

Summer, 1997

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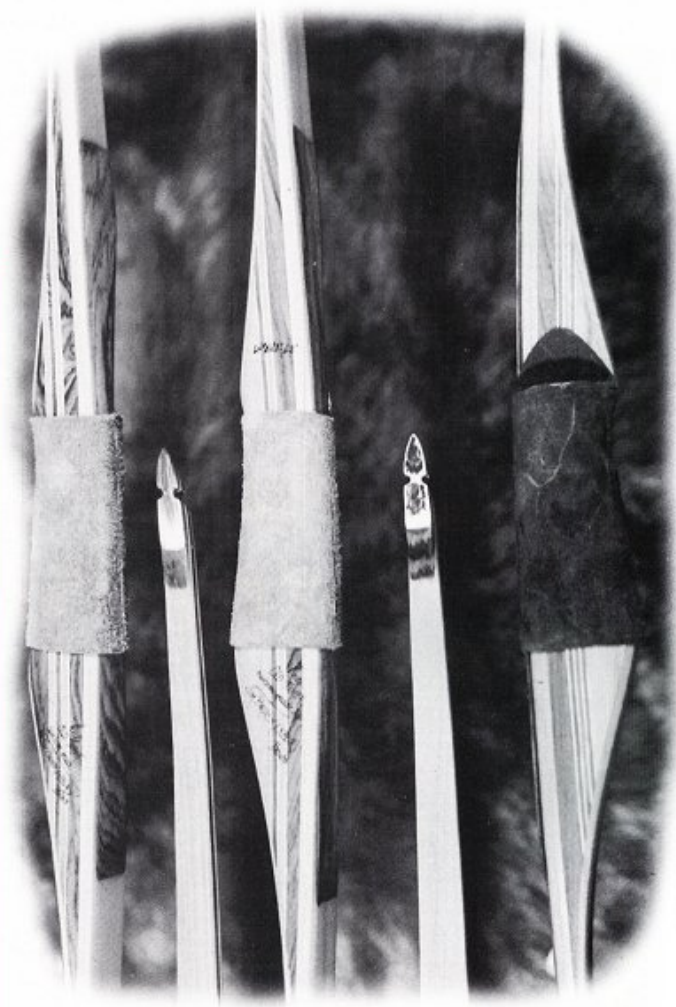
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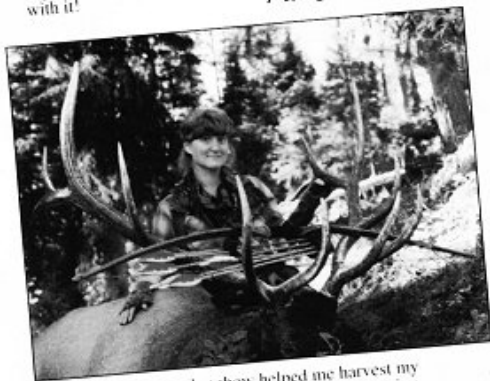
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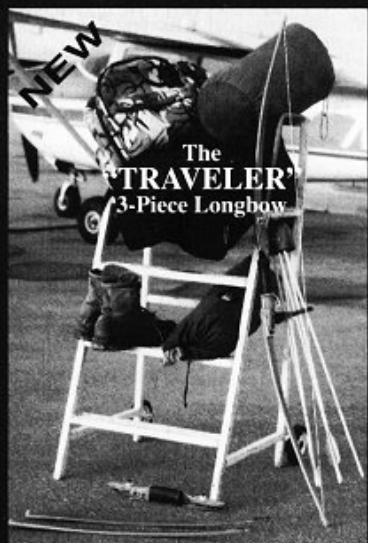
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INSTINCTIVE ARCHER®

Summer, 1997

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REMEMBER: We offer all traditional archery organizations 100 FREE words to advertise their events, benefits, fund-raisers, etc, in each issue of Instinctive Archer™ Magazine.

INSTINCTIVE ARCHER® MAGAZINE

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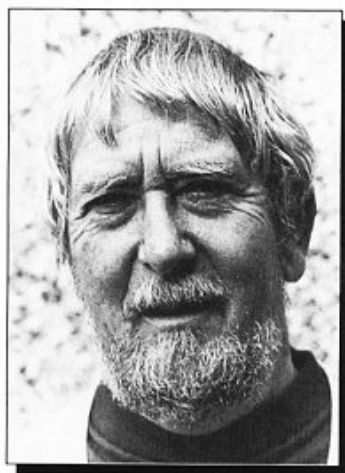
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Hugh D. Soar
British Editor

From the British Editor

Tradition is a strange thing. The best of the past blended harmoniously with hope for the future. Its personification is the status quo.

Or, so it should be. But sadly it isn't. We in Great Britain, already banned from hunting with the bow and arrow—for reasons I may say with which many thoughtful archers agree—now stand to have the very roots of our chosen sport grubbed out by those in Government whose rhetoric persuaded us to choose them as guardians of our British way of life.

One politician, whose own perversions have fueled media headlines here, has had the gall to describe those who legally use handguns (an Olympic Sport, no less) as perverts. We who share the pleasure of an aiming sport are in strange company indeed.

By the time this editorial is read, we shall have a new Government in Britain. It seems increasingly likely that there will be change. Should we be worried? The hell we should! The prospective incoming Home Secretary has already written to our National Field Association to say that he has archery "on his list." Could our sport, the choice of Britons for a thousand years and more, be snuffed out by media-led hysteria, bigotry, and bias for short-term political ends? The hell it could.

So, what's to be done? The question is a rhetorical one for we are sitting ducks. But, we can help ourselves by responsible promotion of our sport. Forget the ability of a battle-shaft to penetrate armour; the arrow which skewers a pig's carcass to the ooh's and ah's of the hoi-polloi. We know it can be done, but let's keep it to ourselves. If the future of archery rests upon a perceived image of innocuity, then so be it. As the song has it, let's accentuate the positive side of archery. The companionship, the pleasure of grass and trees, the sheer joy of drawing a bow. The media thrive on hysterical hyperbole; we must starve them of it. Better a frustrated media hack than a frustrated archer!

I'll finish by briefly quoting from a 16th century treatise on archery, because the sentiments are surely as relevant now as they ever were.

"... If a man should peruse all pastimes and exercises profitable to all men, worthy to be rebuked of no men, fit for all ages, persons and places, and a medicine to purge the whole land of all pestilent gaming, only shooting shall appear wherein these commodities shall be found. . ."

Hugh D. Soar



Editor's Note: In our Spring, 1997 issue, we didn't indicate that a similar version of K.I. Koppedray's article *The End of an Archery Tradition in South India*, had previously been published in the *Journal of Archer Antiquaries*. We like to provide our readers with as much reference material as possible and apologize for the omission. We look forward to bringing you more of Mrs. Koppedray's work in future issues.



Letters to the Editor:

Dear Sirs,

I enjoyed the article on Chester Stevenson. As an old-timer I recall many stories by Chester during my 83 years. He was quite a writer for one of the old archery magazines.

I started archery and my first self osage bow in 1937. Since retiring in 1981 I have been busy with studies on exercise and health, but more so on bow and arrow making for my own personal use as well as many days hunting whitetails. Best wishes in continuing the magazine.

Sincerely, Dr. Fred Kasch

Dear Sir,

I was unaware your magazine existed until I saw a copy of the Winter '96 cover in a recent Virginia Traditional Bowhunter Association newsletter. After reading one of the two Winter '96 copies you sent to a fellow traditionalist, I was favorably impressed by the quality and content of the magazine. The articles by Bob Adler and Gary Altstaetter were particularly informative and well written. . .

Sincerely, Collen Kline

Rik,

First of all, enclosed is my check for a one year subscription to your publication.

I've read the first three editions of *Instinctive Archer* and while I enjoyed them a great deal I was disturbed by the holier-than-thou attitude of some of your writers. That same attitude, by the way, seem to be endemic to traditional archery publications in general. I've never owned a compound bow and never will, I've cast, perhaps a dozen arrows from wheelies over the years and I don't like them! I think they're ugly; too heavy and too complicated for my taste. I also think that snake bows are ugly and wouldn't have one of them either. None the less, I still look upon snake bow and "wheely" shooters as archers, as I believe we all must.

I received my first bow forty Christmas's ago, a wood and glass longbow of 20 pounds. Since then I've owned a wood and glass Bear Cub, a wood and glass Bear Grizzly recurve and recently a wood and glass custom-made longbow. I've used cedar, glass and aluminum arrows. None of my bows has ever worn sights though I have used a stabilizer, mostly as a counterbalance to the bow quivers that I prefer. According to some writers in the traditional archery press I am not now and have never been a traditional archer—the materials of which my equipment is made disqualifies me. (What really ticks me off most is that some of those people who would exclude me from the traditional fraternity are new to archery or converts from the wheelbow world, while I've been at it for forty years.)

Well, my friends, I beg to differ! Just read a bit, say from *THE TRADITIONAL BOWYERS BIBLE*, and you'll learn that ancient bowyers used whatever materials came to hand, wood, skin, bone, horn, in laminates or alone, made bows of every shape and description imaginable, from six-foot straight bows to two-foot hoops. Why, some ancient bows even had cables to help make the bow more efficient! What then properly constitutes traditional archery? Must

the archer fell the tree, split out the stave and carve his own bow, collect and process the materials to fashion arrows and twist his own string from gut or from flax that he has harvested and spun into linen to qualify? Where do we draw the line?

Certainly, it takes more skill to accurately shoot a bare, sightless bow and, because wheel bows are generally, though not always, more efficient, it takes more hunting skill to hunt with a stick bow. Is that a measure of whether an archer is admitted to the traditional fraternity? What of the humaneness of the kill? After all most archers are also, or perhaps primarily hunters. Here we enter onto the brink of a dangerously slippery slope, for many people, including our fellow hunters, believe that archery is an inhumane hunting method and further view traditional equipment as more inhumane than the compound bow. I'm sure that many of you have heard such comments. What if the wheel bow crowd, many of whom already agree with the anti-traditional views of others, should decide that we traditionalists are a detriment to their sport? While our ranks are growing I doubt that we traditionalists will ever come close to a majority of archers and could not expect to fend off such an attack. We will have no one to blame but ourselves because we turned our backs on a fellow archer and only because we didn't approve of his equipment choice.

I hope you see my point! Archery is an ancient tradition and encompasses all sorts of equipment. What I believe we really ought to be concerned with today is attitude. Does the man, or woman, keep the heart and soul of archery pure? If so then he/she is a traditional archer. I'm not advocating that all lines should be abolished, just that there be more tolerance within the archery fraternity. I would not want to compete on and equal footing in some competitions against an archer with the latest state-of-the-art space bow. Neither do I want to exclude him from the fraternity.

Sincerely, Jeffrey R. Garner, Flint, Michigan

Hi Rik,

Just a few words to say how very much I enjoy reading the articles in your magazine by Price Ebert.

Obviously Mr. Ebert is an experienced professional physical trainer. His articles are concise, well written, and contain a great deal of excellent information. His recent article; S-t-r-e-t-c-h-i-n-g The Key To Strong, Injury-Free Archery was E-x-c-e-l-l-e-n-t with a Capital E.

The article is especially significant as an archer grows older, which happens to everyone if we take care of ourselves. As we age we lose a percentage of muscle mass each year making it more important to maintain what is left with great care. Since viewing Price's video and reading his articles I can detect noticeable improvement in my enjoyment of the King of Sports.

