*+*+*

DECEMBER PAPER SHOOT

By: Ted "Dances with Deer"Beaupre

The day had a slight overcast and twelve brave souls made the trek to the range. All was going well until Mr. W showed up!

We shot at two targets; the 5 bull and the double buff for a total of 15 shots. Since Mr. W was not playing nice, we headed for the barn and called it quits for the day. Thanks to all who showed up and supported the paper shoot.

Ranking in order.....

- Randy
- Jock
- Doug

Tom F.
Bruce
Ted
Don
Bob
Jack
Tony (DNF)
Jim (DNF)
Ken (DNF)

Once again, thanks for showing up. We appreciate your participation!

#####

Dec. 16th Primitive Pistol Match

By: Ken West

Only three of us showed up to enjoy the best shooting weather that we've had in months. The scores were:

Jay Rathman 13 gongs
Jim Murray 12 gongs
Ken West 11 gongs

Don't want anyone to think that I'm considering changing political alliances; but I feel pretty good about coming in third --- we did some really good shooting! (My scores haven't been the same since the cut-out squirrel lost its tail!)

Best of the Worst..... The NMLRA magazine for December arrived last week and I discovered that I had won the grand aggregate in the Marksman class in the fall National shoot in Friendship. If you are

not familiar with the NMLRA national matches, each shooter qualifies for a class by shooting the grand aggregate and being classified based on score. In the national matches, one shoots against others in that class.

There are five classes: High Master, Master, Expert, Sharpshooter, and Marksman. The grand aggregate is 3 targets for caplock; 25 yards, slow fire, 25 yards limited time fire, 50 yards slow fire; plus 3 targets for revolver and three for flintlock at the same ranges and time limitations. The tenth target is the "international" target which is shot with the pistol of your choice at 25 yards; best 10 out of 13.

To put my expertise into perspective, Lynn Helsel, Lou's wife, scored 945 in the grand aggregate. My score was 349. This is why coming in third in a group of experts doesn't discourage me!

<<<<<<<<<<<<<<

JANUARY 6 PAPER PISTOL MATCH

By: Ken West

It was the kind of shooting weather where real men go into the clubhouse, drink coffee and tell lies. The temperature was on the border of cold and a gusting 15-30 mph wind made shooting a challenge. The scores were:

Jim Murray 94-2x
Al Bartok 91x
Randy Ruyle 84

Jay Rathman	81
Ken West	78
Tom Foster	43
Doug Davis	32
Ted Beaupre	20

tie-breaker, I declared it a tie and put the money in the range fund on their behalf!

x x x x x x x x x

Beginning January 1, 2019.....

Fees for Colorado big game licenses and state park entry will increase as authorized under the new Act. Big game resident fees:

Deer	\$38
Elk	\$53
Pronghorn	\$38
Bear	\$48
Mountain Lion	\$48
Moose	\$300
Bighorn	\$300

Non-Resident fees are about the same as last year except that bear went down from \$350 to \$100. The non-refundable drawing application fee is now \$7.

Muzzle Loader of the Year

Now is the time for folks to get their nominations in for the State Association Muzzle Loader of the Year. Get busy and write your letter of nomination and get it sent. Be sure to include all the reasons that you believe your candidate should be awarded this honor.

Remember that the judges for the event will not know your candidate so your letter needs to be very complete and informative.

Completed letters need to be sent to:

Ron Mann
P. O. Box 1298
Golden, CO 80402

or e-mail Ron at oldbuzzard101@yahoo.com

The scores are impressively good - - considering the weather! Jim and I shot the first 25 yard rifle target. While I'll have to read Ted's report to be sure, I suspect that we scored better on the rifle target than the rifle shooters scored on the pistol targets - - of course, they were using pistols which they are not accustomed to shooting and Jim and I shot our best target pistols at the rifle targets.

* & + * & + * & + * & +

**Jan. 6th Primitive
Pistol Match**

By: Ken West

The weather was unexpectedly pleasant. Miss Kitty was missed! The scores were:

Al Bartok	12 gongs
Jay Rathman	12 gongs
Jim Murray	11 gongs
Ken West	11 gongs
Tom Foster	9 gongs

Tom is doing better than I would ever do with a revolver - - we're going to have to get him to shoot a target pistol in one of the matches coming up! Al Bartok left the range before Jay tied his score. In the absence of a

THOUGHTS ON BLACK POWDER HUNTING

By: Donald Kettelkamp

(The following article is from the October, 1982 issue of The Buckskin Report.)

