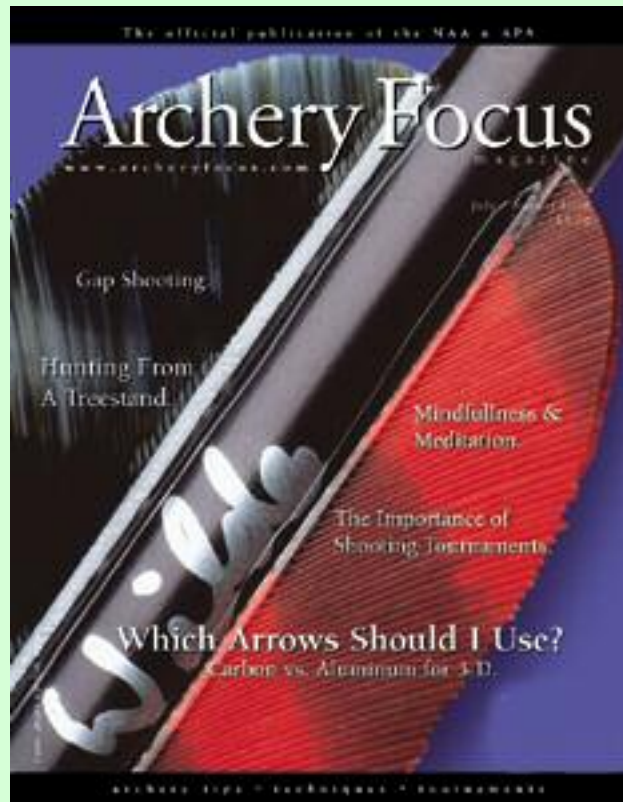


Archery Focus

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NOTE

Prior to the Vol. 3, No. 3 issue all we inherited were individual articles from the AFm website. With the help of a generous subscriber we were able to download those articles and convert them to our present file format. This “Whole Issue” has been reconstituted from those files and so doesn’t look exactly like the current issues.

Gap Shooting With Your Traditional Bow By T.J. Conrads



Hitting what you are aiming at is the goal of all archers. Some use elaborate sighting systems, encompassing a front and rear sight such as a pin sight on the bow riser and a peep sight mounted in the bow string. Others may opt for the simple six pin system, using an anchor as their rear sight. But most traditional archers use either a type of gap shooting called split-vision or indirect aiming, or pure instinctive shooting. Although these are all considered "barebow" shooting, the approach to learning and using these shooting methods is different.

Once you have mastered your shooting form, then it is time to develop a shooting system which will allow you to place your arrows where you are aiming. Until you learn the fundamentals of shooting your traditional bow, it is wise not to attempt to learn an aiming system. The frustration encountered will ruin the appeal of shooting for you, and can only encourage bad shooting form and habits.

Gap shooting has been used for decades in target archery, where known distances are encountered on the range and in competition. As the name implies, the archer creates a gap between the spot he wishes to hit, and a second reference point. This gap between the two marks varies with different distances to the target. Although it sounds rather complicated, it is actually quite simple.

In gap shooting, the tip of the arrow head is used as the front sight. When you are at full draw and correctly anchored, place the tip of the arrow on the center of the target you wish to hit. After release, if you find your arrow has hit high, simply move farther back from the target and shoot again until the arrow hits dead center with each succeeding shot. This distance is called the "point-on" distance, and will vary between each archer because of bow poundage, arrow weight, anchor and shooting form. Once you know your point-on distance, then you can start developing a gap system from there.

Say your point-on distance is 50 yards. Move closer to the target, say 40 yards, and shoot an arrow using the same aiming point, the tip of your arrow on the dead center of the target. After the shot you will notice your arrow has hit high. Just how high it hits will be the distance, or gap-below point-on, you must place your arrow tip. For example, if your arrow hits eight inches high at 40 yards, then you must place the tip of the arrow eight inches low to hit the target at that distance. Writing these gap distances down for each known distance from the target will help you learn where you must aim at each distance you shoot from. It is wise to do this for all yardages you will be shooting from, in competition or hunting. I would suggest you make a chart showing the gap distance you must aim to hit the target from ten to sixty yards in ten yard increments.

Split-vision and indirect-aiming, are basically the same style. Howard Hill, the most celebrated and successful archer of all time, used what he called split-vision aiming. As in gap shooting, Howard learned where to hold his arrow tip when shooting at stationary or moving targets. Although he used the tip of his arrow, he never

really noticed it. He always looked at the spot he wanted to hit and by constant repetition and training, his brain automatically placed the arrow tip where it should go. In the case of a standing target, Howard would place the tip of the arrow either above or below, depending on how far away the target was. If the target was moving, as was often the case for this famous California bowhunter, he would lead the target by placing the tip of the arrow a certain distance in front of it. Howard was so consistent with this system of aiming he was hired by the motion picture industry to do all the stunt shooting for several well-know movies, such as William Tell and the historic Robin Hood, where Howard doubled for Errol Flynn.

John Schulz, Howard Hill's protege, is the best teacher today in the Hill style of shooting the traditional bow. His book and video "Hitting 'em Like Howard Hill" are national best sellers. This instructional video helps teach the Hill style of shooting a traditional bow.

One of the best trick shooters today, Byron Ferguson, uses a similar gap shooting style which is explained in his insightful book, "Become The Arrow." One of Byron's greatest feats was shooting an arrow through a \$25,000 diamond ring on Japanese national television. As you can see, gap shooting can be very accurate.

Many years back, string-walking was used in archery competition. It was so effective that many archers petitioned the NFAA to outlaw its use in competition because they could not compete with an archer who used this system of aiming. Just as in gap shooting or split-vision shooting, string-walking uses the tip of the arrow as the aiming device. It is always placed in the dead center of the target to be hit, but the placement of the fingers on the bowstring changes.