Most Sincerely, Bob Wesley

Dear Rik,

I recently borrowed the first copy of your magazine and was thrilled to see your more universal approach to traditional archery. I like to shoot recurves, longbows, big bows, and little bows, and have made bows of various designs. **The idea of making only one bow design or shooting only one bow would be like having rice for each and every meal.**

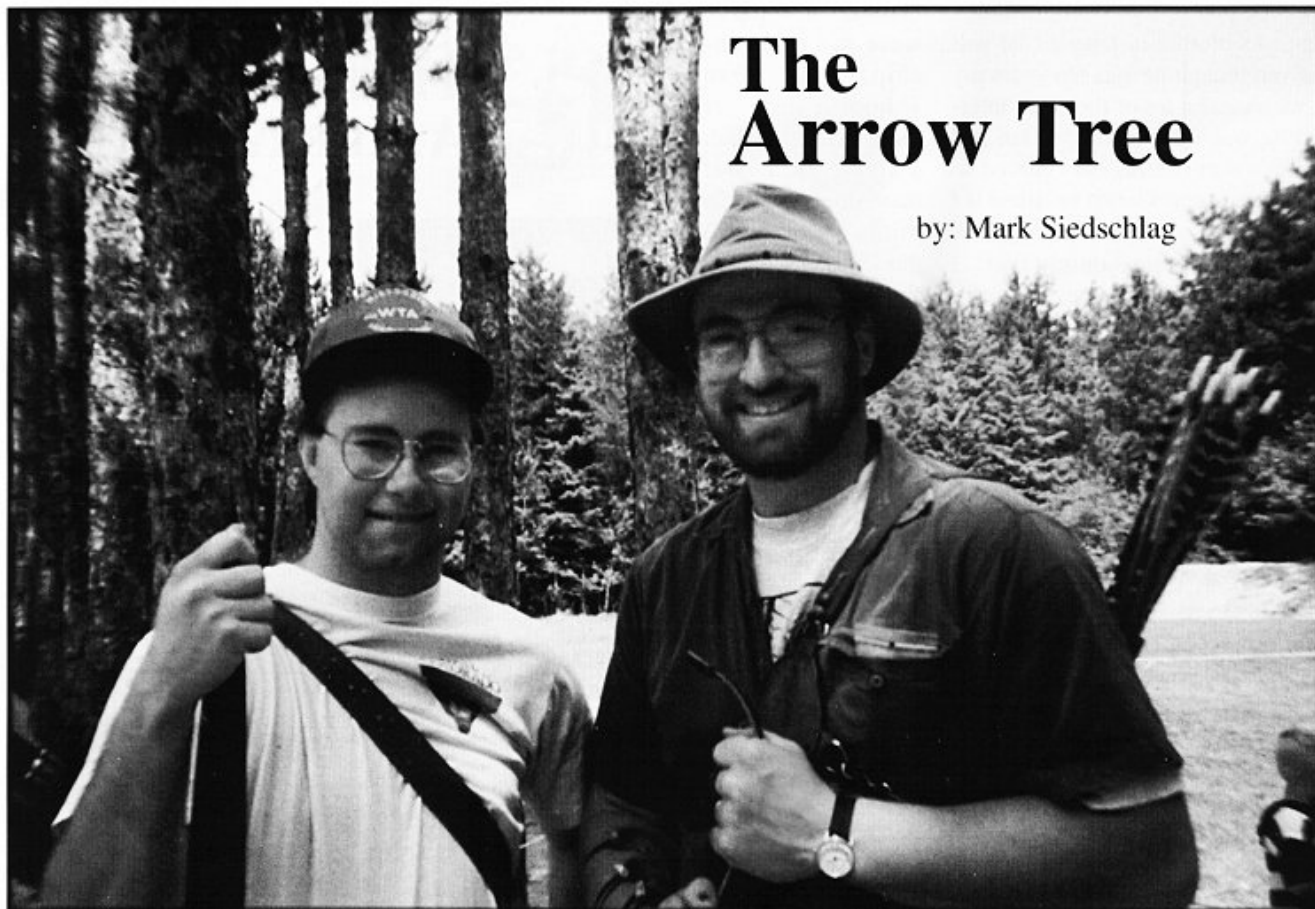
Native American and English archery are my favorites, and you could devote a lifetime to the study and practice of them, it's amazing how archery was discovered and progressed independently around the world.

We (the Piedmont Traditional Archery Club; phone # 919-563-2682) have only come together recently as a club. We are about 25 members strong after one month and have about that many more who have committed to join. We are looking forward to the upcoming season.

Keep up the great work, I'm subscribing to your magazine and have recommended it to club members.

Sincerely, Don Ward ("Two Fletch")

COVER PHOTO: "Return of the Elder" by Ernie Cselko.
See advertisement on page 79 for more information.



The Arrow Tree

by: Mark Siedschlag

Every year many eager hunters flock to my woods like an annual pilgrimage to some sort of hunter's Mecca. They come with their campers and gear to invade every nook and cranny of swamp, hill, and dale. All are in search of a set of antlers for their wall. Most will leave disappointed and few if any will realize the true magic that this forest has to offer.

My father first came here to hunt before I was born. The area had recently been logged off and it was virgin territory. Deer were scarce back then but dad managed to put a few in the freezer. As a kid, this place always seemed like some far away adventure to me. Dad would spend weeks preparing for his annual journey and then disappear with his friends for a week or more, leaving me at home where I could only wonder what kind of wonderful adventures they were having. Tales of monster bucks, close calls, and near misses fueled my over-active imagination as I marked time until I would be old enough to join in.

My first hunt was a milestone event in my life, right up there with getting my driver's license or high school graduation. I remember the night before we left for the woods on that first hunt. It's still a vivid memory after all these years. I remember tossing and turning with the excitement and anticipation that a kid usually only reserves for Christmas Eve. It has been twenty-five years since that first hunt and I must confess that the night before opening day is still usually a sleepless one for me and I hope it always will be.

My dad and I hunted together in that woods for ten years until a heart attack took him much too soon. I was green those first few years, full of myself, and a self-proclaimed bowhunting expert. I was slow to take any advice, which usually resulted in repeated lessons in humility. I was too young to realize it then, but the woods were already working their magic on me.

Those years of hunting with my father were a time of growing up for me. It was a special time of closeness between Dad and I as we shared life's lessons in the back of a 1940 Crown camper. It was during those years that I became an adult, physically as well as mentally. Much of what I am today can be attributed to the times spent in those woods. When Dad died, I wasn't sure I could go back there and hunt. I don't remember what was the deciding factor but I eventually decided to give it a try. I wasn't sure how I would handle it emotionally. It was in those first few years after my father was gone that I first began to notice the magic of the woods. A place that had been such an important part of my growing up had now become a place of remembering. I could go there and still be with my father if only in spirit. Those woods became even more special to me than they were before.

In the years that followed, the woods would be logged off a second time, causing most of the other hunters to leave looking for new areas. I stayed and found the hunting to be better than ever in the renewed growth. I hunted alone back then but that was soon to change.

Dan came to our family through marriage. As brother-in-laws go, he was great. Even though he was ten years my junior, we shared a lot of the same interests and he was a lot of fun. Dan had come from a non-hunting background so I was a little surprised when he asked if I would teach him to bowhunt. I agreed, but there was reluctance on my part. I had been disappointed before when others wanted to learn but were unwilling to demonstrate the commitment it takes to learn traditional archery. I didn't have such problems with Dan. Outfitted with a new takedown recurve, Dan dedicated himself to his new craft with a passion that equaled mine. Within a few weeks he was showing remarkable progress. Having never shot a bow before, there were no bad habits to overcome. They, I'm sure, would come later.

Dan and I planned for the upcoming hunt—his first, much like my father and I used to do. I must admit that I had second thoughts about taking Dan to my woods. Going there was a special time for me and I wasn't sure that taking someone with me might somehow spoil it. I couldn't have been more wrong.

Much like my father taught me, I was now teaching Dan. I saw my role reversed, coming full circle, I was now the teacher. Once again the woods was working its magic. It had gone from a place where I had grown into a man, to a place where I could remember my

father, to a place where my relationship with Dan would grow. If there could be such a thing as a soul mate, then Dan was mine. We shared the same passion for the bow and the same love for our woods. For the next few seasons we hunted our woods and I watched Dan grow into an experienced woodsman and hunter.

As sometimes happens, a new job was pulling me away to a new state and new adventures. Relatives and friends would still be visited, and I was sure that Dan and I would hunt together again somehow, but I wasn't sure if I would ever hunt my woods again. The thought of leaving it behind weighed heavy on me as we made plans to leave.

On a hot August day, Dan and I went together to our woods for a last time of stump shooting and my chance to say good-bye.

We talked a lot of past hunts and we scouted and planned strategies for the upcoming season that Dan would have to hunt alone. We camped in our old spot, the same spot that my father and I knew. Encircling the camp were several tall white pine trees. Those trees were just saplings when my father started hunting here. They were fifteen feet tall when I first came. They watched me grow and now were here to watch over Dan. Looking up at those trees sadly as I was loading the last of the gear into the car for the ride



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home, I was hit by an idea. I pulled my bow from the car and looked through my quiver until I found the exact arrow I was looking for. An arrow that a few weeks ago was just a scrap piece of birch at the local lumber yard. I hand-doweled a dozen matched arrows from that board that were my pride and joy. After writing my name on the arrow I took aim and sunk it deep into the soft wood of the largest white pine about twenty feet up, a part of me to leave behind. Dan watched without saying a word. I didn't plan it but the thought of my arrow in that tree for Dan to see on future hunts somehow made me feel a lot better about leaving. I made a vow to Dan that someday I would return to hunt here and retrieve my arrow.

I could leave now. I felt a smile creep onto my face. I looked at Dan and he managed a smile back. *"Did I ever tell you about the magic in these woods?"* I asked as we drove off in the car.



R.R.A.

Rogue River Archery, Inc.

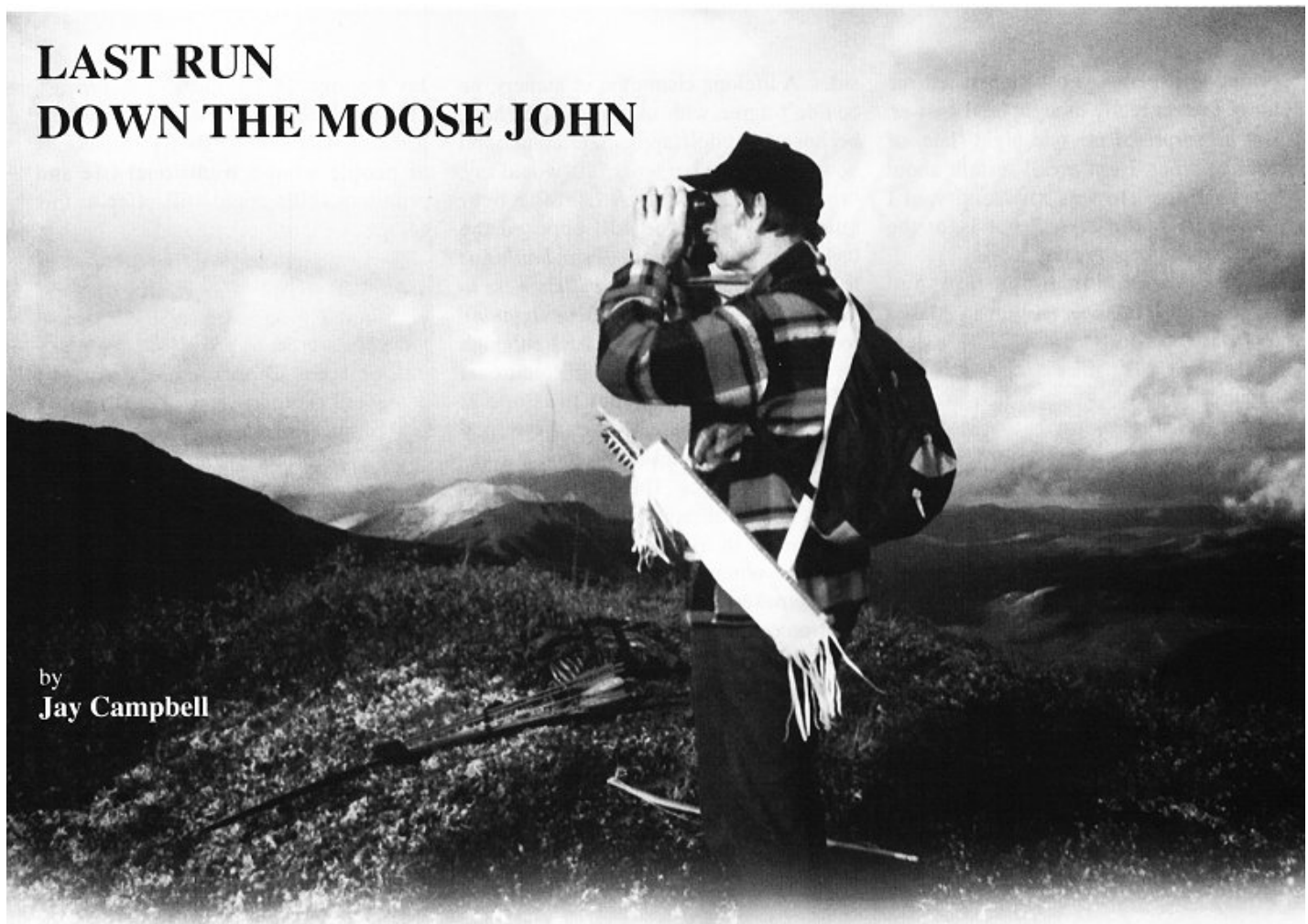
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LAST RUN DOWN THE MOOSE JOHN

by
Jay Campbell



Jay Massey described himself once as a crusty old mountain man. But he was an accomplished writer, publisher, bowyer, flintknapper, hunting and fishing guide, father, husband, and friend. Tens of thousands of traditional archers have read his books and articles, and heard stories of his adventures in Alaska with some of the most famous figures in archery. The books and stories will live on, but sadly Jay will not. He died this winter of complications from kidney cancer. The author feels we should all take notice of a life well lived.

