

Spring & Summer SSAC Scores
Fall SSAC Rules

# Quivers & Quarrels

The Official Publication for the Archery Community of the Society for Creative Anachronism, Inc

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On Target: Moving Targets

Beginning Archery in the SCA

Crossbow with a Leonardo da Vinci Influenced Built-In Spanning Lever

The Poison Arrow Series, Part 3: The Ruby Desert Rose and the Toxic Apocynaceae Family

Local Practices pg. 28

Quivers & Quarrels

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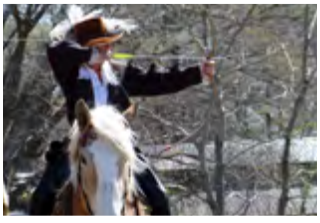


*Photo credit: Viscountess Elashava bas Riva*



*Photo credit: Countess Dulcia MacPherson*



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Horatius Cocles Defending the Sublician Bridge, anoniem, c. 1550. *Rijks Museum*.

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About our cover:

*Photo: Lady Marissa von Atzinger (Marissa Williams)*

Previous issues of Quivers & Quarrels are available in the "files" section of https://www.facebook.com/groups/QuiversQuarrels/, at enewsletter.sca.org/archery-community.html, from http://scores-sca.org/qnq, or by request from the Chronicler at qqchronicler@gmail.com

# Providing an Incentive



Mighty Archers of the Known World,

I have been putting together Quivers & Quarrels for a few years now. I must admit, there have have been editions of this magazine that I have worried about whether I will have enough content to produce an issue. I have never accepted that a lack of content is a valid excuse to not produce an issue. When the worry over content happens, I am reminded of discussions I have read between Laurels about the difficulty in encouraging papers in the Arts & Sciences.

Writing is a scarce art.

There is an abundance of knowledge in our community. If you have the most obscure question about traditional or historic archery, all you have to do is post your question in one of our community forums. If you do not get an answer, you will most likely get a lot of direction to help you find an answer. The great beauty of the written word is that it becomes a nearly immortal record of knowledge, and that record can be shared much farther, much wider, and for much longer than any other form of transmitting knowledge.

We must find a way to encourage the art of writing. While writing isn't necessarily a period pursuit in the way that we think of period pursuits, it is an essential way to share knowledge. While we practice our martial activity, and while we gain new skills and new knowledge, we must also be thinking about how to share it.

It is not enough to keep knowledge inside our heads, which makes me grateful for this publication.

Yours in Service,
THL Sayako Enoki

# On Target

*"On Target" is a recurring archery column featured in the Aethelmearc Gazette. To read more "On Target" entries and other articles related to archery, please visit http://aethelmearcgazette.com/category/archery/*

By THL Deryk Archer

## On Target: Moving Targets

A moving target will add fun to your outdoor shoot. Imagine a pig or a deer running across your field.

Take two 4 foot long 2 x 4's, drill two holes in the bottom of each board, and hammer in two very long nails. Next, take a set of bolt cutters and cut the heads off the nails. This turns them into the spikes. The spikes hold the boards up right so you can set this target up by yourself.



*(Above Left) Nails in the end of the board.*
*(Above Right) Nail heads in the board clipped off to make a stake.*
*(Bottom Left) Twisted rope.*
*(Bottom Right). Twisted rope attached to the stake with guy wires.*



Next, run suspension wires off the boards. Take a 50 foot piece of rope, double it and twist it to make the rope stronger so it will not sag when you pull the target across it.

Next, take a hard cardboard tube and cover it in camo duct tape. This'll make the tube disappear into the background. Next, zip tie the wings to the tube and then zip tie the tube to the top of the pig. Then, take the twisted clothesline and run it through the tube and tie it to the upright 2x4s.

Run a pulling wire from the nose of the pig back behind the firing line to the marshal. Pull the pig across the range to give the illusion of flight. The pulling wire is over 100 feet long, allowing the marshal to call the line and pull the target at the same time.

At Hornwood's Scarlet Guard Inn earlier this month, I ran a range just for fun with these targets. I made a flying pig, and everybody enjoyed the pun all day long. Click on this link to see a demonstration of the moving pig target.

This month's safety tip: check out the land around your range. I found a hole in the ground that was well over a foot and a half long and almost 10 inches deep. The hole was full of dead grass and leaves; it was deceptive how deep it really was. If someone had stepped in it, they would've twisted an ankle. I marked it with some fluorescent orange tape to make sure no one was hurt.



*(Above Top) The pig attached to the twisted rope using a disguised cardboard tube.*
*(Above Bottom) The finished flying pig target.*

Until next month, in service,

THLord Deryk Archer

# Crossbow with a Leonardo da Vinci Influenced Built-In Spanning Lever

*By: Baron Sir Jon FitzRauf, OL, OP, RMC*

Several years ago, I read a reference to Leonardo da Vinci designing a crossbow with a built-in spanning lever. Since then, I have searched for further information on his design. I finally located an article about it on-line. The Museum Leonardo in Milan Italy, which houses replicas of many of his inventions, has built a working example of this crossbow and demonstrated it use. The reconstruction was based upon his drawings in his Codex Atlanticus folios 143r, 153r and 155r from about 1482 (*see images this page*).



*(Above ) Leonardo da Vinci drawing showing a bottom view of a crossbow with a built-in spanning lever from the Codex Atlanticus.*

*(Bottom) Top view of the crossbow with a built-in spanning lever from the Codex Atlanticus.*

Historical

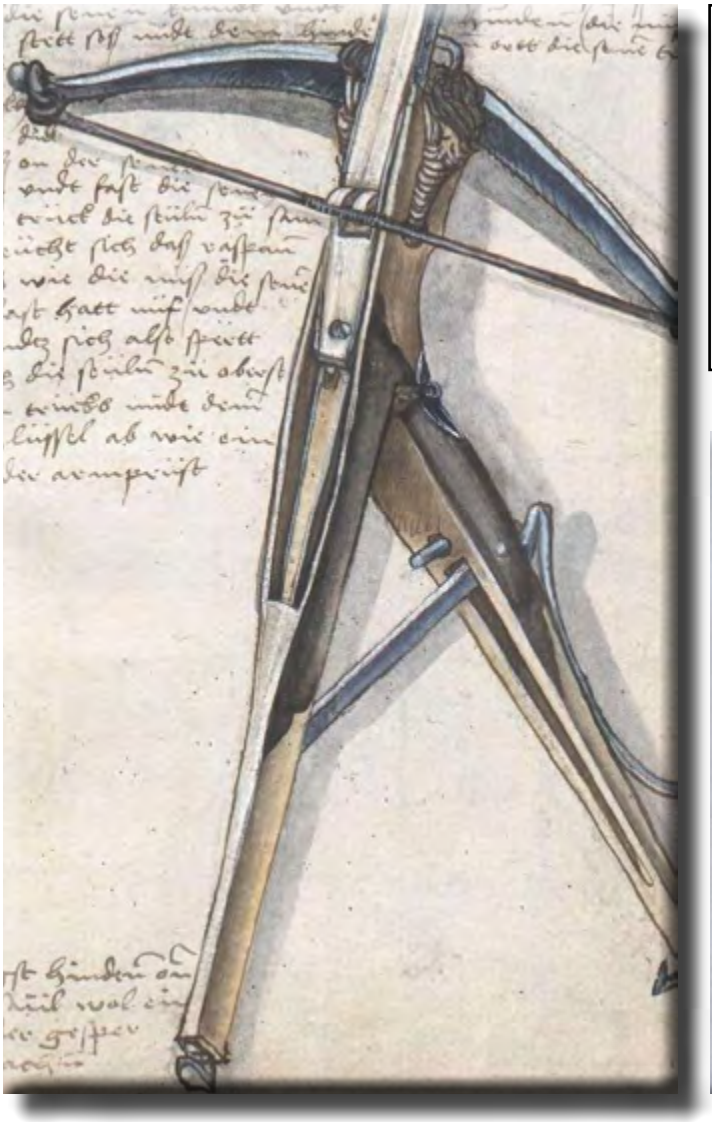
Their working model may be seen at: http://www.leonardo3.net/en/l3-works/machines/1482-rapid-fire-crossbow.html

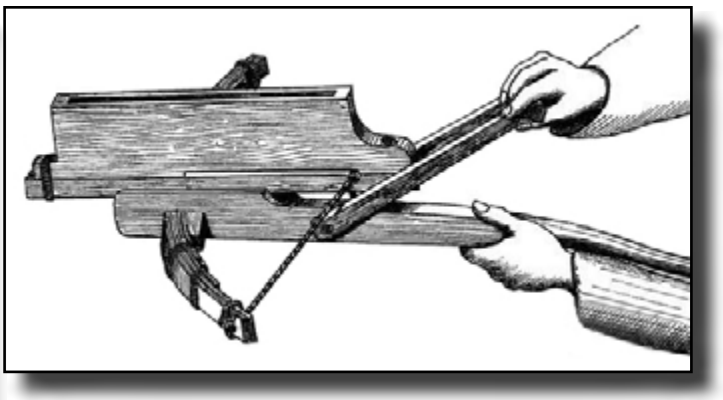
There is a YouTube video in Italian of a demonstration of three of the several methods of spanning and shooting crossbows. It demonstrates the use of a goat's foot, a cranequin and the da Vinci: https://www.youtube.com/watch?v=4wXCF3UEkdc

If you watch the crossbow spanning and shooting video, you will see how much faster and easier the da Vinci was to span and shoot than the other spanning methods. These bows would have been around 300 to 400 pounds draw, much too heavy to span unassisted.

In my research for the da Vinci crossbow, I ran across other related examples of crossbows using a built-in spanning lever. The built in spanning lever is similar in action to the separate and removable spanning lever, which attaches temporarily to the front of the stock, pushes the string back to the lock, and is then removed (*see image bottom right*). However, the da









*(Left) German drawing of a crossbow with a spanning lever, c. 1505.*
*(Above Right) Drawing of a Chinese repeating crossbow with a spanning lever.*
*(Bottom Right) Modern replica of a late 16th century English military crossbow with a spanning lever, made by Leo Todeschini. [http://www.todsstuff.co.uk](http://www.todsstuff.co.uk)*

Vinci lever is attached permanently within the stock behind the lock and pulls the string back to the lock. Examples of similar levers may be seen in late period pellet crossbows or stone-bows. The Chinese repeating crossbow, or chu-ko-nu, uses a built in spanning lever consisting of arms on either side of the stock to pull back the magazine which pulls back its string (*see image above right*).