"I am afraid if we are not careful the muzzle loader hunter will get the same reputation for wounding game that the archers have," stated George Seeley, of Grand Junction, Colorado, as a group of us visited around a campfire at the Western NAPR-NMLRA Rendezvous. This concern was shared by all of us; Dave Gregory, Ron Weiser, and Gary Allen of Hanna, Wyoming, Tom Schultz of Helena, Montana; and myself. We have all taken big game with both modern and muzzle loading rifles but our first love is the muzzle loader. The discussion that evening precipitated this narration though the following thoughts do not necessarily represent those of my colleagues.

The first question the hunter must resolve is why is he hunting with the muzzle loader. Often the reason is because it allows him a longer hunting season. Too frequently such a hunter picks up his muzzle loader in place of a shotgun or modern rifle and goes hunting without understanding the peculiarities of the front loader. George suggested that if the game laws required each hunter to select only one class of weapon for a single separate season; i.e., he could hunt archery, muzzle loader, or modern weapon season but not all three, the chances are better that each hunter would know his weapon and its limitations. We all concurred. Such a regulation would be of considerable help. The State of Wyoming Game and Fish Department instituted a similar situation with the antelope permits for 1982.

The other primary reason for selecting a muzzle loader is because the hunter wants the challenge and thrill of hinting in the old way. This hunter, too, must know and stay within the limitations imposed by the front loader even when it means taking a lesser trophy or no meat at all.

This last sentence is the crux of muzzle loading hunting - - **"The hunter must be willing to take a lesser trophy or none at all."**

The muzzle loader hunter must understand the difference in effects on tissue (i.e., the animal) produced by a modern projectile and by a round ball. Probably, more meaningless words about the relative merits of slow, large projectiles versus fast, small projectiles have appeared in hunting magazines than on any other subject. The differences in tissue damage, based on human casualties are well understood and discussed in the medical literature. Missiles are classed as high velocity and low velocity with the dividing line being about 1400-1600 per second. The low velocity missile does not

produce cavitation and hence does minimal tissue damage. Medically this means that low velocity wounds need only cleansing and minimal debridement (cutting away dead tissue) as long as the bullet did not go through bowel, bladder, lungs or hit a major artery. In each of these exceptions ore extensive surgery is needed to avoid secondary infection from a perforated bowel or bladder or to control bleeding. The high velocity wound always requires opening the wound, even in the arms and legs, to remove dead, destroyed tissue to avoid infection. The muzzle loader fires a low velocity missile by the time it gets to game even when starting with a muzzle velocity of 1800-2000 feet per second. The round ball does not produce the tissue damage of a modern bullet, it does not destroy as much tissue, it does not have the "shocking" power, and it will kill effectively only if the ball passes through a vital structure. For example, a neck shot from a modern cartridge may be effective because cavitation disrupts the spinal cord even when the vertebrae were not hit while such a shot only wounds with a round ball. Hence it is even more crucial that a round ball be accurately placed than it is with a modern higher velocity bullet.

Now that we have agreed that as a muzzle loader hunter we are willing to take lesser trophies or none rather than stretch the capabilities of our favorite weapon and that no matter what anyone says the muzzle loader requires precise bullet placement to be effective, we can move on to rifles.

Next to the large, slow versus small, fast bullet controversy, the subject of rifle calibers always engenders debate. Here however, the debate is usually justified given qualification. The first qualification, and one we can all agree on is that the hunter must know his rifle and load. The old adage, "beware of the man with a well-used rifle," applies. Use your hunting rifle on the range, in matches, at rendezvous, for small game and large. Shoot in all kinds of weather and from a variety of positions. In essence, do what our forefathers did and make your rifle a part of you. Lyman's **Black Powder Handbook** will help by providing supplemental information on trajectory, shooting up and down hills, and the effect of elevation on trajectory. In essence, master your rifle.

Now for controversy: "What caliber and what loads?" As a misplaced westerner, I now live in the land of .45 and 50 calibers and small powder loads. This is explainable if you look at the original long rifles of the east and mid-west. They are long, graceful and usually of 40-50 caliber. (One hundred and nineteen of 159 rifles pictured in **Kentucky Rifles and Pistols 1750-1850** published by Golden Age Arms Company and J. R. Johnston, 1976, are .50 caliber or smaller). The men that used them knew their rifles, hunted in the eastern woodlands, and seldom had to shoot more than 50 yards. Their game was squirrel, rabbit, turkey, white-tail deer, rarely a black bear, and on necessity an Indian. The .45 and .50 caliber in the hands of a proficient rifleman are adequate for deer and black bear in the Eastern woodlands. If the hunter will limit his shots to close range the light powder charges recommended by some authors will suffice in the Eastern woodlands.