My phone rang late in Florida a few months ago (it's five hours later there than in Alaska) and Jay Massey asked how I was, the big question was how was he? Last Fall we were together on his signature "Moose John" trip, and it seemed like only days since we talked (late again) about publishing my article on the trip (I don't think he ever saw it in print). But now we were talking about kidney cancer—his kidney cancer.

My work these days is in kidney disease, and we talked a little about an old Indian treatment he wanted to try. I don't know if he ever did. That night he was fine, he said despite the surgery he was going back to the Moose John

River for one more run, with some friends who would lift and tote while he got to take it all in again, all the big clean river, high white peaks, and comfort by the fire in the tepee. That was last Fall, and I hope he went. Now it's Spring, and he's gone.

I had no impact on Jay's life, I know, but he had some on mine. And it's like that line from *Death of a Salesman*: "Someone should take notice of such a man." So I'll take notice of the little bit—an important bit—he did for me. Years ago I wanted to write about the outdoors and the hunt and most things primitive, so I sent my first work to Jay. After all, he was an accomplished writer, publisher, guide, and

Photo: Jay Massey glassing for game above the Moose John.

primitive expert—who better to tell me how? I never really thought he'd answer. But he surprised me one night (late, of course) when I got a call to talk about my writing. He was kind and said I *"certainly had a style,"* but I got the message and kept my day job.

We kept in touch now and again, until I finally met him in Alaska to float the Moose John River a few years later. By then magazines had begun to print my work, which I sent to him from time to time, but he still wasn't much impressed. By the campfire during a few days together before the float trip, he read a few of my "humor" pieces. He didn't say anything, but he pulled out a favorite novel, and read four or five pages out loud. Then he looked up and said, *"now that's funny—that's humor."* Again, I got the message.

So he was kind to me, but Jay was uncompromising with those who "have no governors on their psyches," (a favorite saying of his). And he could seem contradictory at times, refusing to keep step with longtime friends on difficult issues. He was loyal to ideas, not

sides. A lifelong champion of archery, he couldn't agree with unifying all archers, because he didn't appreciate compound bows. *"They're not bows,"* he would say, *"they're machines."* A lifelong bear hunter and guide, he still opposed the baiting of bears, saying: *"bear baiting is to hunting what cop killer bullets were to the N.R.A. We don't need these lightning rod issues in bowhunting."* And although he was a prominent figure in traditional archery, he worried about the Pope & Young Club's ranking system for trophy game animals, because it promoted disrespect for the game. These kinds of statements caused disappointment and sometimes anger in friends in the archery and primitive community. But Jay wasn't a troublemaker, far from it. He was a positive force promoting the best that archery and traditional lore had to offer. Through his books and articles, his friendships, his widely known guiding skills, and personal appearances, he did more than most in the archery world to spread a good word about hunting, a place for the bow and arrow in the hunt, and a role for primitive technology in a modern time.

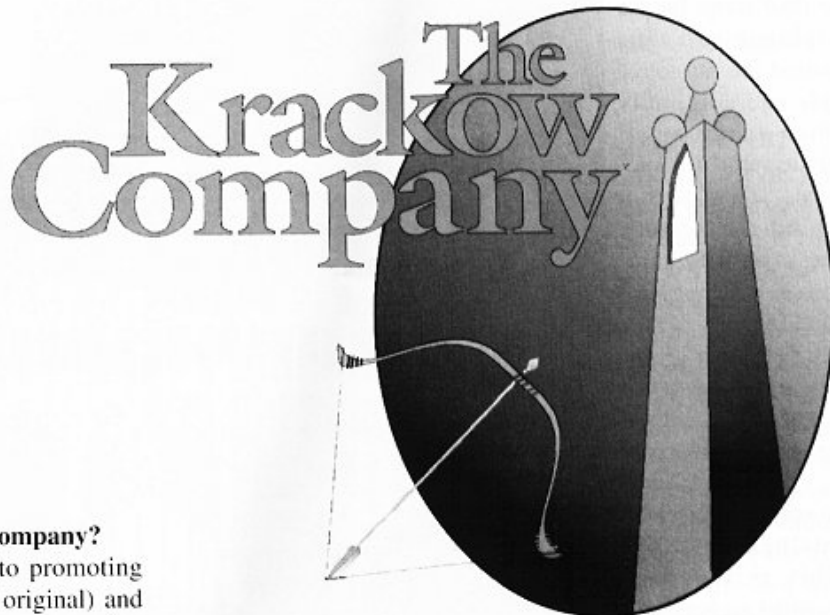
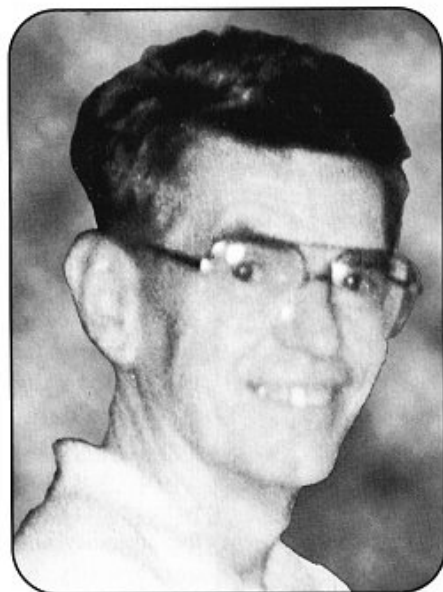
Jay's books *"A Thousand Campfires," "The Bowyer's Craft,"* and *"Bowhunting Alaska's Wild Rivers"* showed thousands of people what a traditional life and primitive skills could still offer to this complicated, fast-paced world.

I was one of those people. I used some of our time together to interview him and later I asked him to look at the final article, as I had with so many other pieces. But this time, he didn't gently tell me to try again. This time, he said *"Well, it sure sounds like me, just a crusty old mountain man, I wouldn't change a word."* I was pleased and proud, and I felt I had finally taken a first step as a writer, I still have a long way to go, but Jay helped set my direction, as he did for many others. So in one way he's gone, but in other ways—for me anyway—he's still here. He's here reminding me that whatever I'm doing, I'm probably not doing it right. But I should keep trying—I might just get it after a while.



Jay Massey (left) and John Rice.

An Interview with *DAVID GRAY*



David, what is the purpose of The Krackow Company?

The Krackow Company is dedicated to promoting the ancient and worldwide art of primitive (or original) and traditional archery, to make it possible for the average archer to acquire primitive equipment from around the world and to select modern traditional pieces as well. The Krackow Company has built and continues to expand a network of skilled worldwide artisans in order to provide archery items seldom brought together from one source.

Regardless of what your favorite style of bow or shooting, Krackow wants to take you on a tour of exciting new sights, sounds, and places. Do you ever wonder what it would be like to pull a bow identical to the ones the Cherokees used to hunt deer in North Carolina before they were forced onto the "trail of tears" in 1839? To sense the rush of the Hidatsa galloping alongside a buffalo and drawing a 60-pound horn bow in North Dakota? To listen to the concentration of the Ta-hona-Odum picking a spot on a wild Sonoran boar in southern Arizona? These are only a few examples of experiences the world provided for our ancestors, and we want to provide traditional archers with the broadest range of shooting traditions possible, to help them explore their interest in international or historic archery.

Why the name "Krackow?"

One caller thought it simulated the sound of an arrow hitting the mark. In 1990 and again in 1992 I stood in the old medieval square in the city of Krakow, Poland, and listened to a beautiful trumpet signal the hour from the tower of Saint Mary's Cathedral. The melody stops abruptly in the middle of the phrase as a reminder of the invading Mongol's arrow piercing the heart of the trumpeter in 1241. The Mongol archer, in turn, is a symbol of the Asian storehouse of knowledge about archery, and the dissemination and exchange of

By Mark Gabel

archery knowledge around the world, then and now. We spelled the name Krackow a little differently for legal purposes.

Could you tell us a little bit about how Krackow started?

Krackow was started the same way a delicious stew is made. You start with a base of a deep belief in democracy and equality of all people; throw in about thirty years of backyard shooting and Pennsylvania hunting, mix in a thirst for understanding of archery, then stir well. Add wonderful products representing worldwide traditional archery, then marinate, season to taste, and enjoy.

That is a nice metaphor, but how did Krackow really start?

Cooperation and timing really made the recipe. The idea for Krackow was mine, but the implementation required several years of cooperative planning and development. I made my first visit to meet and explore collaborative possibilities with the Indo-Persian well-respected bowyer Jaap Koppedraayer of *Yumi* in Ontario in the late winter of 1995. Jaap was receptive and supportive from the beginning—we shot a few arrows, ate a few healthy donuts, and shared some ideas. His eventual entries into the Krackow catalogue became a major part of the non-western offerings. Jaap and Kay, with their years of international experience, became major advisors and consultants. Jaap put Krackow in touch with other distinctive and accomplished bowyers and artisans such as Don Symanski,

Gary Ellis, and others—through Jaap, D. Mark Gabel and I came to know each other and began our critical collaboration.

Kay Koppedrayner edited the final script for the catalogue and thus assured the attractive style and continuity which in no small part assured its success. This was a behind the scenes, low visibility mission, in a compressed time frame. Kay's professional ethnological advice saved us from more than one serious faux pas.

When people read the Krackow Catalogue and say "This is the most beautiful archery catalogue I have ever seen," or "I've been waiting for something like this all my life," D. Mark Gabel's work must be given full credit. The catalogue would have been impossible without his expertise as graphic designer and in coordinating the work of an outstanding photographer and printer. His years of love of art and archery combine in his unique custom arrows that are offered in the catalogue, amazing works of art that we are proud to offer. When you see these arrows for yourself you will be amazed—this is what the arrows we shoot *should* be. (Mr. Gabel can be reached at 216-774-5048 or via E-mail at dmngabel@aol.com)

My wife Phyllis and my whole family have given nothing but encouragement, and that to me makes the difference between drudgery and joy in a project. Without Phyllis I would have been timid at many decision points and would have been blind to many fruitful opportunities.



The Millennium (page 3 in the Krackow catalogue): unique arrow/bow stand by Strasburger, 42 broadhead and field-tipped arrows by Mark Gable, broadheads by Bourbeau, and a horn/bamboo bow by Yumi with ivory plate for scrimshaw or engraving.

What shoots do you plan on visiting this year?