There is a drawing from 1505 of a German crossbow very similar to da Vinci's design (*see image above left*).

If the da Vinci design had been widely manufactured and used, its faster rate of shooting would have made this crossbow a very lethal weapon on the battlefield.

The built-in spanning lever was also used in the latch or latchet crossbows used by the English mounted troops on the Scottish border in the late 1500's. These were easy to use from horseback and could be aimed and shot with one hand. The English crossbow maker Leo Todeschini currently makes replicas of these latchet crossbows (*see photo above bottom right*). Examples of his work may be seen at: [http://www.todsstuff.co.uk/crossbows/crossbows-spanning-methods.htm](http://www.todsstuff.co.uk/crossbows/crossbows-spanning-methods.htm)

A YouTube video of Leo shooting one of his latchet crossbows may be seen at: [https://www.youtube.com/watch?v=tW4lYh8Yg38](https://www.youtube.com/watch?v=tW4lYh8Yg38)

During the time I researched this crossbow, my interest changed from academic to personal and practical. Due to old age (75) and arthritis, I now had a need for an easier, but less slow, method of spanning my crossbows, other than by hand. I have used levers and goats-feet for my crossbows that reduce the effort required. However, they are slow and a bit awkward to use.

Most of the designs used in period used a steel lever arm that pivoted behind the lock. This had a short lever attached to it that moved the rolling nut type of lock forward to engage the string and then draw it back to its proper shooting position. This gave a mechanical advantage that greatly reduced the force required to draw back the string. When the long arm was lifted forward, the metal lock mechanism slid in a slot in the stock that guided the lock to engage the string. Then, pressing down on the long arm pulled the lock back to its cocked position and was then ready to shoot. This only works with a rolling nut type of lock, because the string is pulled straight back and is not pressed down. Both push-pin and clap-lock types of lock need the string to be pushed down into the slot.

I decided that I needed to build a crossbow like the da Vinci design. However, since I lacked the metalworking skills required to build a replica of one, I would have to build it in a way that did not require the skills of da Vinci, nor need high-level metal working skills or a metal working workshop. A design was needed that could be done by someone with somewhat better than average skills and tools. The principle of the da Vinci mechanism is fairly straightforward. It uses a long lever hinged to the stock to operate a shorter lever, which moves the lock forward to engage the string, and draws it back to the shooting position. I decided that placing this mechanism inside the stock was more complicated than necessary. Therefore, I used two long levers, on the outside of the stock to operate two short levers outside the stock. The long levers were joined at the rear by a block of wood the width of the stock. They were attached to the stock, behind and below the lock by a quarter inch rod with threaded ends that went through the stock and protruded on both sides. This was secured with lock nuts. The ends of the rod passed through the front end of each of the two long arms, which would now pivot on it. The short arms were attached with lock nuts and bolts near the front of the long arms. I secured and separated the short arms with a spacer made of a two-inch bolt inside a length of quarter-inch tubing attached between them. The ends of the short arms had an angled slot cut in each of them to catch and hold the string, which is then pulled back and engaged with the rolling nut.

I used a lock nut on my spanning device because I needed to take it apart easily to make adjustments. If you want a more period appearance, you can peen over the ends of the bolts after shorting them to the correct length.

*(Below) The FitzRauf version of the da Vinci crossbow.*











*(Top) Wedges secure the prod, which is made of laminated Power-Tuff.*

*(Top Right) The side plates are made of Kydex.*

*(Center Right) The long spanning lever in the forward postiion. The ends of the short pulling arms are just touching the two angling blocks, which center the arms on the string.*

*(Bottom Right) The brass tube spacer keeps the pulling arms at a set distance from the stock and causes the pulling arms to lift up over the string as it moves forward at the end of its travel.*

The critical elements are the placement of the pivot point of the long arm, and the attachment point and length of the short arms. The pivot point for the long arms should be as far below the top of the stock as possible without interfering with the trigger mechanism. These placements will vary from crossbow to crossbow.

## The FitzRauf Version of the da Vinci Crossbow

The stock of my crossbow is made of cherry, is 42 inches long, draws 110 pounds, and weights 7.25 pounds. The prod is width tapered and made of laminated Power-Tuff. The wedges that secure it can be seen in (*see photo top left*). It has a double nock for the use of a bastard string. It has a three-axle lock mechanism with a rolling nut and uses a trigger instead of tickler. Pulling the string seen in front of the trigger resets the lock. The top of the stock has an inlay of white high-density polyethylene (HDPE), which resembles ivory and reduces friction, with a bolt grove. There is also a decorative overlay of HDPE behind the rolling nut.

The string for resetting the rolling nut lock is in front of the trigger. The front end of the long lever arm is seen with the short pulling arms with their spacer. It has a decorative overlay of white HDPE behind the rolling nut. The side plates are of Kydex (*see photo top right*).

The long spanning lever is in the forward position with the ends of the short pulling arms just touching the two angled blocks, which center the arms on the string (*see photo center right*). The angled blocks (*see photo bottom right*) force the pulling arms into alignment



*(Top Left) The brass tube spacer keeps the pulling arms at a set distance from the stock, and causes the pulling arms to lift up over the string as it moves forward.*

*(Top Center) When the arms are pulled back, the slots drop onto the string.*

*(Top Right) The arms pulled back to engage the string with the nut.*

*(Bottom Left) The string released from the pulling arms.*

*(Bottom Right) The double nocks on the tip of the prod, allowing for the use of the bastard string.*

with the string so that it is always centered in the same spot each time. The brass tube spacer keeps the pulling arms at a set distance from the stock, and causes the pulling arms to lift up over the string as it moves forward at the end of its travel (*see photo top left*). When the arms are pulled back, the slots drop onto the string (*see photo top center*). This is an important adjustment. If the spacer is set wrong, the arms will either pass under the string, or the slots will not drop and engage the string when the arms are pulled back. The edges of the slots should be rounded off to avoid wear on the string.

The arms pulled back to engage the string with the nut (*see phto top right*). After the string is set, the arms are moved forward slightly which releases the string, they are lifted off the string by hand and then the long lever is lowered completely and the pulling arms return to their starting position (*see photo above lower left*). The double nocks can be seen on the tip of the prod (*see photo above lower right*). They allow the easy use of a bastard string to draw back the prod for attaching the shooting string. The bastard string is seen pulled back to the rolling nut. This pulls the prod back allowing the shooting string to be slid into its nock.

In the past, when shooting my other crossbows using a separate cocking lever, I would only get off three shots in a thirty second timed end. This was starting with the crossbow spanned and loaded. With the built in spanning lever I manage four with a few seconds left over. With more practice I should be able to increase this to five. The increased physical weight seems to make the crossbow more stable while shooting and my groups in the gold a twenty yards are tighter than before.

# Beginning Archery in the SCA

*By: THL Robin Arthur Kyrke, Forester*

You step up to the line, standing shoulder-to-shoulder with your fellows. Carefully you select an arrow and bring it to rest across the bow, fitting the nock to the string. Looking up, you focus on the target. Keeping your eyes on the mark, you raise your bow and start drawing back the bowstring. As the arrow is pulled back, you feel the brush of a fletch against your cheek. Ignoring the soft feather, you concentrate intently on the target as your bow hand moves into position. A half-breath of air into your lungs and your fingers relax. The arrow takes flight, beginning its long arc towards the distant target. Then time itself seems to slow to a crawl as your missile moves gracefully through the air, straight and true. As it nears its destination you have a feeling, a feeling that this is "IT"... and then it hits! It strikes the target squarely with a clear "thud". Not just any thud, but the very special sound an arrow makes when it strikes the gold. A perfect shot! The others, your comrades of the bow, hear it and know what it means. Then there is much back-slapping and congratulations. Well done!

Sounds exciting, doesn't it? But you've never even picked up a bow before?! Hopefully this article will help get you started in the style of archery that we practice in the Society and have a great time doing it!

First of all, do NOT rush out and buy just any bow and arrows! Your future enjoyment of this sport is going to be dictated in part by your first experiences. If you buy equipment not suited for you, or just equipment in bad repair, you will lose interest REAL fast.

## Technical

You should first seek out some help and ask questions. Talk to the archery marshal or other archers in your group. Write a letter or an email to your regional archery marshal. Or read this article. In these ways you should be able to get enough advice to help you choose what equipment to purchase and how to maintain it and the basic rules of SCA archery.

*(Below) Archers on the line. Photo: Wanda Ostojowna*



## Archery in the SCA

The spirit of medieval archery is what archery in the SCA is all about, to try to get a feel for what archery MIGHT have been like in the Middle Ages. Any equipment that we use must remain true to this spirit. We use wooden arrow shafts with real feathered fletches, shot from recurve or longbows and medieval-styled crossbows. We do NOT use sights, stabilizers, kisser buttons, trigger releases, or bows with compound pulleys. These items convey an unfair modern technological advantage. They did not have such devices in period, so we do not use them. Bows constructed with modern materials, however, are allowed because their performance is still very much the same. Forbidding the use of these bows, and only allowing handmade bows of period materials and techniques, would make shooting archery expensive and labour-intensive, doing little to foster our art.

*(Below) Archers inspecting bows. Photo: Wanda Ostojowna*



The types of targets and tourneys in the SCA are as varied as the imagination! There is something for everyone, from woods walk ranges with varied distance targets to moving targets with ropes and pulleys. There are several competitions that are run Society-wide with fixed sets of rules, enabling anyone anywhere to shoot and send in their scores for comparison. Hopefully you will find many that YOU enjoy!

## Choosing a Bow

Choosing what style of bow you wish to shoot will be one of the most important decisions you make. There are just so many different types to choose from! Longbow, recurve, magyar, or crossbow. Should it be a take-down or a one-piece bow; self-bow or laminate; wood, fiberglass or both? Do you want something to match your persona or just something to enjoy on the range? Do you wish a fancy (expensive) or simple (cheap) bow? All very important considerations indeed and not to be taken lightly.

