

## **Thoughts on Arrow Building**

### **Article Courtesy Bill Winke**

Making your own arrows leads directly to better shooting. Doing it yourself is the only way to control all the variables that are involved in tuning and accuracy. Building arrows isn't tough, either. I started building my own just months after digging into the sport. At first, I was most interested in saving hard-earned cash, but soon I found that the arrows I made were better matched to my goals and equipment than the ones I could buy.

The following is a discussion of several arrow building options, and a few general guidelines to help you choose a good starting point.

#### **FEATHERS OR PLASTIC VANES?**

Feather fletching has traditionally been regarded as the most forgiving. Being very flexible, feathers will move easily out of the way if they contact the arrow rest. Because it is not deflected as easily, an arrow equipped with feathers has the potential to be easier to tune. On the other hand, if you don't have contact in the first place, feather fletching is no more forgiving than plastic vanes.

Bowhunters who shoot traditional equipment "off the shelf" know that feathers are the only fletching choice that makes sense. Because contact between the fletching and shelf (or sight window) is quite probable, even with a well tuned stick bow, feathers offer the best chance for good arrow flight.

Some archers believe that feathers offer a much better down-range arrow stability than do vanes. Feathers are slightly thicker than vanes, and they do create a bit more drag because of the roughness of their texture, but from the data I've seen they offer only a very small advantage in stability.

Plastics vanes are more durable, and easier to maintain than feathers. Vanes are also waterproof, which can be a significant factor when hunting in wet weather. When feathers get soggy they lay down on your shaft, greatly reducing their profile and stabilizing ability. However, there are some good waterproofing powders that will keep your feathers dry under the worst conditions. When choosing a fletching material, I suggest that you first try vanes. If you simply can't eliminate rest contact then go to feathers.

#### **DON'T OVERDO THE HELICAL**

While it is possible to get by with straight (no offset) fletching on 3-D and target arrows, hunting arrows are another matter. Helical or offset fletching is required for maximum stability with broadheads. A spinning arrow is much less likely to plane than one which knuckle-balls. I remember early in my bowhunting career spending many long hours trying to get my straight fletched hunting arrows to group together. Out of six or eight arrows I was happy if I could get two to hit the same spot at 20 yards. As soon as I realized the problem was my fletching, my groups instantly tightened up.

Beware of putting too much offset in your straight or helical fletching, however. A very aggressive offset makes it tough to get good fletching clearance through the arrow rest. Radical fletching angles take up more of the circumference of the arrow's shaft, making contact (especially with a shoot-through rest and a release aid) a high probability.

The technical specialists at Easton Aluminum recommend an offset of approximately three to four degrees. Four degrees is what you get with the proper application of fletching using a Bitzenburger helical clamp. Using straight or other helical clamps, you can come close to getting the exact offset required using an inexpensive protractor as a measuring aid

## CHOOSING THE RIGHT FLETCHING LENGTH

For years, only five inch fletching was considered for hunting arrows. You were a heretic if you even thought of putting four inch fletching on the same arrow with a broadhead. Today, many bowhunters are doing it, and shooting these shafts very well. Of course, it makes a difference what type of broadhead, arrow and arrow speed you are working with.

For example, if you are shooting expanding-blade broadheads you can use four inch fletching at any arrow speed and enjoy good accuracy. Many bowhunters using fixed-blade heads have told me the same thing, but I tend to be more conservative. When trying to shoot really fast arrows with fixed-blade heads you need all the stability you can get. Under these conditions, anything over 260 feet per second is fast, and you should start out using the longer fletching.

Fletching length also affects tuning. It is easier to tune an arrow with four inch fletching than with five inch fletching. It is easier to avoid contact with the rest when you use the smaller size. Tuning can sometimes be more important than ultimate down-range stability, so there are times when four inch fletching is the best choice. Experiment a little to find out what works best for you.