I will be setting up at four shoots this year. The tables will be set up at the Howard Hill World Longbow and Recurve Championship in Wilsonville, Alabama, June 20-22; the Hartwood Showjumping Festival, Hartwood Acres, Pittsburgh, PA, June 24-29 (not an archery event, but an experimental attempt to engender archery interest in a crossover audience—Olympic equestrians); the Great Lakes Longbow Invitational, Berrien Springs, Michigan, July 11-13; and the Eastern Traditional Archery Rendezvous, Coudersport, PA, July 24-27. Krackow will sponsor an Asian archery demonstration on Friday evening, July 25 featuring Jaap

Koppedrayner for Indo-Persian, Don Symanski representing Kyudo, and Thomas Duvernay the Korean hornbow.

What are some of the new bows we will see on the Krackow tables at the shoots this coming summer that were not in the Krackow catalogue?

In keeping with celebrating the antiquity and universality of archery, Flemming Alrune from Denmark will have several recreations of the ancient Holmegaard bow for sale off the table. These bows go back about 9,000 years. At that very early time, with flint and stone tools, these admirable

bowyer/archers were apparently casting arrows over 150 fps. These bows are authentically recreated, a pleasure to draw and release, and not primitive in any way except in the best use of that word to refer to the "earliest" or "first." Handling these implements impose upon the modern archer a quieting sense of wonder and awe.

The Korean bow and the recreated Magyar (Hungarian) bows will be available, both of medieval design, but predominantly modern materials. The genuine Korean horn bow of sinew, wood, and horn will be available by order. The Hungarian bowmaker, Kassai Lajos, has revived mounted archery, shooting 3 arrows into a target in 6 seconds at full gallop. A dream of mine is



72" "South India" bow created by Jaap Koppedrayer and featured in the Krackow catalogue. This bow is made of bamboo and hardwood with a stingray-skin handle wrap, and is designed for draw lengths up to 35".

to have him demonstrate this at a future shoot in the United States.

Richard Head, a respected English bowyer, will offer a smashing horn-tipped English longbow. It is a tri-laminate with hickory backing, purple-heart core, and lemonwood belly. The bow is elegantly set off with a leather-trimmed gold leaf accented braid handle.

Another distinguished English bowyer, Chris Boyton, will be presenting an intriguing Swiss self bow of 16th Century design.

While we have had a generous number of bows by Jaap Koppedrayer in the Krackow Catalogue, this is the first summer that two of his classic styles will be on the racks for immediate sale—the all-wood laminated 72" South Indian bow, and the 48" glass backed Mongolian bow. These pieces combine graceful, simple elegance with faithful shooting. The South Indian bows will have some slightly altered wood accents exclusively for Krackow. You can also look for some Asian belt quivers, and bow holsters for the first time. By next year, we hope to have some replications of bows from Nepal and Bhutan.

I hope to have some American Indian designs not pictured in the cata-

logue. Al Herrin of the western Cherokee Nation is overseeing the making of several Cherokee bows from Oklahoma. We will have some Kissinger bows for immediate sale, and Rob Young bows to order. Judson Bailey's superb shooting Penobscot pieces will be there for ready sale.

The Sugarcreek Natural Set has a very classic look, but uses only natural materials. It is a totally new entry for us—a complete complimentary matching set of bow, quiver, and arrows. The very smoothly cut and finished hickory backed osage flatbow is dramatically accented with wenge static recurves v-joined into the limbs at the joint of the back and the belly. A medium brown brushed leather wrap over a built-up handle matches the leather of the horizontal hanging back quiver. The Indian style wood frame of the quiver matches the three woods of the bow, and the arrows capture sheer simplicity. This is the creative product of Tim Troyer of Ohio.

There will also be a Sudbury by Paul Rodgers, a "modern Mongolian" by Harry Elburg, and a pen and ink decorated self bow by Brad Smith.

For balance, it seemed to me that one of the things that Krackow needed some more of was sleek, distinguished, and faithful shooting modern glass-backed longbows. I am very excited that Fritz Johnk of Fredrick Longbows has placed under production for Krackow a variation of his Regent model with the attractive red diamonds set into the back. His six-lam construction will use alternating colors of bamboo, yew, walnut, one dark tropical wood, and bright red padauk wood. Larry Snell has made a great matching quiver repeating the red diamond motif, and there will be matching arrows available.

Do you have new arrows as well?

I have four new types of arrows: A Medieval war arrow by Richard Head of England, with hand forged deeply barbed broadhead by Michael Cole, 1 7/8" wide and 2" long, heavy ash shaft with glued and sewn fletching, self nock with reinforcing horn. Also by Richard Head, an English target arrow, spruce shaft, walnut footed fore-shaft and horn nock. Kim Brooks, from Idaho, offers hand painted arrows either in wonderful American Indian motifs or with dragon and reptile figures—exceptionally well finished with high luster. Kim is Nez Perce, Kiowa, and French Canadian. Rob Kennedy's geometrically cross laced arrows are intriguing—Rob is from Australia, and is the founder of *Australian Archery Journal*.

What are you looking for besides unique bows, arrows, and equipment?

I am always on the lookout for high quality, very readable but meaty, archery books not found in most traditional outlets. Further down the line, I would love to encourage some press or group to bring back a few select out of print titles. I wish someone would think about reprinting the 1898 Smithsonian report by O. T. Mason on *North American Bows, Arrows, and Quivers*. The early perceptions and the detailed observations and drawings would make this a treasure chest. I believe there would be a demand for this book both in the United States and in Europe.

Then there are works buried in libraries around the world which would be great fare for any interested archer. For example, a good friend of mine from Warsaw, Malgorzata Fialkowska, xeroxed a few pages from an old book on the composite Polish reflexive bow of



Jaap Koppedrayer of Yumi demonstrating his bows.



David Kissinger with a small, smooth, powerful horn bow at full draw. David shot a flight arrow that day that just did not stop—it may still be airborne.

the 1700s. The book is full of large, faithful drawings, but is locked away from most of us in the Polish language, and it is out of print, of course. Museums also hold many rich images of our archery heritage, some of which might be made available to a wider audience as art prints if one could put forth enough time and investment in product development.

I understand Krackow had some presence at the Olympics last summer. How did that work out?

It was phenomenal. Christine McCartney, Director of Programs for the NAA saw to it that Krackow Catalogues went back to the home countries with each of the Olympian contestants from some forty different nations. She also put a neat column in the July-August NAA newsletter *Nock-Nock* presenting traditional archery in a most inviting manner to the Olympian and larger NAA readership.

Even though Olympian and NAA target archery are in some ways a bit different than what most traditional and primitive enthusiasts pursue, it is fascinating to have some contact with it. This past fall I had the opportunity to meet one member of the three man championship U.S.A. Olympian team, Rod White, who lives in Hermitage PA just ten miles from the home base of the Krackow Company. It was a great honor and pleasure to present a rodendo to Rod in recognition of his inspiring accomplishment.

A rodendo is an archer's pair (three) prize arrows given first to Queen Ann in England in 1704 as a recognition of her power and position. The three arrows presented to Rod were the striking and colorful red, white, and blue "U.S.A." arrows designed and made by D. Mark Gabel. The embroidered pillow portion of the rodendo upon which the arrows historically rested was omitted. The inspiring story of 19 year-old Rod White sets a high standard for all young archers, and it is a story I think we should share more fully in some of the pages of our magazines in the near future. We are really blessed to have models of generosity, achievement, and integrity among organizers such as Christine and among archers like Rod.

Speaking of traditional target archery and groups such as the NAA, what should our relationship be?

Things like stabilizers, sights, rigorous target training, formal shooting conditions, and intensive competitive scoring does not do a whole lot for most of us who bend self and bare bows, but I truly admire and respect the achievements of the serious modern target archer. We can learn from each other and enjoy each other's passions. Krackow's itinerary looks too full this summer, but I definitely would like to attend the NAA National Target Archery Championship in Canton, Michigan. This event will be preceded by the First Annual NAA National Traditional Target Archery Championship on August 2 and 3. How often do any of us have a chance to shoot a York Round at 100, 80, and 60 yards, or Clout shoot at 180 yards. There will be a

choice of two classes—self bows of the English or American flat variety with no shelves, or glass backed bows with shelves—wood arrows only. Call Norm Graham for more information, or dig it out of the magazines. This is going to become another attractive shoot with a lot of zing because of the variety.

What does the future call for in Krackow?

Just prior to the Eastern Traditional Archery Rendezvous, I plan on making a number of personal visits to archer/bowyers and clubs in Hungary and Poland. This prospect is exciting to me to say the least because of the great ancient archery traditions and potential there.

One of the most pressing needs is to develop African and South American networks and equipment. South America will probably come first because it will be easier in a number of ways including proximity and relative political stability. I was greatly saddened in the late winter to be informed by Manchester University that the great book on Brazilian Archery by Heath was out of print with no immediate plan to reprint. It had been one of the very few, and highly accessible sources on at least a portion of South America. If you know individuals or groups who want this book let me know in writing and I will forward the requests to Manchester.

If anybody knows how to build up the African representation we are certainly listening. As a starter, does anybody know how to get in touch with David Tukura to further tap his knowledge of the highly developed Nigerian

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Kassai Lajos, Hungarian mounted archer shooting the approach shot. (Then comes the right-angle and finally the parting shot.) Mr Lajos shoots three arrows in six seconds at full gallop (see page 12).

archery? Are there any books in print in English on any part of ancient or modern African traditional archery?

What about our youth? How is traditional archery doing there?

It is wonderful to see large numbers of children and youth at the summer shoots in the United States, and my hat is off to the many archers who share their activity with their own children—but there are so many youth who will never know archery's joys and excitement unless we use more imagination.

Because archery is a self-development discipline, it has immense potential to awaken new senses in our youth that include traditional values and a living appreciation of human and natural history.

Can we communicate our indebtedness to our very early brothers and sisters in Europe, Asia, Africa, and

South America to the next generation? Look through your mind's eye at the Holmegaard bog in Denmark and watch as 8,000 year old pieces of bows are being retrieved—to draw and release a replica of that well-engineered ancient bow is like hearing a universal music echoing across the great stretch of time and space. It is my experience that having heard that music, I am driven to share it with my children and my neighbors. People who have heard this song are changed; they know they are forever tied to the elm tree, the stinging nettle, the wild goose, and the human race.

Traditional and primitive archers may not want the organized approach of the Junior Olympic training program, but I believe it is another option that we need to take seriously. All forms of archery are special and will live again through the love of our youth.

On the other side of the picture, I think we really want to further recog-

nize and support those individuals and groups who have given us great archery literature in this vital decade of traditional archery. I will mention just a few as examples—Rob Kennedy, Jim Hamm of Bois d'Arc Press, Al Herrin of White Bear Publishing, the Missouri and Oklahoma University Presses, Derrydale Press, and of course the several fine magazines that we all enjoy so much. And to all of the many others, thanks for the price you have paid and the risks you have taken to give us good reading. I expect that this literature will play a big role in making the next decade of traditional archery even richer than the one now passing before us.



The Catalogue is available by sending four dollars to The Krackow Company, R.D. 1, New Wilmington, PA 16142, U.S.A. You are also welcome at the website—<http://www.krackow.com>.



TECHNIQUES OF DISAPPEARANCE....

Phillip Foss

The elk's bugle sounded a little odd; rather squeaky. But I didn't consider myself an expert on the vocal peculiarities of hairy beasts. The wind was right, so I decided to stalk.

My strategy was simple; to silently approach the source of the bugle, continually maintaining trees, brush, or other visual blocks between myself and the source of the sound. The logic in this was also simple; if I couldn't see the elk, the elk couldn't see me. True, I was wearing camouflage, but being completely absent from the prey's visual field seemed wiser.

In other words, what I was stalking was actually only sound. That particular sound occurred about every fifteen minutes, an eerie "WUUEEE." I continued stalking in this manner for approximately 300 yards. At this point I decided the noisemaker I was after was only twenty yards in front of me. That twenty yards was blocked from view by a large juniper.