As this article will deal with first-time archers, the primary consideration will be expense and ease of use. Would you want to part with $600 for a bow and then after shooting it twice decide that archery just isn't for you? I didn't think so.

Magyar bows shoot well, but depending on the model, can be very expensive. Expect to pay anywhere from $300-600 for a new one. Medieval reproduction crossbows are also expensive and tricky to get shooting straight and true. Longbows can be found for a good price but are a little harder to master and more tiring on the arm muscles. In my opinion, the best bow for a beginner is just a simple recurve bow. They can be relatively inexpensive and are easy to shoot. The recurved limbs make drawing the string feel much smoother than that of a longbow and there is considerably less hand shock on release as well. Too much hand shock from a bow means less energy propelling the arrow and it can make using the bow very fatiguing. For a beginner, this can be very frustrating!

The next important consideration is choosing the draw weight of the bow. The draw weight is the amount of force (in pounds) exerted by the bow when it is held at full draw. This will be the energy that is transferred into the arrow when the string is released. Now everyone's draw length will be different and this

affects the draw weight. The farther you pull back the bow, the heavier the draw weight becomes. So in order to make it easier to compare bows, a standard for marking the draw weights on bows has been adopted. On just about every bow you will find the draw weight marked on the lower limb, rated at a draw length of 28 inches. Once you know your own draw length and what weight you can pull, you can easily compare different bows.

To find your draw length, get some assistance from a friend. Draw your bow back to your anchor point, the place on your face or head that you consistently draw to, and have your friend measure quickly from where the arrow nocks onto the string to the very front of the bow. Now ease the bowstring back to its resting position. Never release a bowstring with no arrow in place! This is called "dry-firing" and with no arrow to absorb the energy, all of it goes into the limbs, possibly causing serious damage to the bow.

*To find your draw length, get some assistance from a friend. Draw your bow back to your anchor point, the place on your face or head that you consistently draw to, and have your friend measure quickly from where the arrow nocks onto the string to the very front of the bow.*

You should find a bow that you can draw comfortably and hold for 10 seconds at your anchor point without shaking too much. If you shake a little, with regular practice your muscles will strengthen sufficiently to properly control the bow. If you have access to an archery tackle dealer or range, it may be possible to try out (or even rent) several types of bows with different draw weights and find what suits you best. If your SCA group holds regular archery practices you may be able to ask other archers about their bows and they may allow you to try pulling them. Then you will have a much better idea of what to look for for yourself.

If you are a taller gentle, do not try to pull a bow with short limbs all the way back to your anchor point. The short limbs will not be designed to be pulled back so far and will be under enormous stress. Too much of that treatment will lead to breakage.

Now that you have a better idea of what to look for, there are many places that you can purchase bows: custom ordering from the manufacturer, archery equipment dealers, SCA merchants, friends, magazine ads, on the Internet, even garage sales. But a word of warning!!! If you set out to find a really CHEAP bow, remember that you WILL get what you pay for. Unless you know what defects to look for, you may wind up buying a bow that may fail on you unexpectedly and catastrophically! Protect yourself by taking someone with you that has some experience with bows. Your friendly neighbourhood archery marshal should be able to help with this. Seek them out!

## Selecting Arrows

Now that you have obtained a bow, you need arrows to shoot! Any wooden arrows with feathered fletches are legal for use in the SCA but you still have some decisions to make. Cedar, pine and ash are the best woods for use in arrow shafts and they can be obtained fairly easily from an archery dealer. You can choose to use three or four feathers on your arrows, plastic nocks or self-nocks (grooves cut directly into the wood for the bowstring), field points (pointed tips for better target penetration) or target points (rounded tips for use with lighter bows). You can even get fletches in a variety of colours and shapes and coloured stains for your shafts to fancy them up and make them easier to identify. You can buy them "off-the-rack" as complete arrows, or you can buy everything separately and make them yourself.

However, there are two important things that you need to know before you buy ANY arrows. Firstly, if you plan on making your own arrows do NOT use dowels bought from a hardware store or lumberyard. It is vitally important to your safety that the grain of the wood in an arrow shaft run completely from one end of the shaft to the other. Commercially available arrow shafts are cut this way but dowels are NOT. If the grain of the wood runs perpendicular to the length, across the diameter of the shaft, there is a very serious danger of the arrow exploding when shot from a bow. There is a tremendous amount of energy stored in a bow and when the string is released, the arrow bends before it starts to move. If the grain is the wrong way at any point in the shaft, it will break there



*(Above) Arrows. Photo: Wanda Ostojowna*

and shatter the entire shaft. The potential for injury is great, with wood splinters flying everywhere. So please....buy only commercially made arrow shafts.

Secondly, the most important characteristic for the true flight of an arrow is its "spine". The spine of an arrow is the amount of stiffness in the shaft, measured in pounds to make it easier to match shafts to the draw weight of your bow. As I mentioned above, an arrow bends upon release of the bowstring and how limp or stiff your shaft is plays a big part in the arrow's trajectory out of the bow. If the arrow is too stiff it will bend very little and shoot to the left (for a right-hander). If the arrow is too limp it will bend more and fly to the right. It will also "fishtail" as the arrow flies, first bending one way then springing back and bending the other way again and again until the arrow reaches the target. Another warning here - if the arrow is far too limp, it will bend enough to break and shatter. When the spine of the arrow is just right, the arrow will bend around the bow when the string is released, but it will straighten immediately after passing the bow. It will remain straight for the rest of the flight to the target. This is also known as "Archer's Paradox".

A good rule-of-thumb for selecting the right spine of shaft for your bow is take the draw weight of your bow at 28 inches, add five pounds of spine for every inch that you draw over 28 inches or subtract five pounds of spine for every inch under 28 inches. If you are using a longbow with no arrow shelf (shooting off of your hand), subtract an additional five pounds. However, if you are already using a bow rated at 35 pounds and you draw less than 28 inches, you do not need any shafts spined lower than 30 pounds. As an example, if you are using a bow rated at 47 pounds and your draw length is 29 1/2 inches you should be looking to buy shafts spined between 52-57 pounds. You do not need to match the spine exactly, because of the nature of wood it will almost certainly be impossible to get all your shafts matched precisely.

One other aspect of arrows to consider is the physical weight. Arrows are normally weighed in grains, allowing for fine accuracy in measurement. If the weight of the arrows in a group varies too much, the lighter arrows will shoot slightly higher than the heavier ones. If you can get the weights of your arrows to differ less than 20 grains, you have a fine set of matched arrows. If the weights vary less than 5 grains, you have a great set!

**Other Essentials**

Besides a bow and some arrows you need some other pieces of equipment, some for convenience and some for your own protection.

One very important accessory is a glove or a tab. The pressure of the narrow bowstring against your bare fingers at full draw will numb your fingers and with shooting on a regular basis, there is the very real risk of nerve damage. Using a glove or tab will also reduce the formation of callouses from regular shooting. Gloves should be slightly tight-fitting to prevent them from

slipping after releasing the bowstring. Loose gloves may cause you to fumble. Tabs are specially shaped pieces of leather with loop over one finger of your shooting hand to hold the tab in place. The tab is placed between your fingers and bowstring before you draw. Personally, I have never liked using a tab as it is especially awkward to use for me. However, they are very inexpensive and if your money is tight, it is much better than using bare fingers!

As you learn to shoot, you may find the bowstring hitting the forearm on your bow hand. Not only will this hurt, but after several hits there will be some bruising. Leather armguards will prevent this damage and do not cost much at all. Their design is even simple enough to be able to make your own. And don't think that it won't happen to you! I have been shooting for almost 12 years now and still hit myself there occasionally!

For convenience, a belt quiver will hold your arrows where you can easily reach them without having to stick them into the ground at your feet. You may wish to use a back quiver but these can be awkward and expensive to buy. Until you learn to shoot well, I would advise you to use a belt quiver.

That's all you really need! Anything else like bow cases, boxes to store your arrows, perhaps an archery bag to transport your bow and accessories are nice to have but you do not HAVE to have them. You can save some money now by just buying the basic essentials until you have decided that you really LIKE archery. After that, you just may want to start making all your own stuff!

## Maintenance

Now you should have everything you need to start shooting archery. Here I would just like to give you some tips on taking care of your equipment to keep it safe and to make it last longer.

Never, ever leave your bow strung for long periods of time. It is okay to leave it strung for the day at an event but you should unstring it at the end of the day. Leaving it strung for weeks or even months will result in shortening the lifespan of the bow due to long term stresses on the bow limbs. It will lead to fatigue and cracking and also to "string follow" which is a condition where the bow limbs will remain in a strung position, even when unstrung. Without the limbs ability to snap back into their proper position when

*(Below) Archery equipment in between ends on the range. Photo: Wanda Ostojowna*



the string is released, your bow's performance will be drastically reduced.

Treat your bow with respect. Rough handling will put dents and dings into the wood or fiberglass, weakening those areas. Store it in a safe place where it cannot be accidentally damaged. Store it horizontally if you can, unless you have a case for it.

The same goes for your arrows. Don't store them bunched tightly together, this will compress the feathers badly and possibly warp the shafts as well. If your feathers start to look a little pushed down, you can breathe some new life into them by gently steaming them. If your arrow shafts do warp slightly, you might be able to straighten them gently by hand. Be careful, too much pressure will break the arrow. An arrow straightening tool will do a much better job, but it can be expensive.

Keep your bowstring well waxed. This will lengthen its life by preventing the small amounts of fiber fraying that will lead to string breakage over time. Use a proper bowstring wax whenever the string feels dry or shows signs of small frays. Work it in well with your fingers, creating a bit of heat by friction to soften the wax.

Be prepared! If you are going to go to an event, take a few extra things with you to ensure that you will be able to participate completely. Carry a few extra arrows, as you may lose or break some. Carry extra arrow tips and nocks and glue to replace any that get broken or fall off. And take an extra bowstring! Nothing ruins a day of archery faster than a broken string and no way to replace it.

Learn to inspect your own equipment for defects. Have your local archery marshal show you how and have him explain what he is doing. It really is difficult to convey this sort of knowledge by the written word. You can certainly check for obvious cracks in your bow and arrows, fraying bowstring, broken nocks and such. However, you really do need to be shown some of the finer points to be able to judge limb-twisting, string-seating, delamination, etc.