Once the point-on distance is known, you simply mark the string with tape, fingernail polish or a white marker for the point-on distance. By counting the number of string turns on the bowstring serving either up or down, you then align your top finger on this string and shoot, keeping the tip of the arrow dead center on the target. Once your arrows are hitting where you want, mark the string at that location for that known distance to the target. This method is best used by the archer who shoots with three fingers under the nock.

Although simple to learn, these methods of gap shooting and indirect aiming require time, patience and perseverance to master. In the end you will be able to hit what you are aiming at, on the range or in the field, bringing much more enjoyment to your time spent with the simple stick and string.

Next time we will take a look at instinctive shooting, the purest form of shooting the bow and arrow.

The Right Arrow Rest For You

By Drew Wilcock



There are many different arrow rests available to today's archer, most of which have been designed for specific shooting purposes. In this installment of compound 100, we'll try to define these different styles of rests, and give you a quick guide to the basic mechanics of setting them up.

For starters, no matter what style fits your shooting needs, you will find that there will be a wide variety of rests that will do the job. With such a vast number of manufacturers, and so many design variations from each of those manufacturers, when you first start shopping for a rest, it may seem some what overwhelming. No matter what your shooting style, you will find arrow rests to fit your requirements any where from the basic entry level/economic oriented designs to the high end, micro adjustable/micro tunable, performance

rests. The up side to this is that with so many options available to your local pro shop, no matter which brands they have decided to carry, it's not very likely that they have opted to carry junk. So, more than likely, you will wind up with a good reliable piece of equipment.

Arrow Rest Styles:

We could really get out of control here and probably come up with 8 or 10 different categories, but if we can stay focused, really we can condense it down to two. So, which will it be, fingers or release?



When a finger shooter draws the bow, the roll on the string from their finger tips will usually drive the arrow in towards the bow's riser. Furthermore, when the archer releases the bow string, the arrow has a natural tendency to oscillate, or flex left to right as it gains flight and continues down range. Therefore, when shopping for an arrow rest, the finger shooter should be looking for a rest that will help to control and direct this motion. To do this, most finger style rests employ a folding or spring loaded support arm, and a side tension plate or cushion button. The arm provides the support necessary to maintain the arrow's position in relation to the nocking point, while the side plate or button helps to keep the arrow in line with the center shot. As the arrow is released, and the arrow travels forward, the support arm folds in to give the arrow better clearance, as the button works with the flex of the arrow. The hi-tech versions of this style of rest are fully adjustable. They have micro adjustable windage and elevation, and tension adjustments for both the support arm and cushion button. These rests make it very easy for finger shooters to get the best performance possible out of their tackle. Although it is possible for release shooters to use this style of rest, most will experience tuning problems, and will probably have difficulty getting their bow to perform to its potential.

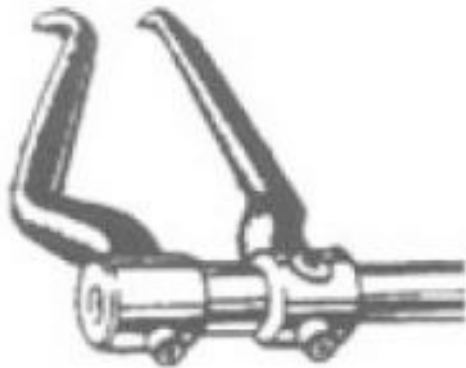


Release shooter's arrow will also oscillate or flex, however, instead of reacting left to right, most will generally produce an up and down motion. To compensate for this, most release oriented rests are designed around a launcher system. Hunters have a tendency to lean towards a two prong or arm design, to provide a more stable cradle for the arrow while it's being drawn. Target and 3-D archers generally lean more toward a single post or blade profile for better clearance. With

proper form, release shooters do not torque the arrow left or right, thus eliminating the need for the side plate or button. Most launcher style rests are designed to react to the tension or flexible arms. Again, there are a wide variety of designs to choose from, from basic to hi-tech, and you may even have some size options for different diameters of arrow shafts. Although I've seen many try, I don't recommend a launcher style rest for finger shooters.

Without the aid of the side plate or cushion button, just trying to keep the arrow on top of the rest while drawing the bow will usually become quite a circus act, not to mention trying to keep it there while trying to achieve a clean release.

Just a quick side note; There are several slow motion videos in circulation that really give you a good look at how arrows react differently with various rests and release styles. They're really quite an eye opener to understanding bow and arrow reactions. If your local shop has a copy of one of them, I'd strongly recommend watching it.



Setting it Up:

Setting up a new arrow rest is really quite simple, all of the mounting hardware is usually included with the rest, and in some cases they even provide the tools. Just keep in mind that when you mount the rest on the bow, you'll want to adjust the pitch of the rest so that the arrow shaft will pass at an even height with the rest hole or bushing in the riser. Then, all you need to do is set the center shot up in relation to the power stroke of the bow's cams, and the nocking point as it is related to the diameter of your arrow shaft. (See May/June issue of Archery Focus for more information.)

That's all I have for you this time. Don't forget, if you have any problems or questions, or if you're just not comfort-

able with working on your own equipment, stop in and see the folks at your local pro shop. They're always eager to help, and can give you a hands-on display of the arrow rests available to you.

See ya on the shooting line!

Shooting From A Tree Stand By Chuck Adams



Bowhunting from tree stands is where it's at. Nearly 98-percent of America's 3.1 million archery hunters concentrate on whitetail deer, and 95-percent of all whitetail bowhunters prefer to wait in elevated stands. In addition, large numbers of archers hunt elk, black bear, and other popular species from trees. The numbers speak for themselves.

When tree stand hunting became widely legal and popular in the mid-1970's, archery success rates in most states went through the roof. In many situations, bowhunting from tree stands simply makes good sense.

When the autumn woods are as dry and crunchy as Post Toasties, archers are best off sitting motionless in ambush with little or no chance of being heard. Under any circumstances, a big game animal is less likely to detect a hunter perched well above their direct line of smell and sight. Modern whitetails are certainly alert for human danger in the treetops, only dumb deer do not look up. But a platform artfully tucked amid overhead foliage always provides a major bowhunting advantage. Taking a tree stand beats the heck

out of sneaking on foot or waiting for deer at more exposed ground level.