Nocked and ready, I slowly and silently made tiny lateral moves to my right. Each half-step peeled open a small piece of formerly-blocked landscape. Then it came into view; a vertical, dark object which stood out distinctively against another juniper.

Unfortunately, it was holding a bow in one hand and had an elk bugle hanging off its neck. In any case, he looked too greasy to eat.

I slowly and silently reversed my lateral steps, slipped back into invisibility, and vanished into the conifers. The hunter never knew I was there.

This incident has nagged at me for over two years. Sure, I've applauded myself for my stalking ability, but some quality of the event remained unexplained in my mind. After all, I had successfully stalked another equal, a predator who was lying in wait for prey which he was trying to lure to him. In other words, he was an extremely alert predator, expecting the appearance of game at any second.

This was what nagged at me; why had he unknowingly failed as a predator, and why had I succeeded? It couldn't just be sneaky feet, or luck. Something else was occurring!

I tried to objectively analyze the situation and discovered some clues: First, we were both in head-to-toe camo, so there was apparently no difference in that aspect. But, in fact, there was; each piece of my clothing was a different camo pattern, while he had on a one-piece coverall. So while I was broken up into five different designs, he was only one. Also, at twenty yards the dark green pattern of his camo had blurred into a solid color which made him no more camouflaged than if he had had on solid black. As a result, he was visually obvious, even though he had positioned himself with a dark green juniper behind him to break his silhouette.

Second, I was fluid, in that I was moving, while he was stationary. At first, this seemed to be to his advantage in that he could be silent, while I was running the risk of making noise through my movements.

Photo: A nearly invisible kit fox on Santa Cruz Island.

True, but something else occurred: by being fluid, I could control my field of view, opening and closing it by minor shifts of my body. He, however, had a fixed field of view and had to depend on something coming into it. His ability to see was a passive ability, while mine was an active ability.

All right, we had two possible advantages on my part. Something more, however, seemed necessary. The incident continued to nag me.

In the process of doing some research on southwestern Indian bows, I came across the following passage written prior to 1868 by John Cremony in his book *Life Among The Apaches*.

"Let it also be understood that the Apache has as perfect a knowledge of the assimilation of colors as the most experienced Paris modiste. By means of his acumen in this respect, he can conceal his swart body amidst the green grass, behind brown shrubs, or gray rocks, with so much address and judgment that any but the experienced would pass him by without detection at the distance of three or four yards. Sometimes they will envelop themselves in a gray blanket, and by an artistic sprinkling of earth, will so resemble a granite boulder as to be passed within near range without suspicion. At others, they will cover their persons with freshly gathered grass, and lying prostrate, appear as a natural portion of the field. Again, they will plant themselves among the yuccas, and so closely imitate the appearance of that tree as to pass for one of its species."

In other words, the Apaches were capable of disappearing into the landscape, of removing all indication of their presence. This is what I had done—partly consciously and partly unconsciously—when I was hunting I had effectively disappeared. In retrospect, there was, however, much more to that "disappearance" than my five-color

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clown suit. True, the suit did break up my body into many separate pieces; something which his one-piece suit did not.

Landscape is, in fact, the ultimate camouflage. Don't be a hunter just walking around in the woods, instead, disappear into the landscape.

So if I were motionless, I would be significantly more difficult to detect. I was, however, systematically moving.

So, many more elements, I concluded, must have contributed to my "disappearance." I decided to try to identify what had made this stalk work, while others had failed. Ultimately, I isolated the following factors:

ODOR

A human being smells a lot and, at the same time, can't smell too good. Knowing that I stink, I constantly monitor the wind. In fact, I basically hunt the wind, changing my direction in response to the air currents, even if it takes me somewhere I didn't want to go. But, not infrequently, those places prove a lot more productive than places I think I know; they represent the unexpected and consequently make me more alert.

Hunting the wind is crucial: game can see you, and not know what you are; they can hear you, and not know what you are (I've had elk chirp at me after I've made a very ungraceful stumbling crash through the scrub oak.); but if they smell you, they're leaving, muf pronto!

Also, hunting the wind has allowed me, on several occasions, to

scent game before seeing or hearing it. *They stink too!* If you smell something musty, even for a second, don't dismiss it; a beastie is nearby.

SOUND

While making noise won't necessarily spook game immediately, it nevertheless alerts them to the fact that something is in their vicinity, and generally it doesn't take them long to figure out what. Being essentially silent and stopping frequently to listen allows a hunter the opportunity to hear game first.

This past season I located a 5x5 bull elk that I would have walked right by if he hadn't been making more noise than me. I heard stones banging on a small ridge to my right and peeked under

the conifer branches to see the bull coming down off the ridge in my direction. A few moments later, again peeking under the branches to ascertain his position, I found him peeking back at me. Ah well, peek and be peeked back at, I guess.

The stalk on the "squeaky elk" described at the beginning of this article had been made along the edge of a long grassy meadow bordered with dense pines and junipers. Thus I had been basically silent and "squeaky" had no auditory clue that I was stalking him.

LIGHT

What any animal sees—people included—is reflected light. So, in general, logic says that the less light you reflect, the less easy it will be to see you. Thus it follows that in many hunting situations, dark-hued clothing is generally superior to light hued. But there is one element far superior: shadow.

Throughout the stalk I had been shrouded in shadows beneath the trees. And shadows block the light from reflecting off of you. If you think this is a minor aspect in "disappearing," look at a wall of trees with the sun shining brightly on them. Then try to look into the shadows beneath and behind them. It

is almost impossible, because basically no light is reaching your eyes from the shaded areas.

The reverse, however, is also true. Being in the shadows dilates your pupils, thus allowing you to see better. Consequently, being in the shadows offers both better concealment and better vision.

MOVEMENT

To stalk, you have to move. And movement makes you at least twice as easy to spot. So a dilemma. What has consistently worked for me is, once the location of game is identified, to conduct your stalk in such a manner as to prevent you from seeing the game until you are close enough to shoot.

Use the landscape (trees, bushes, ridges, rocks) to totally block the transmission of light between you and the game. Sure, this means you can't see the animals, but it also means they can't see you. Since you already know, in general, where the game is, there is no reason to risk alerting them to your presence by keeping them in view.

Landscape is, in fact, the ultimate camouflage. Don't be a hunter just walking around in the woods, instead, disappear into the landscape.

PSYCHOLOGY

The above are nothing more than techniques, devices, strategies. They will immediately be forgotten, or fail, if you do not likewise camouflage yourself with an effective psychology.

Bowhunting is a very aggressive activity. We are, after all, trying to kill something, often something large. Not only that, we aren't banging away at

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it at an impersonal 200 yards, but instead intend to get within kissing range.

All this translates into a lot of adrenaline and a lot of anxiety—both of which are detrimental to the hunt. It makes us want to walk faster, climb harder, cover more country, rush across an open meadow. In fact, every succeeding ridge looks superior to the one we're on, and we hurry forward, noise or no noise, wrong wind, whatever—we have to get there. "There," of course, never arrives, and all we've really accom-

plished is scaring game and going on a hike.

A little trick that I've found, however, often works to prevent this "other-side-of-the-mountain" behavior: think of yourself as prey; as the hunted, rather than the hunter.

The main desire of prey species is to remain invisible to predators. They want to move undetected through the forest: unseen, unheard, unsmelled, in fact, uneaten.

Tell yourself, "If an elk or deer finds me, they will try to eat me!" If you can half-convince yourself of this, you'll do what all prey species do: move extremely slowly and silently, stop and listen constantly, scan every inch of topography for movement or an out-of-place object, monitor the wind unceasingly for even the vaguest whiff of the unusual, cling desperately to the shadows, and stay near cover. In other words, become an excellent hunter.

On that day, however, when these techniques and this psychology have worked perfectly for you, and that royal bull comes walking up to twelve paces, try to remember not to run.



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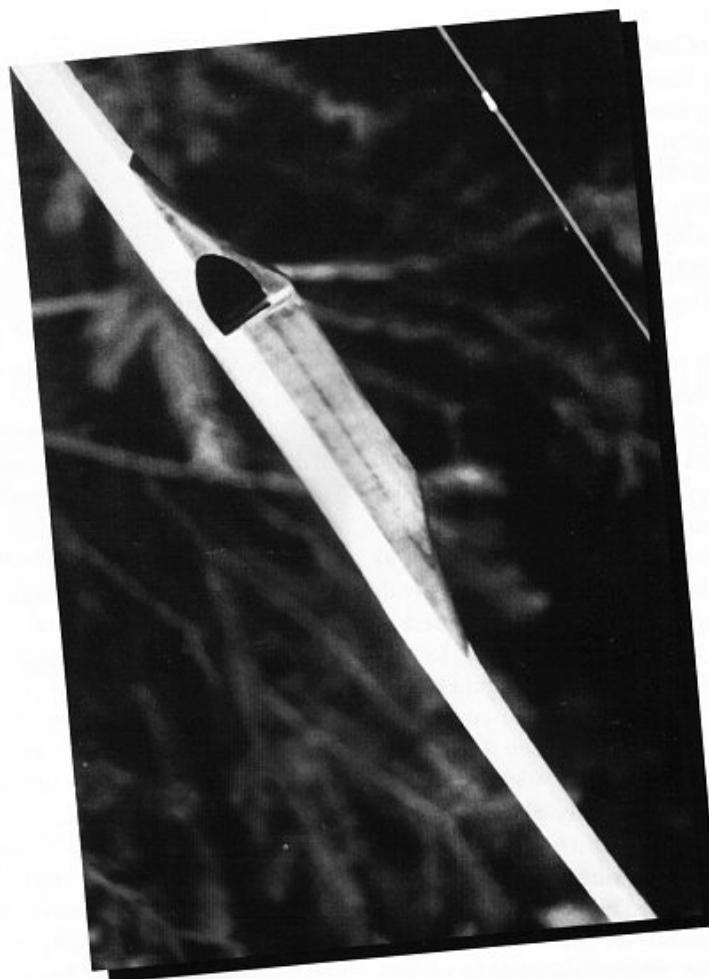
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First Shot

by Bob Adler



It can only happen once, never again. That first time you do something new, different, and exciting. Well maybe so, but I repeatedly get that feeling of excitement each time I shoot an arrow from a bow that I have fashioned by my own hand. The know-how of building a bow and the actual "self" production of a bow will generate an immense sense of satisfaction and pride for you.

The intent of this article is to help the would-be self bowyer with his "first shot," or to put it another way, his first attempt at making a bow. The ideas suggested should save you from some frustrations, save you some money, and put the best tools for the job in your possession. You may wish to take advantage of some of these concepts rather than try to reinvent the wheel.

The amazing thing about this making of your own archery tackle is that somehow the magic continues. I have been involved in numerous "personal sports" like bicycling, SCUBA diving, rock climbing, running, paddling, etc. In virtually every discipline I reached the maximum personally achievable, even so far as teaching or training others and designing new equipment. Eventually I became bored and tired of those sports. Shooting traditional archery, especially self-made equipment, holds a fascination for me that doesn't seem to fade. It is also very easy to walk out your side door and spend fifteen or twenty minutes "plucking the magic string" (as I sometimes refer to shooting the bow when a member of my family asks me where I'm going). Hitting what you're aiming at with no aid other than your instincts is—well magical.

To make your own bow is really easier than one might think. Some board lumber of hickory, a used draw knife, and a small file can be the beginning. A draw knife can be found for a few dollars at an antique store or garage sale. Your work area can be made from some skinny tire bicycle inner tubing tied to a sapling or a child's swingset. From then on, the hook is set once you start shaping your bow. It progresses to more tools until you have the right stuff. Here's a list of my recommended accumulation, which my oldest son recently pointed out is becoming quite substantial and seems to get bigger on a weekly basis. "The man with the most toys..." (no way, these are necessities). "Yeah, right!" the wife comments.