Remember, the archery marshals are there to serve YOU and to help keep everyone safe. Do not be afraid to approach them with your questions. I am more than certain they will be glad to help!

Hopefully you now know a little bit more about archery equipment for SCA use. Now get out to your nearest archery range and enjoy!

*(Below) Archers on the line. Photo: Lady Marissa von Atzinger*



# The Poison Arrow Series, Part 3
## The Ruby Desert Rose and the Toxic Appocynaceae Family

*By: Gehrig Reimundson*

This article further explores the continent with some of the most extensive arrow poison use in the world, focusing on members of the Apocynaceae family. The Apocynaceae family makes up the bulk of the arrow poisons used in Africa, many of which have been in use since the stone age, and are still in use today. This article will also touch on how these poisons fared in comparison to other forces, including Medieval and Renaissance age Europeans.

### The Plants

Across the Middle East and most of the African continent, are many extant genera and species of the Apocynaceae family with deadly sap. These have been used from the stone age to today to poison weapons for both hunting and warfare. The most prominent of these saps include desert roses of the Adenium genus, members of the Acokanthera genus, often simply known as variants of "poison bush" or "poison tree", the Strophanthus genus called "twisted cord flower" or "poison rope", the Pachypodium genus, and the "milkweed" Asclepias genus.

Apocynaceae is a family of flowering plants commonly called the dogbane family. They tend to have waxy, long leaves with showy, radially symmetrical flowers with five petals. The flowers come in colors ranging from pure white, to pink, to ruby red. Members of these genera are found all across Africa and in parts of the Middle East, where they have been used extensively as arrow poisons. This family occurs all over the world, but the most toxic members flourish primarily in Africa.



It is worth noting that probably the most famous toxic member of this family is Nerium oleander, a popular garden plant with well-known toxicity. Interestingly, I have found little evidence that oleander has been used as an arrow poison, historically or otherwise. Also, its toxicity is often overestimated and misunderstood, making it far weaker than the above listed plants.

Historical

### The Active Toxins

Some members of the Apocynaceae family contain cardiac glycosides as their lethal toxic component. The most common and most powerful is ouabain, scientifically known as g-strophanthin. There are other strophanthins, as well as digitalin, asclepin, and other cardiac glycosides of the cardenolide type, with over 200 known cardiac glycosides in general. As is implied by the name, these toxins disrupt the function the heart, causing cardiac arrest.

Ouabain has been well studied for potential medical applications, and thus a substantial amount is known about its lethality. It has a lowest found lethal dose (LDlo) among monkeys at 0.102mg/kg when injected intravenously (IV). With cats an LD50 (lethal dose in 50% of instances) is 0.1 mg/kg both IV and IP (into flesh), while with guinea pigs the LD50 is 0.21 and 0.228 mg/kg IP and IV respectively.

*(Left) Adenium obesum. Photo: Creative commons.*



*(Above) Strophanthus preussii. Photo: Creative commons*

A probable oral lethal dose of 5mg for a 70 kg human is estimated in pure form (EPA 1998).

Notably, ouabain-based poisons are used for hunting game as large as elephants and hippopotamuses, and are therefore one of the more deadly plant based poisons in the world. Indeed, ouabain is based on the Somali word "waabaayo" and its French form "ouabaio", which translates directly to "arrow poison." The toxin enters the bloodstream so readily that even grazing blows have been known to cause death. In most instances the cardiac glycoside based Apocynaceae poisons are combinations of many different individual cardiac glycosides with similar effects that work well in concert. Desert rose, for example, has 30 different cardiac glycosides, 15 of which were previously known, while the other 15 were new to the genus, primary oleandrigenin-beta-gentiobiosyl-beta-D-thevetoside. In general the ouabain lethality standard applies well to these mixtures in terms of effective lethality.

## Symptoms

Most cardiac glycosides have very similar or the same symptoms, with the usual cause of death being cardiac arrest as mentioned above, with respiratory failure being possible as well. Leading up to that point, cardiac symptoms include irregular heartbeat, ventricular fibrillation, tachycardia, palpitations, a feeling of chest pressure and/or shortness of breath, and otherwise slowed, sped, or unstable pulse. Other symptoms include general weakness, lethargy, drowsiness, lightheadedness, dizziness, nausea (with or without vomiting), headache, confusion, and blurry vision often with light sensitivity or colored halos around lit objects. At higher dosage poisoning, before death occurs, fainting with or without coma and seizures are sometimes found.

Like most arrow poisons used in warfare, and especially used in hunting, cardiac glycosides are fast acting when introduced into the blood stream. Often in hunting, after the initial arrow or spear coated in the toxin strikes the target animal, it is trailed as it weakens to be finished off as symptoms effect it. However, it is notable that in many cases when hunting larger thick skinned game like elephant, rhinoceros, or hippopotamus, the poison itself is what does the killing. In such instances, many poisoned projectiles are used to get enough toxins into such a large target to be lethal via the mg/kg toxicity. Such poison is reportedly capable of killing large game in less than twenty minutes. As with many arrow poisons, the area around the wound must be cut away to reduce the risk of self-poisoning from ingesting

toxified meat. Against human targets, it is clear that these symptoms are ideal for warfare as they directly weaken the target before death as well as at nonlethal doses.

## Application

Many traditional tribal societies still use poisons on spears and arrows in both hunting and intertribal warfare, and in some cases larger scale warfare as well. Even among modern poachers, poisoned arrows are often favored as they are not loud like firearms which might alert authorities to their activities. Indeed, on YouTube with a scene taken from Ray Mears World of Survival by the BBC, we can watch desert rose arrow poison being made as it has been for thousands by the Hadza and other cultures for hunting large game. It is a simple process of digging the pulp of the large root of the desert rose with a sharp hard object, squeezing the juice from the pulp into a vessel and boiling the juice down to a dark gummy sludge. The sludge is then applied to the flat of the arrow and more substantially on the shaft behind the head, where it is all molded smooth.

*Many tribal societies still use poisons on spears and arrows in both huntin and intertribal warfare, and in some cases larger scale warfare as well.*

Species from the Acokanthera and Strophanthus plants are similarly still in use today, and while they are applied on the flat of the arrow but mostly behind it, there are some differences in how the poison is made. In the case of Acokanthera, chips of the bark and the roots are often boiled for hours in water until forming similar thick black paste to the above desert rose recipe. Some species of Strophanthus have their seeds crushed into a paste with water or saliva added, often with other saps to make it adhere better as well as to increase toxicity, or have their sap used directly. The raw sap of any of these plants (especially the root), including those not discussed in detail, is often enough to poison a weapon, and the act of boiling down such sap is sufficient to make it more lethal.

Application of these arrow poisons was widespread among African peoples not just in hunting, but also in warfare, including large scale warfare. Whole armies full of archers and spearmen often had their weapons coated in such toxins. Throughout global history, whole armies rarely poisoned their weapons, which begs the question of why and how African armies did. The answer is because they could. The issue is largely a logistical one. In most instances, in most parts of the world, poisoned plants and animals of sufficient toxicity to be useful in warfare are not particularly common or widespread, often difficult to cultivate, or present substantial difficulty in extracting the toxins. In many parts of Africa, however, these plants bearing deadly poison grow commonly in great quantity, and the toxins are easy to extract and apply safely, effectively making them inexpensive options. Thus, whole armies were able to afford to equip their troops with poisoned weapons. It is also worth mentioning that few African cultures had any socio-cultural mores, taboos, or ethical quandaries about the use of poisoned weapons as are sometimes seen elsewhere.

## More Sources and Additional History

Poison enhanced archers from Africa have been famed since the Sudanese/Kushite/Nubian archer mercenaries were employed by the Egyptians. Evidence daties all the way back to the 6th Dynasty inscription by Weni the Elder in late 2300s to early 2200s BCE:

> *"When his majesty took action against the Asiatic sand-dwellers, his majesty made an army of many tens of thousands from all of Upper Egypt: ...; from Lower Egypt: ...; and from Irtjet-Nubians, Medja-Nubians, Yam-Nubians, Wawat-Nubians, Kaau-Nubians; and from Tjemeh-land."*

Similar Sudanic archers later faced Rome allied with the Carthaginians, defeated the Persian incursions under Cambyses the II circa 525 BCE, and later formed the "Nubian Dam", which was to resist the expansion of Islam past North Africa for centuries.

From David Nicolle and Angus McBride 1991:

> *"Rome's Enemies 5: The Desert Frontier.*
> *There is some indication that the arrows of Sudanic bowmen (including those fighting Rome) were often poison-tipped, a technique used elsewhere by Africa's archers, well into the 19th century… Later Sudanic based forces like the Blemmye also deployed horses and camels for their raids over the Egyptian frontier, and the poisoned arrow tactics of their predecessors found ready employment."*



*(Above) Nubian archers, from about 2000 B.C. Bows were between six and seven feet tall, and arrows were sometimes poisoned. Photo: Creative commons.*

Poisoned arrows were recorded across the centuries, and were used by the Ndongo, Azande, and Fulani, while Mossi peoples often tipped their cavalry lances with the same poisons as their arrows. This was a practice echoed by the Mali and Soghay empires, who often fielded three archers for every spearman. The Changamire Dombo, who defeated the gun and armor equipped Portuguese in the 1680s and 90s, are also recorded as using poisoned arrows, which largely contributed to their victory.

The peoples of Western and central, more tropical Africa are also well known for their poisoned arrows both in antiquity to the more modern eras. The Marka in particular would often rain unfeathered poisoned arrows, shot two at a time in volleys on foes. Poisoned arrows were also popular among elite archers in the armies of the Kongo people, while the archers of Sierra Leone often carried two quivers full of poisoned arrows into combat. Indeed, in 1568 such poison armed archers were able to repel famous English privateer Sir John Hawkins, who had come in hopes of capturing slaves. This was similar to how they had been dealing with Portuguese raiders from the 1400s all the way into the late 1600s (J Thornton, Warfare in Atlantic Africa, 1999, pp. 43–45).

It is often speculated that a major reason for the common frequency of poison among African archers is to make up for the low draw found on their bows. A notable exception exists in Kenya, where bows with up to 130 pounds of draw were often used to hunt large game to get through their thick bullet resistant hides with poisoned arrows, making them one of the strongest bow types in the world.