Shooting downward is different than shooting at level targets. Even the best bull's-eye shooters and 3-D archers often have trouble hitting real whitetail deer, elk, or bear from tree stands. Here are some tips on mastering this unique form of shooting.

First you must understand that sharp downward shots always threaten conventional archery form. If you do not bend at the waist as you aim, upper-body geometry can change. This will alter anchor point and line of sight, and also drive the bowstring closer to clothing along the chest. Since bowhunters in trees typically wear bulky upper-body garments to keep warm, bowstring collision and wobbly arrow flight are likely. This can ruin accuracy with flight-finicky fixed-blade broadheads.

Preserving upper-body shooting form from a tree can be easy.

First, wear a stout tree stand safety belt when in a platform stand. Adjust this belt so you can lean against it solidly as you bend sharply yet comfortably at the waist.

Second, use a bowstring peep to guard against changing anchor points and head angles on downward shots. A hunting peep should have an aperture at least 1/8-inch in diameter to ensure easy aiming in low light situations. I prefer a 3/16-inch peep. Near dawn and dusk, beneath a heavy forest canopy of limbs and leaves, I can still clearly see my aiming pins.

Third, practice shooting from favored tree stands well before archery season begins. If you choose to shoot while sitting down on a swiveling stool or tree sling, practice is especially important. It will take awhile to

work out the kinks in your technique.

Regardless of shooting form, savvy tree-stand hunters wear archery chest protectors to flatten clothing near the bowstring path. They know the slightest contact between string and fabric caused by downward shooting angle can send a broadhead arrow wild.

Arrows shot downward from a tree always impact higher than normal because gravitational effect on the arrow is reduced. The sharper the shooting angle and the slower the bow, the higher an arrow is likely to hit.

Shooting at animals from a stand 10 to 30 feet above terra firma creates two other aiming difficulties not directly related to trajectory. Both problems can cause arrows to hit above the mark.

First, deer look smaller and farther away when viewed from above. Experienced bowhunters overcome this optical illusion by using an archery rangefinder on landmarks around their stands, or on animals directly. Another solution is pacing off ranges from the base of your tree-stand tree, and marking these distances with highly visible stakes, rocks, or twigs. If you know the range to a deer, you won't be tempted to aim high.

Another shooting problem is a deer's natural tendency to crouch at the sound of a bow—even a quiet hunting bow with rubber-loaded or hydraulic stabilizer, string silencers, and fairly heavy, vibration-absorbing arrows. The average whitetail deer caught on videotape crouches 2 to 4 inches before the arrow arrives, creating a very real problem for the hunter. Since a deer's chest cavity is only 8 inches deep, wise tree stand bowhunters always aim for the heart, which lies near the bottom of this vital zone. A deer that crouches takes the arrow dead-center for a quick, humane kill.

Tree stand bowhunters learn to compensate for an arrow's general tendency to hit high. Some simply practice aiming low from a tree stand. Others use a pendulum bowsight, relying on a single swinging pin to compensate automatically for angles and ranges between zero and 30 or 35 yards. Still others sight-in from a tree stand for even ranges like 10,20,30 and 40 yards.

Of these three methods, I personally prefer to re-sight my bow from an elevated stand. Provided I know the exact shooting distance, and provided I always hunt from a similar height—say 20 or 25 feet—my sights are dead-on from the tree. No guessing how low to aim, and no relying on a fragile and sometimes inaccurate pendulum device.

Here are some tips if you do decide to try a pendulum bowsight. The pendulum principle is not exact, and requires a fairly fast bow for consistent hits in a deer's vital chest. Arrow speeds below 250 feet per second do not always yield sufficiently accurate angle and distance compensation with such a sight. You cannot shoot above sloped or broken terrain with a pendulum sight. Such a device only works above flat or gently rolling landscape. And even over level ground, pendulum geometry breaks down beyond 30 or 35 yards.

When shooting a deer from a tree, be sure to use overhead foliage to your best advantage. Effective stand set-ups surround the hunter with heavy limbs or leaves for good camouflage. Remember: deer and other hunter-shy animals sometimes look up. Place your stands so you can draw your bow without bumping nearby shrubbery. Trim out narrow gaps or lanes that allow clear shots at animals passing nearby. The trick is drawing just before your target animal moves into view.

If you take the foregoing precautions, good accuracy from a tree stand is not all that difficult to achieve!

4 Ways To STOP Hitting Your Arm By Denise Parker



One of the most frustrating, as well as painful, aspects of beginning archery is the battle between the string and your bow arm. What makes it so difficult to get your arm out of the way of the string? If you use your fingers to shoot, upon release of the arrow, the string does not take a direct path to the target. Instead, the pressure of your fingers releasing the string actually makes the string move side to side, (an oscillating horizontal movement) as it thrusts the arrow forward. When the string moves from side to side is when it hits your arm. This is

why, even though it looks like your string shouldn't be hitting your arm, it does. So the following are four ways to help you to stop hitting your arm.

The first place to check is your hand position.

Look at the figures to the left. Figure 1a is an example of a hand position that is too far inside. You can see how the line cuts through almost the center of the hand. If you use this grip, you will be able to feel the bow grip on the outside of your life-line, this is too far inside. It puts too great of an angle on your wrist, pushing your arm further into the plane of the string. Figure 1b is an example of the extreme opposite. Some may think that if they get their hand really far to the outside of the grip they will be away from the string. This is also an incorrect grip. This puts too much pressure on your thumb and your hand could slip out of the grip. Figure 1c demonstrates a natural and correct grip position. You should be able to feel the grip just inside the lifeline on your hand.





The next place to check is the bow arm itself.