But let's "Go west young man." Our forefathers led the way but not for long with the smaller calibers. The game was bigger and the distances longer. The calibers increased, usually to .54 caliber range, and the powder charges increased as well. Browse down the shooting line at the Western Rendezvous and look at the calibers. Again today the .54 wins the popularity contest. With an adequate barrel for heavy loads the .54 round ball will deliver more muzzle energy at 100 plus yards than the .45 and .50 caliber balls. In my experience, and those of friends, western game has usually been taken at over 50 yards and frequently at a hundred or more. The bigger calibers and larger powder charges are desirable under these conditions. I have not taken elk with the muzzle loader but on similar sized African antelope I consider the .54 caliber marginal at more than 50 to 75 yards. The problem is not hitting the game, after all, an elk or wildebeest is a big animal. The problem is insufficient energy for a clean quick kill on this size game at longer ranges. Here a look at the muzzle loaders of the Afrikaner vortrekers is enlightening. They took big game at close range but with big rifles, four and six gauge, with broad butt-plates to dissipate the recoil and often two rifles or more with loaders for each hunter. The only modern muzzle loaders of similar capability that I know of is the .58 caliber used by Val Forgett of Navy Arms. It shoots a 610 grain mini-ball and 170 grains of powder. I had one for a while and it hurts on both ends but for really big game at close range it would be worth it. I am personally partial to the .54 caliber because it functions well in the eastern woodlands and for western deer and antelope. The primary thing, however, is for each hunter to know the capabilities of his rifle and to limit his shots to those capabilities. The goal is a well-placed shot of sufficient muzzle energy to kill and not wound. The characteristics of black powder for practical purposes limits velocity and the ballistics of the round ball limits consistently effective range on big game to 100-150 yards. Hence, the only way to increase delivered muzzle energy is to increase the caliber or decrease the range. For game the size of elk, moose, kudu and gemsbok the hunter needs to do both to ensure consistently quick kills.

Because muzzle energy, distance and size of game are intimately related, the hunter must practice judging distance until he is proficient. In the eastern woodlands, this not much of a problem as visibility is usually limited. In the west, estimating distance is critical. Modern rifle hunters tend to over-estimate how far away the game was on successful shots, hence, they often relate 400 to 600 yard guesstimates. Conversely 100 to 150 yards is very close in the clear air of the western plains. Also, it is often very difficult to get within a 100 to 150 yards of game on the open sage flats so the risk is to think the game is closer than it is. Distance must be correctly estimated to assure effective bullet placement. Again, practice, practice, practice.

Knowing the habits and characteristics of the game animal helps in getting within effective range but is too broad a subject for this dissertation. Knowing the anatomy of the animal hunted is germane because bullet placement is so critical with the muzzle loader. The **American Hunter** magazine has such a series of articles on North American game. If the hunter lives in a city with a zoo, studying the animals from various angles can

also be of great help.

Finally, learn to track. This is easy and fun to practice with snow but very difficult without it. Many authors have admonished the hunter to follow-up all game shot at to see certain the game was not hit or find them if they were. This principle cannot be emphasized enough and is particularly important with the muzzle loader. It also reminds me of another area of some controversy. "Is it more desirable to have the ball stay within the animal or pass through it?" If the ball stays in the animal, all of the remaining energy has been delivered to the target - - seems like a good idea since we've talked so much about energy. Further I will agree with it, but for modern cartridges not the muzzle loader. Why the difference? I can't be very scientific but my reasons are as follows: on the initial ten head or so of big game I took with a muzzle loader, the ball went through each. None made more than thirty yards from the point of impact. Then, I ran into a black wildebeest, an animal of about 350 pounds, heavy boned, and with skin as thick as a moose. At a hundred yards the 535 round ball in front of 140 grains of 2F went through a rib, the near side lung, diaphragm, part of the stomach, the tip of the far lung, hit a far rib and stopped. A mile and several hours later a second ball at the base of the neck put him down. So what's the problem? The problem was that the far lung did not collapse. Had the ball exited the far side the normal negative pressure between the lung and rib cage would have sucked air in and collapsed both lungs eliminating a long stalk or (in timber) a lost animal. A modern cartridge with the same shot would have destroyed enough far lung by cavitation to have had the same effect even without exiting. In addition, failure to exit the far side markedly decreases any blood trail, an important consideration in the timber. One experience doesn't make a fact but it is enough for me to want enough energy with a round ball to shoot through the chest of the game hunted.

With the objective of avoiding wounded game my commandments for muzzle loading hunting are as follows:

1. Be willing to take a lesser or no trophy.
2. Understand the biological effect of a round ball on tissue and apply it to hunting situations.
3. Master your rifle. Know the characteristics of your load for shots compatible with the game and terrain to be hunted.
4. Learn to accurately judge distance.
5. Learn the anatomy of the animal hunted.
6. Learn to track and always follow-up on game shot at.

I am sure you can add others that I have forgotten - - - add and apply them. With a little work and thought, we can avoid wounded game and can build an excellent reputation for the muzzle loading hunter. Let's enjoy hunting in the way of our forefathers and do it as effectively as they did.