There were many notable clashes between the poison wielding African peoples and the medieval Europeans, notably the English and the Portuguese, as mentioned in the book Central Africans, Atlantic Creoles, and the Foundation of the Americas 1585 by Linda Heywood and John K. Thornton:

*"Traditional arms however remained important, and on some occasions waterborne incursions by Portuguese and British*

*vessels were sharply repulsed by African naval forces. In the 15th century for example the Portuguese engaged in a series of ruthless raids against the Senegal coast, hunting for slaves. While powerful on the open sea, the Portuguese ships were less impressive in the shallow waters near to shore. Using war canoes the African tribes of the coast fought back with lance, club, sword, and especially poisoned arrows. Poisoned missile fire from fast moving canoes neutralized Portuguese armor and decimated the European naval crews. The Portuguese were eventually forced to abandon raiding and set up peaceful trading arrangements with local African rulers using diplomacy"*

Poison arrow use is also well recorded as being used on the Arabian Peninsula, where species of both desert rose and Acokanthera grow. One of the oldest written records of such peoples using arrow poisons can be traced back to Pliny's Natural History Book 6:

*"…for these Arabians join Bottles made of Ox Leather, two and two together, as if they were a Bridge, and exercise Piracy by shooting their Poisoned Arrows."*

This is echoed in later Arabian culture as well in the account of the life of Pre Islamic Arabian poet and adventurer Antarah ibn Shaddad, often known as "Antar" who lived from 525-608 CE:

*"Jezar orders his slave to bring him his she-camel which rivals the ostrich in the race: he arms himself with his quiver of poisoned arrows."*

From Antar's account, there is no knowing the type of arrow poison used, but considering its effectiveness, presence in the region, and widespread use elsewhere, Apocynaceae arrow poison is possible. In Africa as well as the Middle East, Apocynaceae poisons were not the only options available. Indeed, the previous arrow poisons article mentioned deadly nightshade as a lesser poison used on Nubian spears in North Africa. There are a few other lesser toxic plant options in addition to animal based arrow poisons, used either alone or in combination with the plants in this paper. As previously mentioned, cultures that use poisoned arrows often find and explore many options for arrow poisoning, and tend to keep a few options at hand, either for singular use, or in combination with others.

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Society Seasonal Archery Challenge (SSAC)



# Fall SSAC: Quarterly & Saltire

## Rules

This is a variation on a shoot that frequently appears at tournaments in the northern Outlands. I first encountered it at tournaments run by THL Eirikr Morrison and THL Ailinn Shadowfox.

Please read the SSAC General Rules, as these apply to all SSAC shoots. Below are the additional rules for this specific shoot.

**Shoot Begins**
**September 1, 2017**

**Shoot Ends**
**November 30, 2017**

**Scores must be Submitted by:**
December 15, 2017
and within 14 days of being shot.

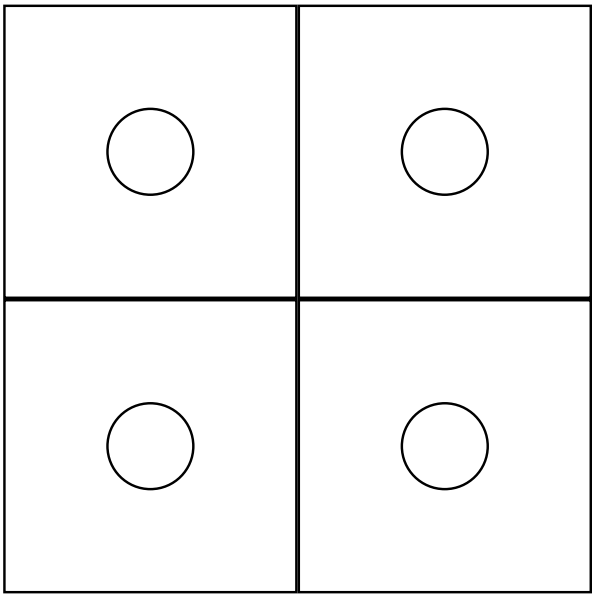
## Target

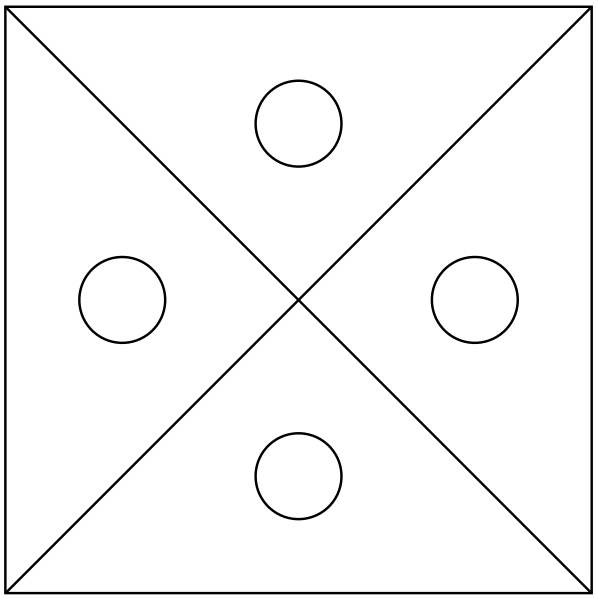
This shoot has two targets, Quarterly and Saltire.

**Quarterly** - target is an 20 inch square divided quarterly, which is split vertically and horizontally to make four 10 inch squares. In the center of each square is a 3 inch diameter circle.

**Saltire** - target is an 20 inch square divided saltire, which is split from diagonally corner to corner to make 4 triangles. In the center of each triangle is a 3 inch diameter circle.

*(Below Top) Quarterly Target*
*(Below Bottom) Saltire Target*





## Ends

There are two ends at each target, all shot at 20 yards.

- Quarterly Untimed - 6 arrows
- Quarterly Timed - 30 seconds
- Saltire Untimed - 6 arrows
- Saltire Timed - 30 seconds

## Scoring

Arrows must touch the colored portion of the space, not just the black dividing line, to count for that space. Each arrow may only count toward a single quarter/saltire.

Arrows hitting the circle are worth 2 points each.

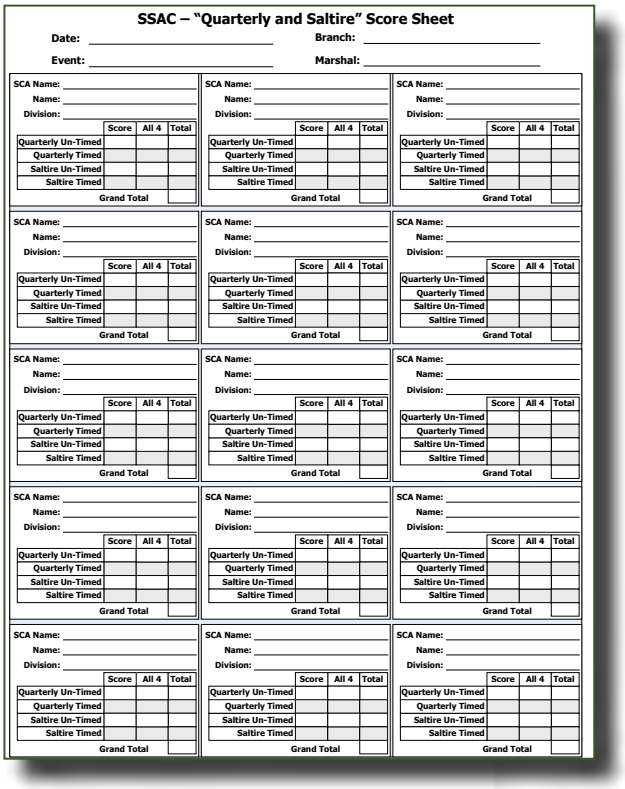
Arrows hitting the rest of the quarters/ saltires are 1 point each.

If all four quarters/saltires (including the circle within) are hit then your total score is doubled.

Example, there is an arrow in Quarters A, B, and C, and an arrow in the Circle within Quarter D, the other arrows missed entirely. This would score 1 point for the arrows in A, B, C, plus 2 points for the arrow in the Circle of D for a sub-total of 5. As there is an arrow in each quarter/ saltire that is doubled, for a final total of 10.

A scoresheet is available for download in the Quivers & Quarrels Facebook group here.

This shoot was suggested by: Ubertino Nicolai di Fara San Martino



SSAC – "Quarterly and Saltire" Score Sheet

Date: _____ Branch: _____

Event: _____ Marshal: _____

| SCA Name: | Score | All 4 | Total |
|---|---|---|---|
| Name: | | | |
| Division: | | | |
| Quarterly Un-Timed | | | |
| Quarterly Timed | | | |
| Saltire Un-Timed | | | |
| Saltire Timed | | | |
| Grand Total | | | |

*(Above) Quarterly & Saltire scoresheet.*

# Society Seasonal Archery Challenge (SSAC)



Starting with the Spring 2015 SSAC, I am giving the top five archers in each of the five divisions - Period Handbow, Period Crossbow, Open Handbow, Open Crossbow, and Youth - two archery coins as a token of their skill in the SSAC.

The coins were a gift to me from the Moneyers Guild of An Tir. The dies were cut by Arion the Wanderer, OGGS. On first the inscription lettering style is circa late 1200`s - early 1300`s. It reads: "SIR.JON.FITZRAVF" on the bust side and "TRVE.HEART.TRVE.AIM" on the reverse. Which means "TRUE HEART/TRUE AIM". The coin is modeled after the French gros tournois/ English groat. It is 25 mm diameter x 0.7 mm and is 3% silver / 97% tin pewter.

The second coin was made to celebrate the SCA's Fiftieth Anniversary of target archery. The bust side has an archer at full draw. On the reverse is an "L" the Roman numeral for 50 and the laurel wreath for the SCA. And "50 YEARS OF SCA ARCHERY".

To receive a coin, you need to be one of the top five in any of the divisions and you must US Mail me a self addressed business size stamped (49 cents) envelope within thirty days of the end of each seasons contest. My address is: John R Edgerton, 7662 Wells Ave. Newark, CA 94560-3530. Please include your Scadian name and division.



# SPRING SSAC RESULTS

## FULL COURSE SCORES

The goal of the Golf Shoot is to hit all of the spaces; your score is the spaces that are left un-hit. This means that a LOW score is better.