The best bow arm placement for clearance is to rotate your elbow, inward or down slightly to get the arm out of the way of the string. Figure 2a is the natural arm position when the bow is just raised. Now if you rotate your elbow slightly in a downward motion, your arm should appear like Figure 2b. This angle of the arm keeps the string further away from the arm. This is especially helpful to archers who are double jointed. Do not

over-rotate, and do not change the position of the hand. It is just a slight rotation so the arm lies flat and allows more room for the string to clear.

If you have done the first two and are still having trouble obtaining clearance, you may want to open your stance.

Opening the stance will give you more space between your bow arm and the string. Basically, it makes a larger triangle between the anchor, bow shoulder and bow hand. To acquire an open stance, begin with a closed stance (Figure 3a), where both feet are aligned perfectly to the target, then move the back foot forward slightly. This is an open stance (Figure 3b). I would recommend learning with a closed stance first, and then playing with the open stance if you can't correct the problem with the two previous suggestions. This stance is also suggested for women who are having trouble hitting their chest.



If you have been shooting for a while and are doing all of the previous techniques, yet are still hitting your arm, you may want to evaluate your form to see if you are anticipating the shot.

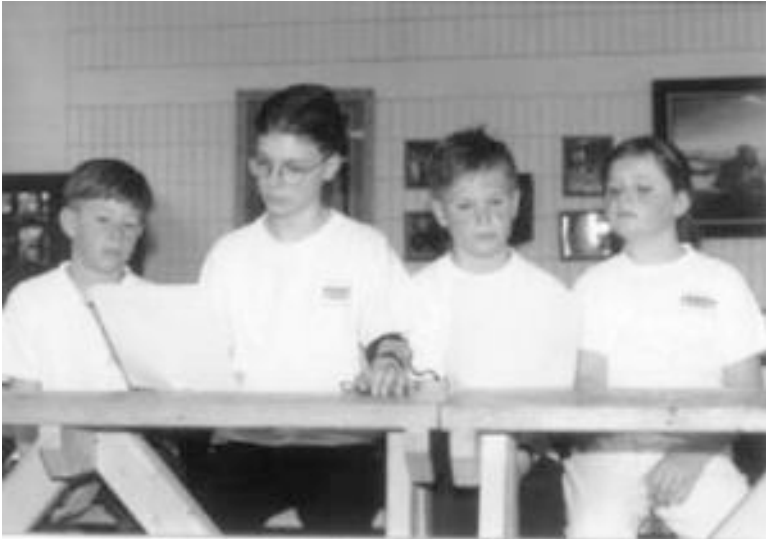


Many times, especially with clicker shooters, just before the shot is released they anticipate their follow through. Many try to extend their arm before the shot has released. This will throw your arm right into the path of the string, and leave your arrow far short of the area you would like. Stay in your shot all the way through the shot and just let the bow take your arm out NATURALLY!!

Hopefully this will help you stay away from the dreaded red raspberry that seems to occur so frequently on archer's arms. Please keep in mind that it is very difficult to keep the arm completely out of the way. Even the top shooters have to wear arm guards to prevent slight burning of the string. What you want to avoid is the hard hitting of the arm. If you have any trouble with the above techniques, ask your local pro to show you what they are.



An Effective JOAD Practice Session by Grant R. Fry



If you watch successful JOAD teams in action, there is always a common denominator. That ingredient is organization. A JOAD coach or coaching staff who can organize their team members stands a far better chance of success than even the greatest motivator if they are unorganized.

The first place your organization will be observed and the place where you will be judged the harshest is your practice sessions. Parents need to know that practice starts at a specific time and lasts for a specified period, unless notified in

writing to the contrary. Competition shooting lines are not supposed to be coaching sessions. Therefore, if the work is not done before they arrive at a competition, it won't happen on the line when the arrow has flown.

Parents, grandparents and other shooters judge your program by what they see in your practice sessions. If kids come away feeling good about the effort they made that day, you will usually be forgiven for forgetting their name. If parents see progress in whatever manner, they will support your program. So what constitutes a good practice session?

First, if you don't know every child or youth by first name, use a piece of tape or name tag to write it on. Nothing impresses a parent more than calling their child by the name they gave them. Yes, sometimes a nickname is appropriate when a child or parent wants it used. Most important though, is knowing who you are dealing with.



Second should be to make sure their equipment is properly set up. If they are using equipment from the shop or range, make sure it is acceptable for that child. This could be anything from the type of bow to the finger tab or arm guard. Make sure the poundage of the bow is acceptable for that child's development. Make sure the arrows are in good repair. Make sure the finger tab and arm guard fit properly. Remember that a child will almost always roll their elbow under when they first learn to shoot and that spells string burn. Long arm

guards are definitely appropriate with new shooters.

Next is to warm up properly. In the riddle at the beginning of this article, I alluded to a group always in motion. This is not the type of warm-up I was referring to. Yes, children have what seems to be an endless amount of energy, however the muscle groups they will be using in archery often are not the muscle groups they use for everyday play. Therefore, to avoid a parent commenting about how sore their child felt last week after practice, make sure everyone stretches muscles associated with archery before shooting. This can be done individually with more advanced shooters, but for most, it requires a group participation activity. Make it fun. If it is military calisthenics by the numbers, no one is going to enjoy it. But if it is a game, everyone can feel like they have had a good time even though it is just warming up. This is also the time when social direction and team esprit de corps is begun. Be focused, but have fun with it.



After the warm up, select an area of improvement or safety issue and conduct a "Coaching Moment". This should be a short 5-minute presentation aimed at technique problems some may have. Like everything else you do in practice, it should be as interactive as possible. In other words, think of practical ways to demonstrate this. It may not be a problem for everyone. In fact, by recognizing team members that have overcome one or more of these associated problems, those team members are built up in front of the group and it gives others the desire to be praised if they do what you, the coach, direct. Some teams have an assistant coach that just works on technique. This is the time for that coach to shine. As I also indicated perhaps a safety tip should be interjected as well as technique. Safety with youth can NEVER be underestimated or taken for granted.