- Bowyer's Edge
- Cabinet Scraper (Sandvick)
- Rasp, Nicholson #50
- WD-40
- Nock File Sharpening Stone (8" X 3")
- File Card
- Bow Horse
- Hand Saw
- Metal Yard Stick
- Metal Ruler, L-shaped
- Tape Measure
- Pencil and Pen
- "C" Clamps, 4 each (3" size)
- Wood Glue (Tite-Bond II Waterproof)
- Sand Paper (every grit imaginable)

- Sanding Cloth (medium and fine grit)
- Sanding String (fine grit)
- Tilling Board (see FTFTB)
- Tilling String
- Rags, 100% cotton (clean)
- Tung Oil
- Rubber Gloves
- 0000 Steel Wool
- Waxed Paper

Each of the above items will be needed at some phase of the production of your self bow. Having them beforehand makes for a better product in less time. I started out using my kid's swing set as a work station. Wet-suit material (nylon sided neoprene) was duct taped to a place where some cross bars met with bicycle inner tubes, which were used to tie down the stave. Switching to *The Bow Horse* made the work infinitely easier, more comfortable, more controlled, and quicker. The Nicholson #50 rasp is so far superior to the "4 in 1" cheapo rasp, that it was really a waste to buy that to begin with. Dean Torges' Bowyer's Edge outshines any spoke shave I have tried and is definitely worth the investment. Of course you'll need a good quality sharpening stone to periodically sharpen the blade. Dean suggests using WD-40 instead of honing oil—and darn it if he isn't right (as usual, he recommended the Nicholson #50 rasp as well plus the Sandvik cabinet scraper, which is also indispensable.) Dean suggested contacting "Woodcraft" at 1-800-225-1153 as a source for finding many of the tools recommended.

The metal measuring tools, along with a pencil and pen are handy for marking off the shape of your bow from a stave or lumber. Try starting with a 70-inch (nock to nock) length to begin with for a 60 pound draw weight at 28 inches. This means you'll need a full 72 inch length of board/stave to work with. I highly recommend purchasing and reading carefully the books *For the First Time Bowyer* (FTFTB) and *The Traditional Bowyer's Bible, Volume 1* (TBB,v1) before you start whittling away. They will be indispensable throughout your work. Any other book or video you can get your hands on will give you insight, but these two books I feel will be dog eared the most when you are actually working on your bow.

They will serve you well as your constant reference sources.

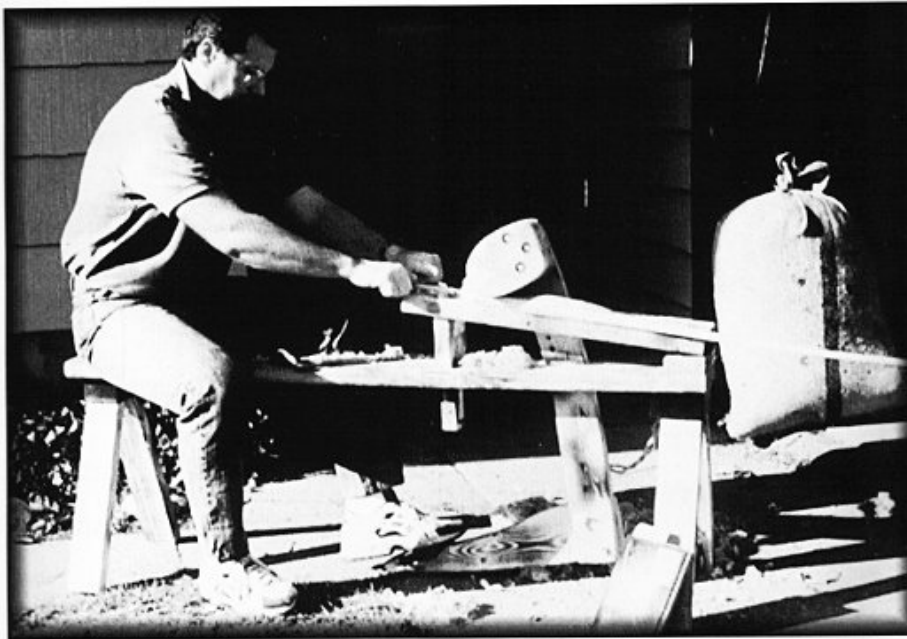
I chose to attempt my initial bow out of hickory lumber after a lot of reading and discussions because I did not want to learn on an expensive Osage stave. Frankly, after all I read I expected to screw up three or four pieces of wood until I learned how to do it correctly. Hickory lumber is cheap, so I figured it would be the prudent and frugal way to go. In the final analysis, it turned out to be a great way to go. First, find a lumber yard that specializes in exotic woods. They will have some great stuff for your handle section. I chose shedua. A twelve inch 2" x 2" inch piece of shedua served as the beginning of the handle portion glued on to the 72-inch straight grained 1" x 2" hickory lumber stave (from a 1" x 6" board you get three to work on for peanuts). Read about gluing things up in TBB,v1 before you do this as clean surfaces are a must. Choose carefully which side of your 1" x 2" x 72" lumber stave will be the back and belly before you begin gluing. A piece of cardboard taped to the back of the stave (leave the back of your stave untouched) will prevent any marks from appearing because of the clamps. I selected Tite-Bond II wood glue because it is waterproof and has excellent adhesion qualities, per TBB,v1. Make sure you glue up after measuring out the location of where the handle should lie as depicted in the drawings in FTFTB. I told you, you will need those books for reference.

The Bow Horse is, what I believe to be, the perfect platform for sculpting your bow. Aesthetically, it's traditional all the way being made of beautifully-finished wood. It is reasonably priced, super easy to adjust, and locks the wood stave and/or lumber in tight at any angle you need quickly and efficiently with just the push of your foot. The Bow Horse actually makes it fun to go out and carve away even if it's only for a few minutes. By the way, you'll also need a broom, a flat shovel, and a can to sweep up all the shavings every time you work on your soon-to-be-bow. I recycle my shavings by running them through a grinder and mulching them in my garden with the other compost I create. Not bad for someone who lives just outside of the Big Apple.

I have found that a sharp draw knife is best for this type of bow making. A dull one just doesn't cut it (pun intended). Follow the lines you have drawn out on the hickory lumber stave after gluing on the handle wood which has set for at least a full day. A sharp draw knife will make the job go smoothly and quickly. Take wood only off the belly and sides. Leave the back of the lumber stave alone. Do NOT rush, however. You need to learn how the wood reacts to the draw knife. Each piece of wood has a character all its own. Spend some time learning about your stave by taking off wood slowly. Hold the draw knife at varying angles to work the wood towards you. As you gain experience, you'll be able to go faster, but never aggressively, because too much wood off means too light a draw weight for your needs. A child may be the beneficiary of your aggressive action towards the wood—so maybe it's ok to learn the lesson.

Try as best as you can to keep checking the bend of your stick often to make sure it is even and consistent throughout the limbs. I ask one of my eagle-eyed children "How's it look?" from time to time getting their opinion on the bend. To begin to bend your shaped out bow: (1) grab the handle section near the middle with your right hand (with the back of the bow facing towards your right shoulder); (2) put the bottom limb tip on the inside of your right foot; and (3) push with the flat part of your left hand (just below the tip of the top limb) away from you. Do this a few times to get the wood to react.

Once you have gotten some shape out of the stave/lumber, file some nocks using your favorite bow as a guide. Take your time and don't be discouraged if the knocks aren't just so. Remember this bow you are making is for you and only you. So what if the nocks are a couple of hairs off? If it shoots well, then who cares? If it comes from your own hands, it won't matter much if it doesn't look perfect. It'll be your creation and that's where its beauty will come from. Throw on your tillering string with the permanent loop at the top and the adjustable hitch knot at the bottom. At first it won't matter if you only brace the bow an inch or so, just get it to



Spend some time learning about your stave by taking off wood slowly. Hold the draw knife at varying angles to work the wood towards you.

bend a little. You'll be able to see some progress and that's what counts. Use the tillering board and the method(s) described in FTFTB and TBB.v1.

While the bow is drawn on the tillering board, mark the areas that need some work with a pencil on the belly. If you step back a ways, you can eyeball the curvature and see where the belly needs to be worked. Remember to work the belly only (and slowly). When you're near where the shape is roughly what it should be, switch to using the Bowyer's Edge tool. This tool beats any spoke shave hands down. Keep it sharp by using the wooden guide supplied, a sharpening stone lubricated with WD-40, and work the steel cutting-blade lightly over the stone until you get the feel, then burnish the edge. The Bowyer's Edge is a phenomenal tool and will be appreciated from the first time you use it.

Regarding the handle section, use the Nicholson #50 rasp to shape it out. This is a lot of fun because you get to shape it exactly the way that it feels right for you. Aesthetically, the contrast between the white wood of the hickory and any other wood you choose to use is dramatic. I think my next handle section glued to my hickory lumber stave is going to be Padauk. Imagine the contrast of the red wood against the white hickory; can't wait. I said it would be fun. Hey, what about layering handle woods together? Uh-oh, creativity and

experimentation with laminates can't be too far behind, can it? Wood is just plain fun to work with.

Your bow is probably ready to shoot now if you followed the information in the books. Yes, you have to read and study. If you don't, you only have yourself to blame for any mistakes. The first arrow out of the bow will be incredible. It actually shoots. Enjoy that first. It only comes around once, however, every arrow out of your self made bow has a certain magic that's a real thrill. Shoot the heck out of your bow. Now's the time to see if anything needs to be worked out. Sand paper anything that even remotely seems like it is coming up. You'll know what I mean when you get to this point, I assure you.

OK, now for finishing. Lots of options. For simplicity sake, sand down every part of your entire bow. Now's the only time you touch the back of the stave. Use the sand paper to smooth any and every edge. Corners can be made beautifully rounded and smooth to the touch. Start with medium grits, go to fine, then extra fine. I liked using sanding cloth because it molds itself to the contours of the bow without ripping like sand paper. Plus, with a strip of sanding cloth, you can use it like a shoe shine rag working back and forth quickly to get the desired smoothness. Wipe off all the powdered wood with a soft cotton cloth.