As some of the northern Kingdoms are still fighting off the Ice Giants, there are two versions being offered: the regular Full Course, and the shortened Par 3. You are free to shoot either or both, just be sure you record your scores to the correct version.

Draw a Tic-Tac-Toe grid, then cut the corner squares in half diagonally to create an octagon. For the FULL COURSE version the squares should each be 20cm (60cm total target width). Lines should be fairly thick to be clearly visible.

The distance for the FULL COURSE version is 25 yards.

The distance for the PAR 3 VERSION is 20 yards.

There are two ends:
- 9 arrows un-timed
- Timed 45-second end.

Your score for each end is the sum of all the spaces that are left UN-HIT. Arrows breaking into more than one space (the white space itself, not the just touching the line) count in the

**PERIOD HANDBOW**

| Rank | Name | Kingdom | Group | Score |
|---|---|---|---|---|
| 1 | Alaricus Simmonds | An Tir | Dragon`s Laire | 34.0 |
| 2 | Kezia von Holzenhaus | Calontir | Lonely Tower | 40.0 |
| 3 | Thomas of Salisbury | An Tir | Dragon`s Laire | 46.0 |
| 4 | Kaitlyn McKenna | Ansteorra | Shadowlands | 51.0 |
| 5 | Plachoya Sobaka | Ansteorra | Shadowlands | 55.0 |
| 6 | Jack of Airedale | Caid | Lyondemere | 56.0 |
| 7 | Miriel of Shadowlands | Ansteorra | Shadowlands | 60.0 |
| 8 | Jacob Mor | Meridies | Drakenmere | 61.0 |
| 9 | Gocauo Ramiric | Trimaris | Wyvernwoode | 64.0 |
| 10 | Kazetani Kiyotora | Caid | Starkhafn | 72.0 |

**PERIOD CROSSBOW**

| Rank | Name | Kingdom | Group | Score |
|---|---|---|---|---|
| 1 | Dolan Madoc | Calontir | Lonely Tower | 24.0 |
| 2 | Thomas ap Dewi | Ansteorra | Northkeep | 27.0 |
| 3 | Tymme Lytefelow | An Tir | Wyewood | 27.0 |
| 4 | Kaitlyn McKenna | Ansteorra | Shadowlands | 28.0 |
| 5 | Soffya von Kulp | Middle | Flaming Gryphon | 39.0 |
| 6 | Plachoya Sobaka | Ansteorra | Shadowlands | 40.0 |
| 7 | Ray ap Dewi | Ansteorra | Northkeep | 41.0 |
| 8 | Josef Gustavson | Ansteorra | Shadowlands | 52.0 |
| 9 | Michael de Lundie | Calontir | Lonely Tower | 58.0 |
| 10 | Catan ingen Mchl | Ansteorra | Steppes | 81.0- |

**OPEN HANDBOW**

| Rank | Name | Kingdom | Group | Score |
|---|---|---|---|---|
| 1 | Muldonny McVriw | Middle | Eastwatch | 16.0 |
| 2 | Jack of Airedale | Caid | Lyondemere | 17.0 |
| 3 | Leofwine of Sumersaetum | Ansteorra | Stargate | 17.0 |
| 4 | Lukas Mesmer | Middle | Ayreton | 17.0 |
| 5 | Eryn St. Rose | West | Caldarium | 21.0 |
| 6 | Michael of Fox Wood | West | Caldarium | 22.0 |
| 7 | Bartholomew Reynold Codlin | Caid | Starkhafn | 23.0 |
| 8 | Wolfgang von Tolstat | Artemisia | Silver Keep | 26.0 |
| 9 | David St. Rose | West | Caldarium | 26.0 |
| 10 | Gladius the Alchemist | Middle | Cleftlands | 27.0 |

**OPEN CROSSBOW**

| Rank | Name | Kingdom | Group | Score |
|---|---|---|---|---|
| 1 | Cirion the Left Handed | Middle | Northwoods | 15.0 |
| 2 | Tarmach | Middle | Cleftlands | 34.0 |
| 3 | Kaitlyn McKenna | Ansteorra | Shadowlands | 43.0 |
| 4 | Plachoya Sobaka | Ansteorra | Shadowlands | 43.0 |
| 5 | Thomas of Salisbury | An Tir | Dragon`s Laire | 46.0 |
| 6 | Thomas Fleischacker | Calontir | Calanais Nuadh | 50.0 |
| 7 | Josef Gustavson | Ansteorra | Shadowlands | 61.0 |
| 8 | - | - | - | - |
| 9 | - | - | - | - |
| 10 | - | - | - | - |

**YOUTH**

| Rank | Name | Kingdom | Group | Score |
|---|---|---|---|---|
| 1 | - | - | - | - |
| 2 | - | - | - | - |
| 3 | - | - | - | - |
| 4 | - | - | - | - |
| 5 | - | - | - | - |
| 6 | - | - | - | - |

# SPRING SSAC RESULTS

## PAR 3 SCORES

| PERIOD HANDBOW | | | | |
|---|---|---|---|---|
| Rank | Name | Kingdom | Group | Score |
| 1 | Konrad von Alpirsbach | Outlands | Caer Galen | 13.0 |
| 2 | Michael Brekebowe | Outlands | Readstan | 19.0 |
| 3 | Ubertino Nicolai di Fara San Martino | Outlands | Caer Galen | 22.0 |
| 4 | Eric Morrison | Outlands | Hawk`s Hollow | 30.0 |
| 5 | Henry of Bohemia | Avacal | Montengarde | 33.0 |
| 6 | Kezia von Holzenhaus | Calontir | Lonely Tower | 34.0 |
| 7 | William McFayden | Middle | Rivenstar | 34.0 |
| 8 | Naoise of Dun in Mara | Drachenwald | Dun in Mara | 35.0 |
| 9 | Tycho Rosenkrantz | Drachenwald | Dun in Mara | 35.0 |
| 10 | Patrick of the Quiet Woods | Outlands | Caerthe | 35.0 |

| PERIOD CROSSBOW | | | | |
|---|---|---|---|---|
| Rank | Name | Kingdom | Group | Score |
| 1 | Robert Thorne | Middle | Illiton | 2.0 |
| 2 | Jonathas Reinisch | Atlantia | Dun Carraig | 12.0 |
| 3 | Crispin Fletcher | Northshield | Nordskogen | 12.0 |
| 4 | Arnbjorn Karlsson | Northshield | Caer Anterth Mawr | 33.0 |
| 5 | Woody of Gwyntarian | Middle | Gwyntarian | 33.0 |
| 6 | Josef Gustavson | Ansteorra | Shadowlands | 37.0 |
| 7 | Eric Morrison | Outlands | Hawk`s Hollow | 38.0 |
| 8 | Plachoya Sobaka | Ansteorra | Shadowlands | 46.0 |
| 9 | Kaitlyn McKenna | Ansteorra | Shadowlands | 47.0 |
| 10 | Michael de Lundie | Calontir | Lonely Tower | 47.0 |

| OPEN HANDBOW | | | | |
|---|---|---|---|---|
| Rank | Name | Kingdom | Group | Score |
| 1 | David St. Rose | West | Caldarium | 8.0 |
| 2 | Stephan Grimm | Atlantia | Stierbach | 9.0 |
| 3 | Henry of Bohemia | Avacal | Montengarde | 9.0 |
| 4 | Robert Thorne | Middle | Illiton | 15.0 |
| 5 | Eobhan Dunbar | An Tir | Adiantum | 15.0 |
| 6 | Ronan mac Imair | Atlantia | Ponte Alto | 18.0 |
| 7 | Ubertino Nicolai di Fara San Martino | Outlands | Caer Galen | 18.0 |
| 8 | Gareth Thorne | Middle | Illiton | 19.0 |
| 9 | Gwyneth Cole | Middle | Cleftlands | 20.0 |
| 10 | Dubhghaill mac Gilleasbaig | Outlands | Caerthe | 21.0 |

| OPEN CROSSBOW | | | | |
|---|---|---|---|---|
| Rank | Name | Kingdom | Group | Score |
| 1 | Cirion the Left Handed | Middle | Illiton | 3.0 |
| 2 | Robert Thorne | Middle | Northwoods | 5.0 |
| 3 | Henry of Bohemia | Avacal | Lonely Tower | 12.0 |
| 4 | Edgar of Chiswick | Middle | Montengarde | 18.0 |
| 5 | Tarmach | Middle | Hawk`s Hollow | 28.0 |
| 6 | Dolan Madoc | Calontir | Shadowlands | 29.0 |
| 7 | Gladius the Alchemist | Middle | Montengarde | 29.0 |
| 8 | Skeld the Peacemaker | Avacal | Shadowlands | 31.0 |
| 9 | Kaitlyn McKenna | Ansteorra | Dun Carraig | 38.0 |
| 10 | Hjalti the Wonder Viking | Avacal | Shadowlands | 40.0 |

| YOUTH | | | | |
|---|---|---|---|---|
| Rank | Name | Kingdom | Group | Score |
| 1 | ((Mia Clark)) (12) | Atlantia | Dun Carraig | 55.0 |
| 2 | Summer of Starkhafn (14) | Caid | Starkhafn | 65.0 |
| 3 | Keira St. Rose (9) | West | Caldarium | 68.0 |
| 4 | ((Brooke Blohm)) (7) | Outlands | Hawk`s Hollow | 83.0 |
| 5 | Erasmus (7) | Outlands | Caer Galen | 84.0 |
| 6 | - | - | - | - |

archer`s favor (each arrow may only count toward one block). The blocks may be hit in any order for both the timed and un-timed rounds. There is no additional score for hitting a block more than once as your score is made up of the blocks that are not hit.

On the timed round, after successfully hitting all nine spaces, you may attempt the bonus round to get a negative score. Hit each space a second time counting up from one toward nine. This will score as a hit number but negative.



# SUMMER SSAC RESULTS

This shoot was designed to get archers to focus on grouping their arrows. No target face is required, however you are welcome to put almost anything on the target butt to provide a point of reference, except *NO FITA TARGETS* allowed. So, some stickers or post-it notes, an old SSAC target you have kicking around, anything that does not involve concentric circles. It is suggested that archers attempt to place their group of arrows away from other archers, but this is not required.