Examples of subjects for Coaching Moments could be any of the Basic Nine Steps to Proper Shooting. This might be proper stance, proper follow through, correct release, or how to hold the bow so the string doesn't bite them. This actually provides mileage in several areas. Yes, you get to address a problem that

a shooter might have, but you also demonstrate to the parent or guardian that the child is learning something of value about archery. Believe me when I say that a parent is taking in everything you do at a practice session. Your program is ALWAYS under scrutiny.

After the Coaching Moment, actual shooting begins. Perhaps the first two or three ends focus on the Coaching Moment tip and Safety tip. Then open up the practice to shooting. This is the time for individual coaching. You as the coach need to be on the line working with each person even for just a short time. Make sure shooters of similar abilities are working together. This simplifies you and your assistant's efforts when working the line.

Vary your methods. Children are easily bored. Perhaps one week for the first part of class, have everyone move up to the 10-yard line to work on form. After 10 minutes, or several ends, then move them back to the 20-yard line for a timing drill. Keep their interest up by varying your program.

Don't work them so long that they get sore. Young children often can draw a 15-pound bow for 15 arrows and then require a break. Older youth drawing 20-25 pound bows may not need a break until they have shot 24-30 arrows. All, however, will need a break. This may only be a bathroom break or if you have organized

your parents well, perhaps a snack provided by parents on a rotating basis can be eaten at this time. This should be very light and may only be juice or water and snack crackers. Avoid lots of sugar or soda (especially sodas with caffeine).

After the break, divide the team into smaller teams and play a game. This is reward time, so assign really good shooters with less accurate shooters. Play tic-tac-toe or just simply blow up balloons and see which team breaks the most. There are several companies that make prepared game targets. All of these are great. You might even change the rules on a particular target from those that are printed. Use your imagination. The most important thing you are doing is helping the shooter to focus on a given bull's eye, regardless of what it may be.

Structure this activity so all teams have a chance to win. Several things are accomplished with this activity. Team spirit is fostered. It also opens up social interaction among team members. It also gives everyone a chance to win. Even the least experienced shooter should get a chance to taste Victory Lane once in a while. It instills a craving to improve and be there all the time. It also is what they remember best about practice.

Clean-up is next. All targets and balloon remains should be removed from the range. This helps instill a sense of responsibility in the team members. Trash should make it to the trash can. Targets that will be re-used, need to be put away.

The team meeting follows clean-up. This is simply a time to pass out flyers about upcoming events or changes to the practice schedule. Make sure this is written on a flyer. Youth, and occasionally parents, have a very short memory about some things. Complement each for their accomplishments that day. Some teams have a prize raffle at this time and give away small gifts from the local dollar store. Everyone has the same chance to win since everyone gets to enter. At this time, practice is over.

The last item in a good practice session is to take equipment down. This is where parents can and should be an integral part of your program. Helping their children demonstrates an interest in what they've accomplished that day. It is also a time when the kids are most excited about how many bull's eyes they got or how their team won the daily competition. It is most often a time of great enthusiasm.

The most important thing to keep in mind is that kids are kids. They need structure. Their parents want structure. They need to have fun. If you are organized and provide that structure, parents will support you and kids will have fun.

Which Arrows Should I Use For 3-D? By John Dudley



How many times have you found yourself asking this question? It's a pretty common topic concerning archery equipment. In the sport of 3-D archery it's incredibly important that you make the right choice. What really makes this choice so tough, is a molded line $1\frac{1}{8}$ of an inch wide on a foam animal target. We have to be able to touch that line to score our valuable 12's, a good ten, or even a "lucky I caught it" eight.

I want to put a few things up in the air about carbon and aluminum arrows, and

hopefully it will help you in making your decision of what arrow to shoot. There are advantages and disadvantages to both arrows. Shaft diameter, weight, speed, and durability are key factors in deciding between the two.

First there's diameter. This is probably the biggest argument among 3-D shooters. I.B.O. World Record Holder, Randy Chappell, told me, "My primary reason for shooting aluminums is for scoring. I need the shaft diameter. In today's 3-D game you get beat by only fractions of an inch." It's true, that's all it takes to be out ... fractions of an inch. I haven't found very many people that will argue that carbon arrows shoot better groups than aluminums. Is that what's important though? Almost everybody is under the impression that we need a fat shaft to cut those lines. Is it better to have a set up that will shoot better groups or a set up that will score better?

This year a bunch of 3-D greats are changing back to carbon arrows. I.B.O. World Champion Pete Works recently put down his 2512 XX75's for a quiver full of A/C/C Hyperspeeds. "In January when I got my 3-D equipment out it wasn't shooting as well as it did for me in August. I remembered how consistent carbon arrows had always shot. After shooting at 50 yards with both arrows I plainly saw that the carbons shot less arrows outside the dot." I asked Pete if his carbons were costing him any points in tournaments. He replied, "I'd say about 3 arrows per tournament are close enough to a line where an aluminum would get me in." If they were shooting better groups, whose to say 3 arrows with aluminums would shoot outside the lines. Don Folks from Tru-Flite Arrows commented that, "If the 12 ring was out of the picture we would see the majority of the guys shooting carbons in 3-D." Back when the I.B.O. had targets without 12 rings and were set out at distances that were nothing but LONG, everyone out there was shooting carbon arrows. Randy Chappell shot the perfect 400 with A/C/C 3-60's. Another superstar that has been fumbling this choice around is 2 time World Champion Larry Wier. Larry won both of those tournaments shooting carbons. Larry says he doesn't know why he keeps attempting to shoot aluminum arrows since 98% of the tournaments he's won money at he shot with carbon arrows.

Let's look at the other side though. Randy Ulmer, Dave Stepp, Jeff Hopkins, Johnny Heath, George Dixon, Shannon Caudle, and Ken Likens all shot aluminum arrows last year. Imagine how much money aluminum arrows won for all of those guys. 3-D Archery is a very unforgiving sport. You can go out, make 40 great shots, and somehow manage to score terribly. On the other hand I've had days with panic, punching and bad judging and still scored well. That's where shaft diameter tends to help you out in 3-D. In the Pro -Women's class the majority of the shooters aren't shooting aluminum arrows. They mainly shoot carbons. "I have to have an arrow that hits where I'm aiming," said Kathy Caudle. Besides needing the accuracy of carbons, women also need an arrow that will be light enough.