Make sure the wood surface is freshly sanded somewhat before applying

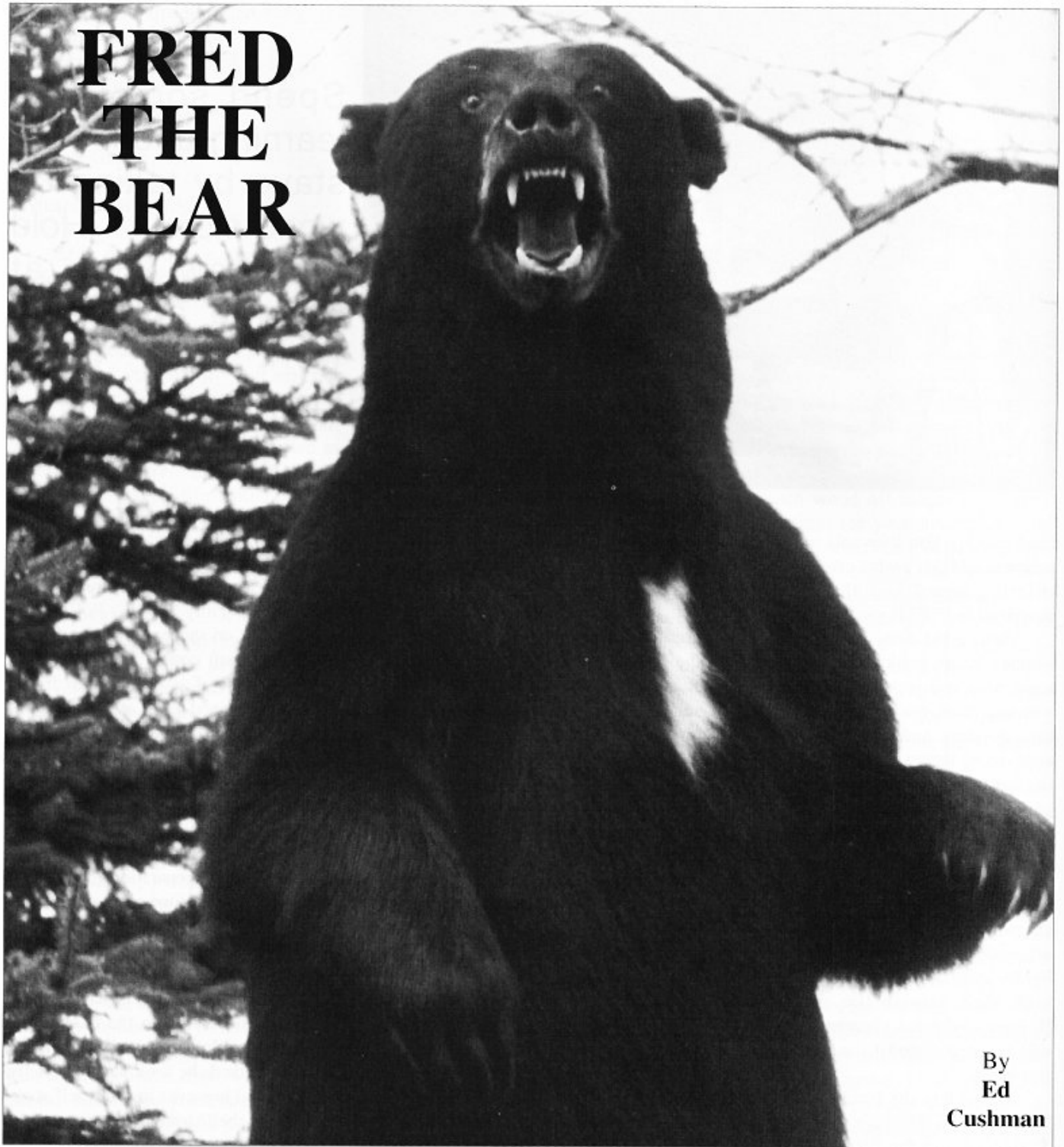
any finish. The finish will be able to soak into the freshly-sanded wood better. I decided to use Tung Oil straight from the bottle for my finish. Follow the instructions on the bottle and rub it in well with a soft cotton cloth. Lay your bow on a piece of waxed paper to dry. If you put the waxed paper over a corner of a box or table, the back of the handle section will be the only part in contact with the waxed paper.

Wait at least a day between coats of Tung oil. Use 0000 steel wool lightly between each coat of Tung Oil to rough up the finish in preparation for the next coat. After about four coats it will look like a million bucks. By the sixth coat you'll know you have made something incredibly special. If you're so inclined, use some Barge Cement to wrap a piece of tanned deer hide to the handle and shelf area. I left my handle area alone because I liked the look and feel of the wood. I did however install a self sticking leather shelf/strike plate.

The title of this article is the same name of my first self bow because it came out right on my "First Shot" (first attempt). If you read everything and anything you can get your hands on and watch any video available relative to making your own bow, you too will be successful on your "First Shot". Good health and good luck (live long and prosper!).



FRED THE BEAR



By
Ed
Cushman

- The first principle of success is to decide *“what do you really - really want?”*
- The second principle is *“what you are willing to give up to get what you want?”*
- The third principle is called *“association!”* This means that you need to learn from someone who has done what it is that you want to do.

After years of prodding and coaxing by friends and family, I have finally decided to put this story on paper and also to give credit where credit is due. I had hunted bear for years in Colorado—correction, fed bears in Colorado. After moving to Idaho, I met a man who is a hunter among hunters; John Turner of Twin Falls, Idaho. When I found out that he had harvested over ten bears with his bow, and most of these from ground blinds, I decided that I needed to listen to what he had to say because he had done what I wanted to do.

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After developing a friendship with John and doing some small game hunting and league shooting together, he invited me to go hunting with him. I was flabbergasted! Of all the people he could invite, he invited me! I am very proud to have known John and to be able to consider him a friend. If you ever get the opportunity to meet John Turner, listen to him; he KNOWS what he is talking about. Also, during this time my wife and I became friends with another couple that had a very big hand in the success story of "Fred." They are Jim and Rhonda Taylor of Jim Bob's Bakery in Twin Falls, Idaho. They supplied all the day-old donuts (BAIT) for Fred and his friends. The bears especially liked Jim's apple fritters and sweet rolls.

I started off this story with saying that I am giving credit where credit was due. The next credit is to J. K. Chastain of Lakewood, Colorado. Keith has made most of my bows for years and has put up with some real problems I caused him; like when I wanted to shoot a long bow. I had trouble with arrow flight. He cured this with an offset sight window on my take-down long bow. Also, if a bow can be broken, I can break it. Some good things came from this, like a new design to make a better bow for the Wapiti Bowyer. I am also very proud to call Keith Chastain a friend.

Now that most of the credits are done, I will get on with the story. John and I had located an area that looked good. They all looked good to me! John had some better ideas. After finally locating a bait station, then came the hard work of packing in the grub.

I won't go over the details of HOW, WHEN, AND WHERE because there have been lots of very good "how-to" articles written. I'll just get into the meat of the story.

I was unemployed part of the time and my wife, Bonnie, just wanted a bear. A little bear! Any legal bear because of the expense of tanning and we had never had bear meat and we didn't even know if we would like it.

Anyway, on Friday evening, just like so many evenings before, Bonnie and Danny, my son, went with me. They would go with me to keep me company on the one-and-a-half hour trip there and back. During the actual hunt, they stayed in the car about a half mile from the bait and I walked in with some more donuts for the bait.

I had already made up my mind to shoot the first legal bear I could. On the way into the bait, I heard a bear grunt up on the hill. Not wasting any time, I nocked an arrow and froze in place until I could locate where it was coming from. It didn't take long. The bear came right

down the hill toward me. This bear was a real deep, dark, chocolate color.

Not being real sure what sex this bear was, I can't say he or she; so I'll call it "IT." Anyway, it wasn't very interested in me, just the bait—or maybe another bear—but it kept looking at the bait, then at me, then back to the bait. IT would run off 15 to 20 yards then come back down to the same place; which, by the way, was just behind a pine bough so I couldn't get a good shot. The bear did this twice then ran off about 80 yards up the hill and sat down, surveying the area. All this time, I was getting very antsy to do something. Well, when the bear looked away, I got a tree between us and I moved in on the bait to dump my pack and then get up into my stand.

I laid my bow down with an arrow on the string, got down on my knees, and took off my pack. Have you ever felt like you were being watched (the little hairs on your neck kind of stand up and you feel spooked)? Well, let me tell you, I felt that way. I didn't hear or see anything but it's more like I sensed something.

I looked up and there stood this BIG black bear. He was just standing there on all fours watching me. He had been there long enough to have drool hanging out of both sides of his mouth

all the way to the ground. While he was watching me, he was opening and closing his mouth. Almost like he could taste the apple fritters (OR ME!). He had been there long enough that every time he worked his jaws, I could see little pine needles stuck in his drool, moving up and down.

Picture this: here I am on my hands and knees on a bear bait with approximately 40 pounds of donuts in front of me, my bow and arrow on the ground to one side, and a B-I-G black bear (HUNGRY BLACK BEAR) watching from about 25 feet away.

The next thing that happened is kind of a blur but I will attempt to relate what happened. I guess that instinct and years of training took over. I very slowly reached over and got my bow and arrow. In order to shoot, I had to move my knee a little. As I did this, he started to turn. He was quartering toward me so I had to wait for him to move his right front leg. I know a little about the structure of a bear, and even at 25 feet, you don't want to try and shoot thru a front leg and shoulder. As soon as he moved his leg, I put my snuffer tipped cedar shaft just exactly where I wanted it. As it turned out, the arrow went through one lung, traveled back through the liver and just started to penetrate the hide on the other side. After doing this, he kept turning and ran off down the trail he was on. I watched him go for about 50 yards, then he disappeared around the ridge.

Having hunted with a bow for years, I knew I had to give the broad-head time to do its job. Time sure flies

when you're having fun! I looked at my watch and it was 8:04 p.m. I wanted to give him at least a half hour so I looked around for the other bear I first saw and it was nowhere to be seen. I then went ahead and emptied my pack and put my gear back together. Following this, I then sat down and stoked my pipe to set back, relax, and wait. After doing all these things, I figured it had to be time to go. Looking at my watch proved to be heart breaking as it was only 8:08 p.m. Like I said, where does time go? Seeing that time was going so slow, I decided to go over to where I had last seen the "black" to see if I could pick up some blood.

Everyone, including John Turner, had told me if you don't get a good hit, bears don't bleed very well and I knew that the arrow hadn't gone all the way through because it stopped just short of the fletching.

Enter Bear Number Three! Keep in mind, I hadn't seen a bear on this bait until tonight! I knew they were coming in because over the month and a half the bait had been there, John and I had packed in somewhere between 700 to 1,000 pounds of bait.

Okay, I am about half the way to where the black disappeared and I hear another bear up on the ridge. I looked up and "HOLY @\$% GRIZZLY!!" Upon a second look, it was just a big, brown colored bear coming down the hill about 20 yards away—and still coming. See if you can picture this. I am 6'2" and about 290 pounds. There I stand on this trail with nothing between me and this brown but air and he doesn't seem to be the least

bit afraid of me. But, let me tell you, the feeling WAS NOT mutual! I was plenty scared! Well, *what do you do?*

Beats me!! I figured I would talk to him. WHOOPS!! I got ahead of myself. First I coughed trying to get his attention thinking he would leave if I startled him. Not a change! He stopped, looked right at me, stood there for a minute and then—here he came again.

Now, after nocking another arrow (that is all the armory I had), there I stood talking to this bear. When I started talking, he stopped again about 10 yards away. While I am talking to this bear, I noticed that he had a bad scar (it looked fresh) that started between his ears on top of his head and ran down between his eyes and off his nose. Also, he seemed as big or even bigger than the black I had already shot. AND HE WAS JUST STANDING THERE, on all fours, kind of swaying back and forth and swinging his head. Well, here stands a novice bear hunter. (I had hunted for years but had never seen a bear while bear hunting and now I had seen three in less than 20 minutes.) I told Old Scar Face that if he was trying to scare the @\$% out of me, he was doing a real good job. Then I said I had already shot his friend and that if he took one more step, I would have to shoot him also even though I had only one tag.

Then, almost as though he knew what I was saying (maybe he did) he just



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turned around and walked away. I watched him clear out of sight about 100 or so yards and he never ran, he just walked away. Needless to say, I was glad to see him leave.

Have you ever seen someone trying to follow a blood trail with a long bow and nocked arrow through the bushes. I'm sure I looked a sight.

After trailing the bear I shot for about another 50 yards or so I found where he had stopped and pulled the arrow out about half way and broke it off. From then on, anyone could have followed the blood trail.

He went about 200 yards altogether. I found him about 9:15 p.m. In that part of Idaho and at that time of year, you could see until about 10:00 p.m. Only when I got to Fred (this is about when I named him) and tried to roll him over did I really realize just how BIG he was (approximately 450 pounds). After I finally got him to stay on his back so I could begin cleaning him, ENTER BEAR NUMBER FOUR!! While my bow was leaning against a tree and I was elbow deep within Fred, I heard another bear up on the hill above

bear, so I can't say for sure if it was another bear of just one of the first ones.

Task at hand done, imagine my surprise when I couldn't pick Fred up. I mean, REALLY! All those years of hunting and everyone said that an average adult male black bear weighs approximately 200 to 300 pounds. After cleaning he isn't any bigger than a large buck mule deer. I have carried bucks out many times and I can't even get Fred off the ground—it is still getting darker! So, I thought I would drag him out. NO! Save the hide. Isn't that what part of this was all about—the hide?

Next idea. I turned him sideways to the hill and just like a big barrel, he rolled down the hill right out of the trees and into the sagebrush. Now, level ground. Great—still can't pick him up. Back to the car I go to get Bonnie and Danny to try and help me pick him up.