For Summer season, the range is 25 yards and 35 yards. For each range there are two ends: an un-timed using 10 arrows, and a timed for 45 seconds unlimited arrows.

After each end is shot, the archer will determine which single arrow will define a `center` from which to measure a 3 inch (76mm) radius circle. Any arrow either in or touching the circle gains one point. Any shaft stuck in the frame of the butt or in the ground does not count even if `technically` inside the measured circle (i.e. the `center` of the circle is very low on the butt).

The measurement is from the outside of the 'center' arrow. For a precision measure, cut a 3 inch (76mm) segment off a broken arrow, touch one end to the 'center' arrow and slide it around the shaft. Any arrow it runs counts as a point, pull the arrow and continue until you can make a complete circle using the segment. Pull the center arrow (it counts too!) and count the arrows in your hand for the score. Any arrow that does not stop the segment is outside the circle and does not count.

## PERIOD HANDBOW

| Rank | Name | Kingdom | Group | Score |
|---|---|---|---|---|
| 1 | Alaricus Simmonds | An Tir | Dragon`s Laire | 15.0 |
| 2 | Konrad von Alpirsbach | Outlands | Caer Galen | 13.0 |
| 3 | Ubertino Nicolai di Fara San Martino | Outlands | Caer Galen | 12.0 |
| 4 | Alessandro von Florenz | Lochac | Politarchopolis | 12.0 |
| 5 | Carven Ash | Calontir | Lonely Tower | 11.0 |
| 6 | Mika Longbow | Outlands | Caerthe | 11.0 |
| 7 | Kezia von Holzenhaus | Calontir | Lonely Tower | 10.0 |
| 8 | Jon Thomme de Claydon | Caid | Starkhafn | 10.0 |
| 9 | Sigmund Spelmann | Lochac | Politarchopolis | 9.0 |
| 10 | Plachoya Sobaka | Ansteorra | Shadowlands | 9.0 |

## PERIOD CROSSBOW

| Rank | Name | Kingdom | Group | Score |
|---|---|---|---|---|
| 1 | Mika Longbow | Outlands | Caerthe | 26.0 |
| 2 | Dolan Madoc | Calontir | Lonely Tower | 21.0 |
| 3 | Eamon MacGowan | Middle | Brackendelve | 17.0 |
| 4 | Kaitlyn McKenna | Ansteorra | Shadowlands | 12.0 |
| 5 | Daffyd of Emmet | Outlands | Caerthe | 11.0 |
| 6 | Michael de Lundie | Calontir | Lonely Tower | 10.0 |
| 7 | Josef Gustavson | Ansteorra | Shadowlands | 10.0 |
| 8 | Woody of Gwyntarian | Middle | Gwyntarian | 10.0 |
| 9 | Plachoya Sobaka | Ansteorra | Shadowlands | 9.0 |
| 10 | Eustace Kilpin | Middle | Winged Hills | 6.0 |

## OPEN HANDBOW

| Rank | Name | Kingdom | Group | Score |
|---|---|---|---|---|
| 1 | Muldonny McVriw | Middle | Eastwatch | 19.0 |
| 2 | Michael of Fox Wood | West | Caldarium | 17.0 |
| 3 | Edward Brackenbuyre | Middle | Cleftlands | 17.0 |
| 4 | Winfred of Heatherwyne | Caid | Lyondemere | 16.0 |
| 5 | Alaricus Simmonds | An Tir | Dragon`s Laire | 16.0 |
| 6 | David St. Rose | West | Caldarium | 16.0 |
| 7 | Jack of Airedale | Caid | Lyondemere | 15.0 |
| 8 | Paul Stoddard | Caid | Starkhafn | 15.0 |
| 9 | Thomas Skeet | Caid | Lyondemere | 15.0 |
| 10 | Yaacov Ben haRav Eliezer | Middle | Cynnabar | 5.0 |

## OPEN CROSSBOW

| Rank | Name | Kingdom | Group | Score |
|---|---|---|---|---|
| 1 | Cirion the Left Handed | Middle | Northwoods | 31.0 |
| 2 | Gladius the Alchemist | Middle | Cleftlands | 21.0 |
| 3 | Dolan Madoc | Calontir | Lonely Tower | 19.0 |
| 4 | Daffyd of Emmet | Outlands | Caerthe | 16.0 |
| 5 | Jesse | Middle | Cleftlands | 15.0 |
| 6 | Miguel de Granada | Caid | Lyondemere | 12.0 |
| 7 | Woody of Gwyntarian | Middle | Gwyntarian | 11.0 |
| 8 | Muldonny McVriw | Middle | Eastwatch | 10.0 |
| 9 | Josef Gustavson | Ansteorra | Shadowlands | 10.0 |
| 10 | Kaitlyn McKenna | Ansteorra | Shadowlands | 9.0 |

## YOUTH

| Rank | Name | Kingdom | Group | Score |
|---|---|---|---|---|
| 1 | - | - | - | - |
| 2 | - | - | - | - |
| 3 | - | - | - | - |
| 4 | - | - | - | - |
| 5 | - | - | - | - |
| 6 | - | - | - | - |

# Did you know?

## ...that you can look up your scores?

## ...and anyone else's scores too?




Go to https://scores-sca.org/ and select your community of interest (either your Kingdom or interkingdom competition).




If you have selected a Kingdom, then select either "archery" or "thrown weapons" next.

The content of Kingdom scores pages may vary, but you can navigate to a variety of Kingdom information using the menu on the left side of the home page.




You can also look up a specific person!

# Check it out!

# Local Archery Practices

*Editor's Note: This list is a work in progress. Please send your submissions and updates for local practices to qqchronicler@gmail.com, or contact me via the Quivers & Quarrels Facebook group. Quivers & Quarrels is only published quarterly, so it is highly recommended to include contact or web information along with a brief description of your archery practice arrangements. YIS, THL Sayako*

## Ansteorra

**Northkeep**

Missile practice scheduled every Sunday from noon until whenever people go home.

9737 W 61st Street S, Sapulpa, OK.74066
(918) 200-5584
Calling first is a good idea, as I may be gone to an event.

Random cook out / pot lucks. Thrown weapons practice from noon till 2pm. Children's archery practice from 1pm till 2:15pm. Adult archery practice from 2:30pm till people go home.

Submitted by Arthur Blackmoon, Baronial Missile Marshal - Barony of NorthKeep.

Cancellations: For major regional archery events and if the temperature is below 40 degrees.

## An Tir

**Barony of Dragon's Laire**
(Kitsap County Area, WA)
Archery Practice is held at the VFW Hall on Central Valley Rd in Silverdale, weather and light permitting. The day and time of practice varies with the season. Please visit www.dragonslaire.org under the "Marshallate" tab for the most current information.

**Barony of Three Mountains**
(Portland, OR Area)
The Barony of Three Mountains is pleased to host archery practice every Wednesday from 6:30 PM to 8:30 PM at:

Trackers Earth
4617 SE Milwaukie Avenue
Portland, OR 97202

This is an indoor 40 yard heated range. Contact Archos Andrew Stiubhard (Baronial Archer) at archer3m@yahoo.com, or Archos Eobhan Dunbar at eobhan.dunbar@gmail.com for more information.

**Barony of Wyewood**
By Ikea in Renton, WA. Saturday 10am-1pm, Wed will be 4:30pm-7:30pm.
Please contact t_a_geyer@yahoo.com for more information.

Wyewood also has a Yahoo group for announcing whether practice is on or cancelled, and that is "wyewood_archery".

Tymme "Prodkiller" Lytefelow
Chief Archer, Barony of Wyewood
Arcuarius to HL Evrard de Valogne, OGGS

## Summits (Principality of An Tir)

**Shire of Glyn Dwfn**
Archery, thrown weapons, and At'latl practices are currently the second and fourth Sundays of each month from 1pm to dusk in Shady Cove, OR. In inclement weather, we do equipment repairs and construction. As darkness falls we have a potluck dinner and socialize. Check Glyn Dwfn's website at http://glyndwfn.antir.sca.org/ for address or more information.

## Atenveldt

**Baronies of Sundragon and Atenveldt**
The baronies practice together on Sundays at El Oso Park. This is for royal rounds and tournaments only at this time for target archery. October thru April 9 AM and May thru September 7 AM

## Atlantia

**A list of practices for the Kingdom of Atlantia (Maryland, North Carolina, South Carolina, Georgia, and Virginia) can be found at http://scores-sca.org/public/practices.php?R=2&**

## Avacal

**Barony of Montengard**
(Calgary, Alberta)
Archery practice is held at the Calgary Archery Centre 4855 47 St. SE Calgary, AB.

This is an indoor range space with multi distance ranges, 3d course and pro shop.

The SCA hosts practices Tuesday and Friday evenings from 6:30 - 9 pm.

capt.archers@montengarde.org
www.montengarde.org

## Caid

**Altavia**
1st, 3rd, and 5th Sunday of every month at Woodley Park 11:30am-3:30pm

**Angels**
See webpage at http://www.sca-angels.org/, or contact Lady Rayne Archer of Annan at raynearcherofannan@gmail.com.

**Calafia**
Sundays from 10:00 am to noon, and on Tuesdays and Thursdays at UCSD Thornton Hospital from 5:30pm to 7:00pm

**Dreiburgen**
1st and 3rd Sundays, 10am at House Montrose in Pedley, 2nd and 4th Sunday at Paganus and Rekon's

**Dun Or**
Unofficial practices Mondays, 6:30-8:00pm at H&W Archery on Trevor St. in Lancaster and last Sunday of the month at 2:00 in Littlerock

**Gyldenholt**
Target Archery Practices are weekly on Sunday from 10:30 am to 12:30 pm at the Santiago Park Archery Range in Santa Ana, CA. Contact the Gyldenholt Captain of Archers at archery@sca-caid.org.

**Lyondemere**
El Dorado Park (north of Spring Street), Long Beach 7550 E Spring St, Long Beach, CA, 90815 - Sundays from 1-5; and Thursday nights from 7-9 PM at Rancho park in Cheviot Hills.