The next thing that makes carbon and aluminum arrows so different is the weight. Obviously an arrow made up of 350,000 tiny carbon fibers will be considerably lighter than a 7178-T9 alloy that makes up a huge aluminum shaft. Joella Presson told me "With my short draw length I can't find an aluminum that's light enough. I like the accuracy with carbons and feel I get a flatter trajectory too." In order to get any speed out of a big aluminum arrow one of two things must happen. Either shoot a really lightweight point to get the overall weight down, or shoot higher poundage. Luckily for all of the 3-D archers Flite-Mate makes points as light as 30 grains. Common sense would tell us though, that an arrow with a 30-grain point probably wouldn't fly as good as one with a 100-grain point. "I like to shoot a lot of point weight. The carbons are the only arrow that allows me to do that without losing speed," said Joella. How much does a heavy point really help? George Dixon won everything this year and last year shooting 2512's with 50 grain points. Randy Ulmer is shooting 2212's also with 50-grain points. We all know what he's accomplished.



People will argue that the light points just won't fly in windy situations. There are many shooters that shoot points 100 grains or heavier. It's been proven over and over that arrows with heavier points drift less in the wind. Also, a skinnier shaft will drift even less. Rod White, Butch Johnson, and Justin Huish all proved that in the Olympics with Easton's X-10. The problem with shooting a heavy aluminum arrow is you can't get much speed out of them. Speed is pretty important in 3-D and in hunting. In all sports where distance is unknown it

can only benefit you to shoot as fast as possible. I can shoot a carbon arrow with a 125-grain point 284 feet per second out of my Mathews Conquest at 60 pounds. In order for me to shoot a 2512 aluminum with a 125-grain point at the same speed I must shoot about 13 more pounds. Now that Pete Works is shooting the carbons he only has to muscle about 60 pounds. That is why carbons are the majority of the arrows being

shot by women archers. With short draw lengths and lower poundage they must shoot a light arrow to achieve optimum speed.

A final factor in deciding between these two arrows is durability. I asked about 30 top pros what arrow they felt was more durable. They all felt the same in that carbons were undoubtedly more durable than aluminums. This is why many people shoot carbon arrows for hunting. I've seen people pull carbons out of trees and still shoot well. However, Chuck Adams, has killed about everything with XX78 Super Slams. In addition, aluminum arrows cost a lot less than carbon arrows. When it comes to penetration I've found that a fast carbon arrow with a Rocket expandable broadhead will pass through about every North American animal with a good, ethical shot.

There are many pros and cons to both carbon and aluminum arrows. What it all really boils down to is shooting what works best for you. Experimenting with all kinds of arrow combinations can only increase your chances of finding a great set up. Good luck this season.

John Dudley

"The Kidd"

Special Thanks to: Mathews Inc., Specialty Archery Products, Toxotics, Golden Key, T.R.U. Ball Release, Tru Flite Arrows, Brunton, Block Targets, Rocket Broadheads, Carbon Tech, Zebra Strings, Easton, Flite-Mate.

Jigs, Glue and Tape ...
The finer points of fletching.
By Rick McKinney



In the March/April issue of Archery Focus we discussed various ways to place your fletching on your arrow shaft. Now, we will get into the details of using jigs, glues and tapes to secure your fletching. Placing your vane or feather on the shaft properly is critical to many top archers today. One of the most frustrating times an archer can have is to lose points because of being sloppy or not paying attention to detail.

I recall my very first time I was allowed to fletch my own arrows all by myself. I

figured there wasn't much to it. All I had to do is put the fletch in the clamp, spread some glue on the fletch, attach the clamp to the jig and let it dry for 15 minutes or so. I did all of this and anxiously went with the family to the local indoor archery club that evening. I shot my first five arrows and went down to the target and noticed that all of my fletchings were lying on the floor below the target! That's when I learned that patience was a virtue.

You must learn to clean your shafts properly by using either certain solvents, Ajax cleanser or the Luv-A-Bow's® new shaft cleaning agent that does not have any chemicals. All will work. You just have to decide which you would be more comfortable using. I used to even use a very fine emery cloth on my aluminum shafts to lightly rough up the surface before cleaning them.

Once I have all of my shafts clean, I then proceed to determine which fletching jig to use. For a single type fletching jig I have always used the Bitzenburger. It is very reliable and has never let me down. I also, just use one jig to make sure that all arrows are fletched exactly the same. The biggest problem I have found with fletching jigs is that they are not exactly 120 degrees apart. Since your shaft is 360 degrees around, you want each fletch to be equally apart from each other on the shaft (120 degrees). If you are purchasing jigs, try to make sure that you get a good one. When I use the spin wing vanes, I have a special tool made in Italy. It is a simple tool that slips right over the shaft and you can mark the lines on the shaft easily and semi-permanently with an indelible ink pen. You can also use a regular fletching jig for this purpose. I just like the little tool that I can take with me to tournaments and fletch arrows in the evening if I need to.

Now that I have determined which jig to use, I need to decide on the vanes. You can read about that information in the past issue of Archery Focus. For indoor shooting I like to use feathers. I have used the four and five inch Spin Wing Vanes in the past and have shot well with them, but I am like most archers, pretty lazy when it comes to equipment maintenance. Feathers last quite a long time (usually 2 seasons for me). The main reason I like feathers is that they are probably the most stable fletching for indoor use. Since speed is not an issue indoors, get the biggest fletch you feel comfortable using. I have always used the five inch.