Gateway is the king of feather fletching, and I've experimented with vanes made by Bohning, PSE and Easton - finding them all to perform well. Easton is now offering their new Diamond Vane with a little thicker cross-section and rougher surface finish to increase stability while lowering the profile to improve rest clearance. Bohning's new Knife Wing II vanes are very thin and flexible to simulate the forgiveness of feathers, but are still very durable. Their new Bi-Delta Vanes are designed to maintain stability while shedding weight for use on high speed arrows.

## NOT ALL NOCK SYSTEMS ARE CREATED EQUAL

There are two things to look for when selecting a nock. First, get one that can be rotated for easy tuning. The most common tuning problem is contact between your fletching and your arrow rest. To eliminate this problem causing collision you have to turn the nock so the fletching will pass cleanly through (or around) the rest. If you are using a glue-on nock, that means cutting off the nock, cleaning the nock taper and gluing on a new nock at a different rotational position. That may not solve the problem and you'll have to start all over again. It is so much easier to simply tweak a rotating nock a little and try another shot.

Easton makes the Super Nock which can be turned using a small tool included with the arrows. You can either buy your favorite arrow size with Uni-Bushings already installed to accept the nock, or you can buy the bushings and nocks and install them in your present arrows as an

after-market add-on. Be forewarned, you may change your finished arrow length by installing Super Nocks.

Saunders makes the Kwik-Nock, another indexing nock system that can be purchased as an after-market product. Bohning's well designed Signature Nock fits into Easton's Uni-Bushing, and offers several intelligent features. Finally, Gold Tip makes the Lock Nock which slips down inside the shaft (no bushing) and locks into place with a small allen wrench. Of course, this nock can be loosened and turned easily.

The second requirement of a good nock system is string retention. Long draw lengths and short axle-to-axle bows create a problem for some nocks. An arrow whose nock has only a short throat area to retain the string is prone to dropping off the string at full draw. In addition, such an arrow likely will not stay on the string should you have to let down and redraw. That very situation happened to me last fall. If my arrow had fallen off the string when I let down, I would not have had time to shoot the huge buck that was walking quickly out of my shooting lane. I was using an Easton Super Nock that day, and I'm sure glad I was! Bohning's Signature Nock offers the same feature. Saunders' Kwik Nocks are available in two sizes to snugly fit different diameter bowstrings.

#### INSERTS: THE MOST OVERLOOKED ARROW COMPONENT

If your inserts aren't in straight, there is no way your broadheads will line up with the shaft. That means a lot of frustration when trying to find several hunting arrows that all hit the same spot. A high quality insert will have a light press fit with the inside of the arrow shaft. When there is a sloppy fit between insert and shaft it is possible for you to get one insert cocked one way and another one a different way. When you consider the affects of broadhead steerage, I think you'll readily see the problem - serious planning.

Easton's RPS inserts have always fit snugly for me. Saunders makes their ROI inserts with a light press fit. All of those that I have tested were well designed. I can't comment on the quality of other inserts on the market because I haven't tried any other styles. I do know that many times the inserts that come with your arrows (especially discount shafts) aren't of the highest quality. The additional purchase of a dozen precision inserts is a small price to pay for greatly improved accuracy while hunting.

#### SPECIAL CONSIDERATIONS FOR CARBON ARROW BUILDERS

Components for carbon arrow builders have improved in leaps and bounds in the past two years. Saunders is also making its indexing Kwik Nock for most popular carbon arrow sizes. This streamlined design makes tuning easier for two reasons. First, the nock can be rotated for better fletching clearance through the rest. And second, the nock system is barely larger than the shaft, greatly reducing the possibility of the nock contacting the rest when a mechanical release is used. Flitemate makes the Technok, another streamlined, indexing nock system for popular carbon arrow sizes. Easton's PC Nock Outsert system accomplishes the same task for all Easton PC arrow sizes.

Point adapters are falling out of favor of late. Instead of gluing them on, most savvy bowhunters are setting up half their arrows with glue-on field points and half with glue-on broadheads. In both categories there are some excellent offerings. All three major carbon arrow makers (Beman, Easton and AFC/Game Tracker) offer good component systems.

You may save a little money by making your own arrows, but having control over the variables that affect tuning and accuracy are the main reason to "do it yourself".