**Naevehjem**
At Baldwin's keep, a private residence. For more info contact jotl2008@wildblue.net

**Nordwache**
No Info

**Starkhafn**
Clark County Archery Range (6800 E. Russell, Las Vegas, NV 89112) located behind Sam Boyd Stadium/Old Silver Bowl Park. Tuesday: 6:00pm until 7:30pm (or dark) Saturday: 10:00am until noon.
Western Seas

**Shire of Al-Sahid**
Same as Dreiburgen

**Shire of Carrweg Wen**
On Hold

**Shire of Darach**
No Archery Practice

**Starkhafn**
Whitney Ranch Archery Range, 1575 Galleria Drive, Henderson, Nevada. Practices are held on Saturdays from 9:30 a.m. to 12:30 p.m.

## Glenn Abhann

**Shire of Pilgrims Fount**
Archery and thrown weapons every 1st and 3rd Sunday from 1:00 p.m. to 5:00 p.m. at Cedar glades Park in Hot Springs Arkansas. (Weather permitting) Loaner gear is available and ALL are welcome!

We also have archery only practice indoors every 2nd and 4th Monday at One Refuge

church at 1700 Albert Pike road in Hot Springs Arkansas from 6:00 p.m. to 8:30 p.m. Loaner gear is available and ALL are welcome.

Contact us on Facebook (Shire of Pilgrims Fount/ SCA), or contact Kyle Schabel at pinniped@live.com

## Lochac

**Barony of Southron Gaard**

Weekly practices from 2pm to 4pm every Sunday, weather permitting, on the back field of Kirkwood Intermediate.

Submitted by Darayavaush Ah.r'r. Captain of Archer for Southron Gaard and current Baronial Archery Champion, MKA Damon Daines

## Meridies

**Barony of Thor's Mountain**
(Knoxville, TN)

The Barony of Thor's Mountain holds its practices on the 2nd and 4th Sundays, 3:30pm to 5:30pm, with reservations (no practices on weekends with Kingdom-Level Events or TM events. We post updates on our website calendar.)

## Midrealm

**Barony of Ayreton**
(Chicago Area)

Wednesdays: 6:30PM, 7240 Madison Street, Forest Park
(708) 366-4864

Confirm with: Forester Lukas Mesmer Stoutmaker@hotmail.com

**Barony of Cynnabar**
(Ann Arbor, Michigan)

"Official Archery Practice in the Barony of Cynnabar is held Sundays from 2-4pm, weather permitting, at the archery range of The Honorable Lord Forester Dillon ap Dillon.

More information regarding archery in the Barony of Cynnabar can be found at our Website: http://www.cynnabar.org/archery

For all questions regarding practice dates, times, and the location of the official Baronial archery range, please contact Lady Godaeth se Wisfaest, GM, archery@cynnabar.org

**Barony of Cleftlands**
(Cleveland/Cuyahoga County, Ohio)

The Cleftlands is instituting two new weekly archery practices. A West side practice on Monday evenings at the Cleveland Metroparks Albion Woods archery range. I'll be out there starting at 5:00pm. We plan to shoot until dark. If loaner equipment is needed, I can bring it is if I am notified by no later than 3:00pm. An East side Tuesday evening archery practice will begin on April 21st at 5:00pm. This will take place in the back yard of Lisa Heller at 411 Douglas Blvd, Richmond Heights 44143. It will also run until dark. Loaner equipment will be stored on site, so no advance notice will be required. There will be no charge for either practice, but donations will be accepted to cover the equipment costs. These practices will continue until Autumn when the days are too short to allow us to shoot outdoors in the evening. At the date we'll return to shooting in the indoor arena in Russel.

**Barony of Flaming Gryphon**

Archery practice at Wildlife District 5 at 1076 Old Springfield Pike in Xenia, OH. As of November, indoors.

**The Shire of Eastwatch**
(Cleveland Ohio area)

The Shire of Eastwatch has archery practice every Sunday from 4:00 to 7:00 p.m. at Free Spirit Farm located at 13987 Watt Road, Novelty, Ohio 44072.
If people would like to contact us about attending, they can email me at whgkingstone@ameritech.net or they can call me at (216) 246-0085.

Our practices sessions are announced on the Facebook Pages for Eastwatch, Barony of the Cleftlands, March of Gwyntarian, Northern Oaken Archery, as well as the Eastwatch Yahoo group page. Besides archery, horseback riding is also available at Free Spirit Farm .

**Shire of Mnynydd Seren**
(Bloomington, IN)

When: 2:00 P.M. every Saturday
Where: Shire of Mnynydd Seren
5501 South Rogers St, Bloomington Indiana
Contact: Eogan - Baiorofred@gmail.com

Cancellations: For major regional archery events and if the temperature is below 40 degrees.

**Barony of Sternfeld**
(Indianapolis, IN)

Wednesday evenings 7:00 to 9:00 PM at Yurts of America, 4375 Sellers Street, Indianapolis, IN 46226.

Outdoor practices will be announced on the Sternfeld Facebook page and on the Yahoo group page. Come have some fun!

## Trimaris

**Barony of Darkwater**
(Orange, Osceola, Seminole, and Lake Counties)

When: Darkwater archery practice
Where: 8545 Treasure Island rd Leesburg, FL 34788
Address: 8545 Treasure Island Rd Leesburg, FL, 34788
Contact: Ld Willaum of Willowbrook 352-326-0083

Notes: Practices are the second and last Sunday of the month. We do a potluck after practice if you wish to attend you are more than welcome to join in. We do ask that you bring a little something to add to the meal.

**Barony of Marcaster**
(Pinellas County, Florida)

All practices are Camp Soule, 2201 Soule Rd., Clearwater, FL 33759
Some loaner gear is available for folks who wish to try out the sport.

Eirikr Varghosson
Marcaster Archery & Thrown Weapons Ranger
ericfield@hotmail.com

**Barony of Oldenfeld**
(Tallahassee, Gadsden, Wakulla)

When: Oldenfeld Archery Practice
Where: Ox Bottom Hollow
Address: 2020 Ox Bottom Road Tallahassee, FL 32312
Contact: Jay or Jancie Ter Louw (850) 668-3807

Notes: We will practice at 3 p.m. on any Sunday that does not have an SCA event or mundane schedule conflict. Please call or email to confirm the actual dates of practices.

**Canton of Peregrine Springs**
(Seminole County)

When: Darkwater East Archery Practices
Where: Springdale Farms, Longwood FL
Address: Bay Meadow Lane Longwood, FL 32750
Contact: Bennett Redstone (407) 456-0077

Notes: First, third, and (optionally) fifth Sunday of the month. No practices the Sunday of a Kingdom event. Check postings on Trimaris-Archers board on Yahoo for cancellations.

**Shire of Southkeep**
(Miami-Dade County/Florida Keys)

When: Every Other Sunday @ 1:00pm
Where: Homestead
Address: 20420 SW 319th Street Homestead, FL 33030
Contact: Cian mac Cullough (305) 213-3732

Notes: We practice every other Sunday (weather permitting), provided there are no events or modern conflicts. There may occasionally be additional practices scheduled, depending on availability of a ranger. Please call or e-mail to confirm, or check Facebook. There are usually other activities going on for those who don`t want to shoot. Practices are potluck, and we ask that you do bring something to contribute if you can. However, if for some reason you cannot, please don`t let that stop you from coming

**Shire of Trysel**
(Ft. Myers)

When: Sunday @ 2:00pm
Where: Fort DeNaud Archery Range
Address: 506 Trader Road LaBelle, FL 33935
Contact: Juliana Strangewayes (239) 839-8333

Notes: All are welcome. We will practice on Sundays unless an event or mundane scheduling conflict arises. Please contact by phone or email to confirm and avoid disappointment.

## West Kingdom

**Barony of Eskalya**
(Anchorage, Alaska)

We usually hold practice Sundays at 2pm at the public range in Kincaid Park during the summer/fall.During the winter we occasionally visit an indoor range. This year we will also be going to the Northwest Archers classes (non-sca.) We will have to use their equipment, (compounds) but at least it will be free target time.

For more information, please contact Dawn Quick at c_textrix@yahoo.com

**Province of the Golden Rivers**
(Sacramento Area, California)

Target archery practice is held from 10 am to 1 pm, non-event Sundays at Creekwood Equestrian Park in Elverta, CA (Sacramento area). This is an outdoor range on a horse ranch.

In addition to IKAC, Royal Round, and Seasonal shoots, we have also thrown weapons and mounted archery available, depending on interest. Some loaner gear is on-hand, more in the works.
Archers of Golden Rivers have a Facebook Group for discussion of upcoming practices and other activities: https://www.facebook.com/groups/735450109809751/

For additional information, contact our Target Archery Marshal, Brigid O'Connor, email: arcmarshal@goldenrivers.westkingdom.org




## Submission Deadlines

**Winter 2017 Edition**
November 30, 2017
(for publication in December 2017/January 2018)

**Spring 2018 Edition**
February 28, 2018
(for publication March 2018)

**Summer 2018 Edition**
May 31, 2018
(for publication June 2018)

**Fall 2018 Edition**
August 31, 2018
(for publication in September 2018)

Submissions, including photographs and releases, are due by the submission deadlines above. Questions about submissions may be directed to the Chronicler, at qqchronicler@gmail.com.

Advertising in *Quivers & Quarrels* is not available at this time. Questions regarding advertising may be directed to the Chronicler, at qqchronicler@gmail.com.

## Submission Guidelines

All submissions require releases.

Written submissions may be of any length. Very lengthy feature articles may be broken up over two or more editions.

Written submissions must be in .doc, .docx, .txt, or .indd format. PDF files may be acceptable, but are not recommended. No other typeset formats. Document formatting for style is optional. Submissions should be minimally formatted with headings so that sections are clear. Academic-style papers with references should be submitted in MLA or APA style with all appropriate citations. Footnotes will be reformatted into endnotes, and tables of content will be omitted.

Photographs and illustrations must be submitted separately as .jpg, .jpeg., .bmp., or .ai files, though they may also be included within the text of the article to indicate placement. Photographs and illustrations of a usable file size and resolution generally cannot be extracted from .doc, .docx, or .pdf files, so the original, full-size files are needed.

In-text photographs should be a minimum of 2048x1536 pixels at 300 dpi. Full-page or cover photographs should be a minimum of 2736x3648 pixels at 300 dpi. Sizes are approximate. Photos with a resolution of 150 dpi or less cannot be used.

Questions about submission guidelines may be directed to the Chronicler, at qqchronicler@gmail.com.