The next thing to decide is if you are going to use a helical or straight clamp. I like using a helical indoors since it gives you a great spinning arrow. This spin helps the arrow stabilize and for recurve finger shooters, fast spinning stable arrows appear to give you an edge. The problem with helical is that it wraps around the shaft causing the feather to not be in its designed position: straight! So a good glue is a must and the time between fletching is usually recommended to be about 30 to 45 minutes, unless you use the fast drying glue which to me is too brittle. There are three glues that I am very comfortable using with feathers; Bohning's Fletch-Tite, Flex-Fletch's Flex-Bond and Saunder's NPV. These glues work great, however, there is a new kid on the block and it is called tape! Yes, Bohning makes a Premium Feather Fletching Tape that is just great! It takes away all of that messy glue and chemical smells and it seals just as good as far as I can tell. I started using it two seasons ago and I am hooked!

Next is inserting the shaft in the jig and placing the fletch in the clamp the same place each time. This should be no problem. I usually put the back end of the fletch at the third mark of the Bitzenburger clamp which places the fletch about 1 and 1/4 inches from the nock insert. When using glue you must make sure you put a very smooth bead of glue all the way from end to end of the fletch. Do not use too much glue or the excess will just slide down the shaft and make a mess. However, make sure you use glue and don't try to air brush it on!!! Once you have the glue on just put the clamp in the jig and make sure that the fletch is touching the shaft all the way from end to end of the fletch. You should be able to tell if you have it on correctly. Take your time and make sure that it stays in the correct place while drying. Once you have it positioned it should stay there.

The tape is very self explanatory. Just peel one side, lay it on the fletch and then peel the other side and put the clamp on the jig and press. Once you have all three fletches on the shaft take it out of the clamp and use your thumb nail and slowly press against the fletch to the shaft for a good seal.

Once you have all three fletches on the shaft and have taken it out of the jig, put a small bead of glue at the ends of the fletching. This will make sure that it does not come popping up while shooting. If it is up, it may catch the rest or something and cause poor arrow flight and of course cause you to miss what you were aiming at.

With Spin Wing vanes just mark your arrow shaft as mentioned above and then you have two methods you can choose to apply the fletch. One is putting the tape on the shaft first (I like this one). I use the 1-3/4" vane and since the tape is 3-3/4" I just cut the tape in half so I do not waste the tape. This tape is without a doubt the best tape in the business. I have used it for attaching my clicker plate to the bow, putting on the back of my Barner rest to keep it from moving around and used it for a shelf for my rest to keep the elements from getting on it while competing! Anyway, back to fletching. Just peel the one side of the tape and lay the tape on the shaft and then put the vane on the tape using the markings as the guide.

The other method is to put the tape on the vane first, then put the vane in a fletching clamp and apply it to the jig. This probably is more accurate. However, I have tested both ways and found no difference in performance, so ... I just choose the simplest method! Once you have put all three of your vanes on the shaft, use the black tape they provide for you to seal the ends. This tape is again the best I have used. As a matter of fact I tried several other type of tapes and none of



them worked. This tape works and I have continued to use it for a long period of time. If you do not want to use the tape make sure you use a small bead of glue at the ends to keep those ends down. If the front of the vane comes up while shooting, I can assure you that the arrow will do some excellent acrobatic tricks in the air and once it lands it will either be dirt or grass! Don't take that chance!

String Material

More than you wanted to know

By George Tekmitchov



In the beginning, bowstrings were made from fish guts. These strings were good for 3 or 4 shots at a Mastodon, and then they would break and the caveman would die. Later in the Jurassic period, there were Kevlar strings, which were good for a few FITA rounds, and then they would break and Darrell, the archer, would have to change strings and hope the sight mark was still good. Fortunately, today we have much better materials, because a broken string in an Olympic Round means: you lose.

Seriously, though, it is really amazing how much progress has been made with bowstring materials in the past few years. In the early part of the century and up to the mid 1950's, strings were often made of waxed Irish linen thread. This was a material which was reasonably strong, as long as it was not allowed to dry out. Dry linen is weak, and string breakage was extremely common. Sometimes a broken string would also break a bow limb. In the late 40's and early 50's some archers began to use strings made from the synthetic fiber Fortisan. Fortisan was also one of the first synthetic fibers used to back bow limbs. Fortisan wasn't as bad as Irish Linen but still stretched like crazy and was susceptible to breakage. In the late 50's and early 60's, Dupont developed higher strength polyester called Dacron. This fiber quickly became the top choice for bowstrings and is still in use today. Dacron stretches a considerable amount, but is long-lasting. It is slower than current materials because it stretches (like a rubber band) on each shot, and wastes some energy that could be used to propel the arrow.

Target archers seeking higher arrow speeds first started using Aramid fiber strings in the mid 70's. Aramid fibers belong to a family of so-called Liquid Crystal Polymers, which are very strong because their molecules are mostly oriented in a specific direction. Dupont introduced Kevlar Aramid fiber to the market in 1971.

American archers using Kevlar 29, Japanese archers using Technora, and European archers using Twaron Aramid materials achieved higher arrow speeds, at the cost of more potential bow damage and string breakage. The reason for the increased speed was that these materials stretch less on the shot allowing more efficient energy transfer to the arrow shaft. Aramid's achilles heel is it's relatively poor performance under compression load. A slightly tight nocking point or a bulge in a string end loop would often prove fatal to a Kevlar or Technora string after only a few hundred shots. Kevlar 49, a stronger material, helped with some (but not all) of this problem, and more archers took to the new material. By the early 1980's nearly all top target archers used Kevlar or Technora string material.

Today, the Olympic Bow string material of choice is ultra long chain polyethylene fiber, known by the trade names of Dyneema or Spectra. The first known use of this material in archery involved the use of Spectra

fiber in bowstrings made by Jim Pickering at HoytUSA around 1983-84. This material was commercially introduced in the archery market around 1986 as the "Hoyt AIM system" for compound bow riggings. The previous year a number of people were beginning to try Spectra and Dyneema strings on Olympic bows, and the materials quickly eclipsed Kevlar with the commercial introduction of Brownell & Company Fast Flight material, made from Spectra fiber.

This stuff lasts forever with very little care. Rick McKinney had a Spectra fiber string made in the mid-80's which was retired at more than 100,000 shots. (By then it was so filthy it had become a health hazard!)

"Dyneema" and "Spectra" are comparable fibers in that they are both made from a "gel-spin" process, in which the constituent material (polyethylene) is dissolved in solvent and spun through a small orifice spinneret (kind of like that used by spiders!). Two firms make this material or license its manufacture: DSM (NED) and Allied-Signal (USA). DSM's material is called Dyneema, Allied's material is known as Spectra.

Dyneema and Spectra are both produced in different grades which are based on filament count and specific strength. This is the reason similar products make differing string diameters when the same number of strands are used in the string lay-up.

Angel Dyneema:

Angel ASB Dyneema is made in Japan by Toyobo under license from DSM. It is Dyneema SK60 material which has essentially no wax, just a 'sizing' finish which allows it to be spooled properly. SK60 is about 1000 denier (in these examples, generally the bigger the denier number the higher the filament count). The Angel Dyneema "Sensitive" is a corona treated SK60 which is dyed a sort of teal color. Normally corona treatment is used to enhance adhesion as part of a composite structure or allow coloration of the normally white fiber. Corona treated Dyneema has a lower modulus and somewhat lower strength, which might be why the "sensitive" tends to fuzz up a little. Angel Dyneema is the choice of many top shooters because of its quality, consistency and smooth-feeling shooting characteristics. It is also a little lighter than an equivalent string made from other materials because it has no wax (even though the label says it is waxed).

BCY Fibers Products:

The original BCY Dynaflight was made from Dyneema SK65 sourced from DSM. This SK65 material was 1200 denier and was comparable to Brownell Fast Flight Spectra material.

The current BCY "Dynaflight 97" (no, Bill Gates does not work for BCY) is produced from Dyneema SK75 which is the latest incarnation of this fiber from DSM. SK75 was developed for marine rope applications. Hence, SK75 is a big bowstring fiber, containing 780 filaments per strand. This means a 14 strand string is just slightly smaller in diameter than a 20 strand Angel Dyneema string. The SK75 material is about 33% stronger and has 20% higher modulus than the SK60 according to DSM's own technical information.

The SK75 does appear to make an excellent string. I have used Angel Dyneema for a long time, but I have been shooting a Dynaflight 97 string since July, and I really like it. It is fast and easy to make a 14 strand string, and this material is very stable. It comes with a light wax content.

BCY 450 Plus. The new 450 plus replaces 450 Premium, which was 2/3rds Vectran and 1/3rd Dyneema SK65. The new stuff is 66% SK75 and the balance Vectran. I think this kind of material is best suited for the compound bow, where creep is an issue for buss cables. Only 12 strands of this material are equivalent in diameter to 20 strands of Angel Dyneema or 18 strands of Fast Flight.

Brownell & Company:

The company that introduced Spectra Fiber to the archery market as Fast Flight, has something new in 1998, Fast Flight 2000. This material is their answer to Dyneema SK75 and BCY Dynaflight 97. It is 30% stronger than Fast Flight, a little larger in diameter, and comes with a medium wax content. It should be very comparable to Dynaflight 97. About 14 strands of this material should make a string equivalent to an 18 strand Fast Flight string diameter.

Brownell was the first company to introduce Dacron to the archery market, the first with Kevlar, and it was the first with Fast Flight. It also developed the first workable solution to the problems with Vectran with the introduction of S4 material. S4 is a 50-50 mix of Spectra and Vectran, in two discrete strands which make a very thick bowstring. Top Olympic and compound shooter, Butch Johnson, uses this material in a 12 strand configuration which is roughly equivalent to 18 strands of Fast Flight or 20 strands of Angel Dyneema.

So what should I use ?

As you can see above there are lots of choices. A few guidelines may help you decide what you might want to use.

Angel Dyneema makes for a softer feeling shot and a good-sounding bow. Color is limited to white. No wax content means the string stays very consistent but needs some care.

Dynaflight 97 is very easy to work with because it is easier to make a 14 strand string with equal tension on each strand than a 20- strand string. "Just the right amount" of wax means this string is low-maintenance and won't change much over time. It does need a few more twists to make it as pleasant sounding as Angel Dyneema.

FastFlight 2000 is also easy to work with. Heavier wax content means it is easy to make strings on automatic machines but you need to remove some of the wax if you make the string yourself or you will have a string that loses weight over the first few weeks of use.

And remember, as reliable as these materials have become, always carry a broken-in back-up string!!

Until next time, shoot straight and think ten.

"I won the gold medal," he said, noting that Terry Ragsdale, another Carter shooter, won the silver, also with an Adjusto Trigger.

"I have set up Adjusto Triggers for other archers," said Wilde, "and I have been able to fit the biggest and smallest of hands."

"The idea of adding a thumb trigger to a back tension-type release aid is nothing new," Wilde said. "In 1987, I took a cocking spur off an old Marlin rifle and put it on a TR Release," he recalled. "It basically moved the trigger over to the side, where it was more comfortable to shoot."

"Then Jerry (Carter) made me some spurs out of brass that would attach to the trigger," Wilde said. "He would use an extended roll pin and he put a friction enhancer on it." That version of a thumb trigger performed marvelously, however, it would only fit certain sized hands.

"Even though I have big palms, I have relatively small fingers," Wilde said. "So the position of my Adjusto Trigger is normal."

Where should your Adjusto Trigger rest in your hand?

"If you have a small hand," Wilde explained, "loosen it up then let your hand down to your side...You want the Adjusto Trigger to fit right in the crease of your thumb."

You might think that such an innovative device would carry a hefty price tag. Wrong! You can buy an Adjusto Trigger for about ten bucks at your local dealer!

If you'd like one, call Carter Enterprises at 208-624-3467 or write Carter Enterprises, P.O. Box 19, St. Anthony, Idaho 83445.