The rest is another story all in itself. Some day I may write about it. But I must say that Bonnie and Danny were outstanding helpers and I couldn't have saved the meat or the hide of Fred without their help. The last of the credits go to Barbara and LeRoy May of May's

me. Try again to imagine what I looked and sounded like. It's almost dark, I am talking VERY LOUDLY to Fred who is being cleaned, I am covered with blood, and about every 3 to 4 minutes I stop and look around to see if we are the main course for Scar Face or "IT." I didn't ever see that last

Taxidermy in Jerome, Idaho. Barbara for the great poem about bears and donuts and the pictures. LeRoy for a super good mounting job of Fred who, by the way, is standing life size in my living room as a constant reminder of this story (or ordeal—you choose).



FINAL STATS ON FRED:

- Official Pope and Young Score was 20 14/16"
- When taken, Fred was Number 2 in Idaho. He weighed approximately 450 pounds.
- Measurements: 6'6" nose to tail and 7'6" claw to claw across his shoulder. This meant that Fred squared 7 feet. The Idaho Fish and Game Department estimated that had I harvested Fred in the Fall, he would have weighed somewhere between 600 to 700 pounds.

THE PASTRY MAN

by Barbara Leroy

*Big Ed, he was a hunter and a mighty one,
it's true*

*Oh, awesome bear, you don't stand a chance
with Big Ed a-stalking you*

*He brought along his long bow, wooden
arrows he would take, He'd come to get a
black bear, a rug his hide to make.*

*And in his back-pack—loaded down he had a
plan, foolproof. He was going to lure the
mighty bear, and with the bear's own sweet
tooth!*

*For in his pack, so large and full, Big Ed has
packed it square, He was hauling pastries-
DOUGHNUTS-right into the bruin's lair.*

*Big Ed, he got down on his knees and
crawled along real slow, When out of
nowhere came a sound, a rumble, fierce and
low. There came a huge boar and he
must've thought Big Ed was about to be:*

*Either another bear to fight with, or biggest
doughnut he'd ever see.*

*Big Ed didn't ask no question - as he drew
his bow with fear, The result my friend, is
standing in front of you right here.*



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An Alternative Fletching Style

by Kent Williams



It started with the movie *Robin Hood*. It reminded me just how much I loved archery and the flight of the arrow. Some months later after exhaustively studying *Traditional Bowyers of America* and numerous phone calls I decided on a longbow. It seemed that most of the bowyers who built both recurves and long bows preferred the long bow.

Two months later my first long bow arrived. It had maple laminates and a maple riser, but it was beautiful to me. I immediately contacted a well-known arrow builder and ordered arrows for my bow (which pulled 44 pounds at 27 inches). After what seemed like years, the arrows arrived. They were beautiful, almost works of art. On the box it said that they were spined 50-55 pounds and weighed 500 grains. They had a 5", parabolic helical fletch. I couldn't wait.

I had been exercising with the bow while waiting for the arrows and was ready. The first arrow left the bow and immediately "fish-tailed" to the right, as did the rest. That didn't seem right. I tried varying the brace height in 1/8" increments, but no luck. A call to the manufacturer confirmed that they produced no arrows with less than a spine of 50-55 pounds. I continued shooting and wore out the arrows, but never was happy with the extreme nock right I experienced. I then ordered another dozen arrows from the same manufacturer, but this time I specified that the fletching be 5 1/2 inch shield cut. No change. Oh well, I wore them out too. Next I tried a four fletch 5 1/2 inch shield cut. There was absolutely

no change that I could see. I wore them out too. (I enjoy shooting.)

In desperation, I ordered another dozen, but this time I specified that the feathers be left full height and that six be mounted off-set and six helical.

When I loosed the first of these "flu-flu" arrows two things became immediately apparent. First, watching them fly down range without fish-tailing was absolutely beautiful, but watching them begin to "parachute" at about 18 yards was not.

I decided to try different spine weights. I contacted a number of arrow manufacturers in order to obtain a "spine test set." Finally, when I called Howard Hill Archery I was told, "no problem" and three weeks later a dozen arrows arrived. There were 4 sets of three arrows starting with 40-45 pounds and ending with 55-60 pounds. Surely, I would be able to find an arrow that would stabilize from the 44# long bow as well as a newly acquired 53# bamboo-cored long bow. You can imagine my surprise when all arrows flew down range exhibiting varying degrees of nock right from both bows.

More phone calls confirmed that to obtain arrows with less than a 42 pound spine, I would have to drop down to 5/16" diameter. Having to resort to 5/16" arrows did not appeal to me for two reasons. First, they would weigh

Author's grand-daughter, Marissa. She is about to loose one of her 1816s with the high-profile fletching.

significantly less than the 11/32" arrows I had been using, thereby markedly increasing hand shock and secondly, they would require the use of 5/16" speed nocks. Experience had shown me that 5/16" nocks would be too tight for my Dacron 14- and 16-strand strings. What to do?

Since some of the full height fletching had become damaged during packing and shipping and could not be steamed back to their original condition, I decided to trim off the damaged portions. What I ended up with was a feather that was about 7/8" at the front and 1" at the rear, with the rear being squared off at right angles to the shaft.

I went back into the back yard, drew, hit anchor, and released. I was in no way prepared for what happened. Arrow speed dramatically increased while arrow flight remained stable. What blew me away was that the arrows literally "sang" as they went down range. They sounded just like the ones you see in the movies where the sound has been dubbed in. Amazing! While the full-height feather merely hissed their way down range these sang or whined their way through the air. I immediately cut the other full height feathers to the same dimensions. I was hooked. The singing arrows added a whole new dimension to my shooting pleasure. Even while shooting in the dark when I could not see the arrows in flight I could "track" them because of the noise generated by the fletching.

What was interesting was that no matter how bad a release I happened to make or if I short-drew the bow, the arrows flew absolutely straight. That is to say that there was no fish tailing of any kind. In other words, they were very forgiving.

Comparing the singing fletch to standard 5 inch parabolic or 5 1/2 inch shield-cut fletching has shown the following:

ACCURACY: Accuracy at 25 yards seems to be as good or better than lower profile fletching.

STABILITY IN CROSSWINDS: The high profile fletch (as shown in figure 1) seems to provide much better stability

and quicker recovery in cross wind conditions.

BOW WEIGHT TOLERANCE: Tests with various poundage long bows and recurves have shown that bows with draw weights of "plus or minus 15 pounds" of arrow spine are easily accommodated. This can be especially beneficial when one is looking for a heavier arrow wood such as ash, fir, or spruce for hunting large game. It is sometimes not possible to obtain such a wood in lower spines necessary for many longbows and self bows. Use of the high-profile fletch will permit you to order a spine that exceeds your bow weight by 10 to 15 pounds without loss of stability or accuracy.

FEATHER WEAR: Feather wear seems consistent with that experienced with parabolic, shield, or maxi-fletch fletching. The only difference is that as the fletching wears, they become somewhat quieter.

ARROW VISIBILITY: Being larger, high-profile feathers are much easier to see in flight than low-profile feathers.

This not only tends to provide more satisfaction during informal shooting, but can be particularly important when hunting under less than perfect light conditions..

HUNTING: Shortly after moving from southwest Arizona to Pennsylvania, I met an avid deer hunter who used a recurve for his white-tail hunting. Since he didn't have a doe tag that year he agreed to take three of my rubber-blunt mounted, high-profile fletched arrows with him to his tree stand. Each time a doe walked by, he would shoot one of the rubber tipped "singers" over her back to see how the deer would respond. He said that they never took notice of the arrow passing over their backs!! Heretofore they had "jumped the string" when he released an arrow with his recurve. Apparently, the singing had masked the string noise as well!

Is there a down side to this fletching style? Well, as they say, "there is no free lunch," and this style fletching does cause arrows to slow down faster. (How's that for a paradox?) Chronograph velocities taken at 1 yard and at 18 yards confirm that the velocity

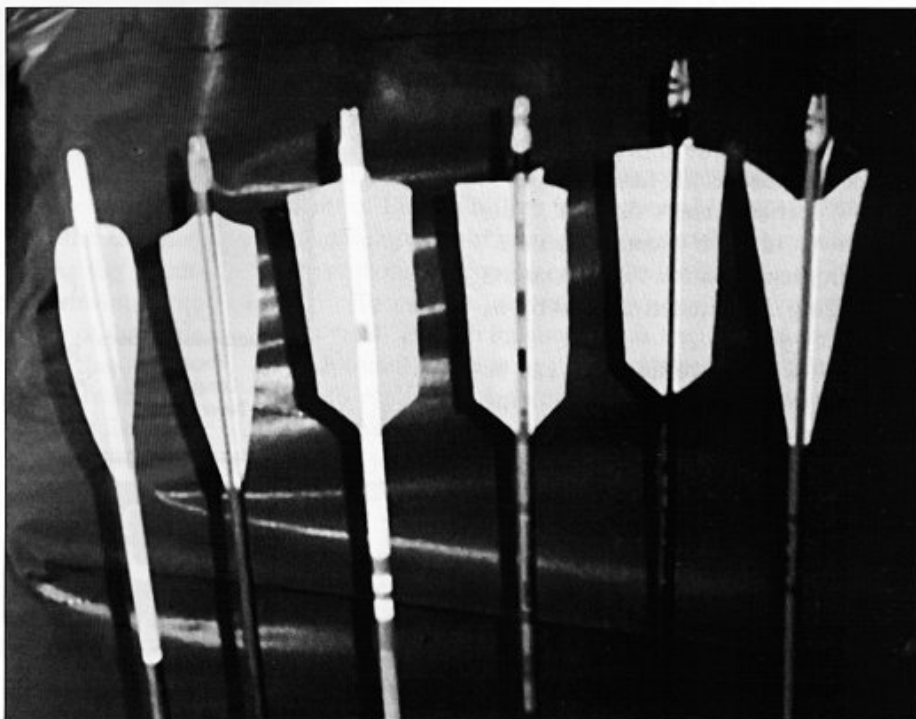


Figure 1. Left to right: 5" parabolic, 5 1/2" shield cut; high profile (approximately 7/8" at the front and 1" at the rear) on wood, aluminum, and carbon arrows; and F-14 "Super Singer" fletching.

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loss over that distance is approximately twice that of low profile fletching. In one test using a 53-pound longbow, the 5 1/2" shield-cut feathers lost 8 feet per second while the higher profile feathers lost an average of 16 feet per second. At longer range the higher profile feathers apparently provide more drag than arrows with low profile feathers, even if the low profile feathers fish-tail. This was proven in flight shooting where 5" parabolic-fletched arrows out distanced the singing 5" fletched arrows by as much as 50 yards.

The high profile fletch can be made in one of two manners. One method is to simply glue on 5" full-height feathers in either an offset or helical fletch and then hand cut them to the dimensions shown on the previous page. The second and preferred method is to mount the feathers and then burn them with a feather burner. In either case, I recommend that you square off the rear of the feathers with scissors before attempting to cut or burn them to proper height.

High-profile feathers can also be "tuned" for maximum speed by first

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cutting or burning them to the dimensions shown in figure 1, and then reducing them in overall height in 1/8" increments, test firing the arrows for stability after each reduction. Then, when a reduction causes the arrow to become unstable, you will know to cut or burn subsequent feathers 1/8" 1/4" higher. If you choose to tune for maximum speed in this manner, be advised that you will reducing the amount that the fletching "sings" with each height reduction.

The bottom line is that if you are shooting a bow that's near center shot and you have no problem with arrow stability or if a little nock right or left does not bother you, then this fletching style is not for you. If, however, your desire is that your arrows look like drills as they

head toward the target and have not been able to obtain that stability, then this fletching style might well be the answer.

If you desire fletching that causes your arrows to be stabilized within a few feet of the bow thereby providing maximum penetration while hunting and plan to restrict your range to twenty yards or less, then this fletching is for you.

If you have arrows gathering dust because they have either too much spine or not enough, then switching to high profile fletching will allow them to be put back into service.

In any case, if you love to hear your arrows "sing" as they arc through the air toward the mark, then this fletching is truly for you.

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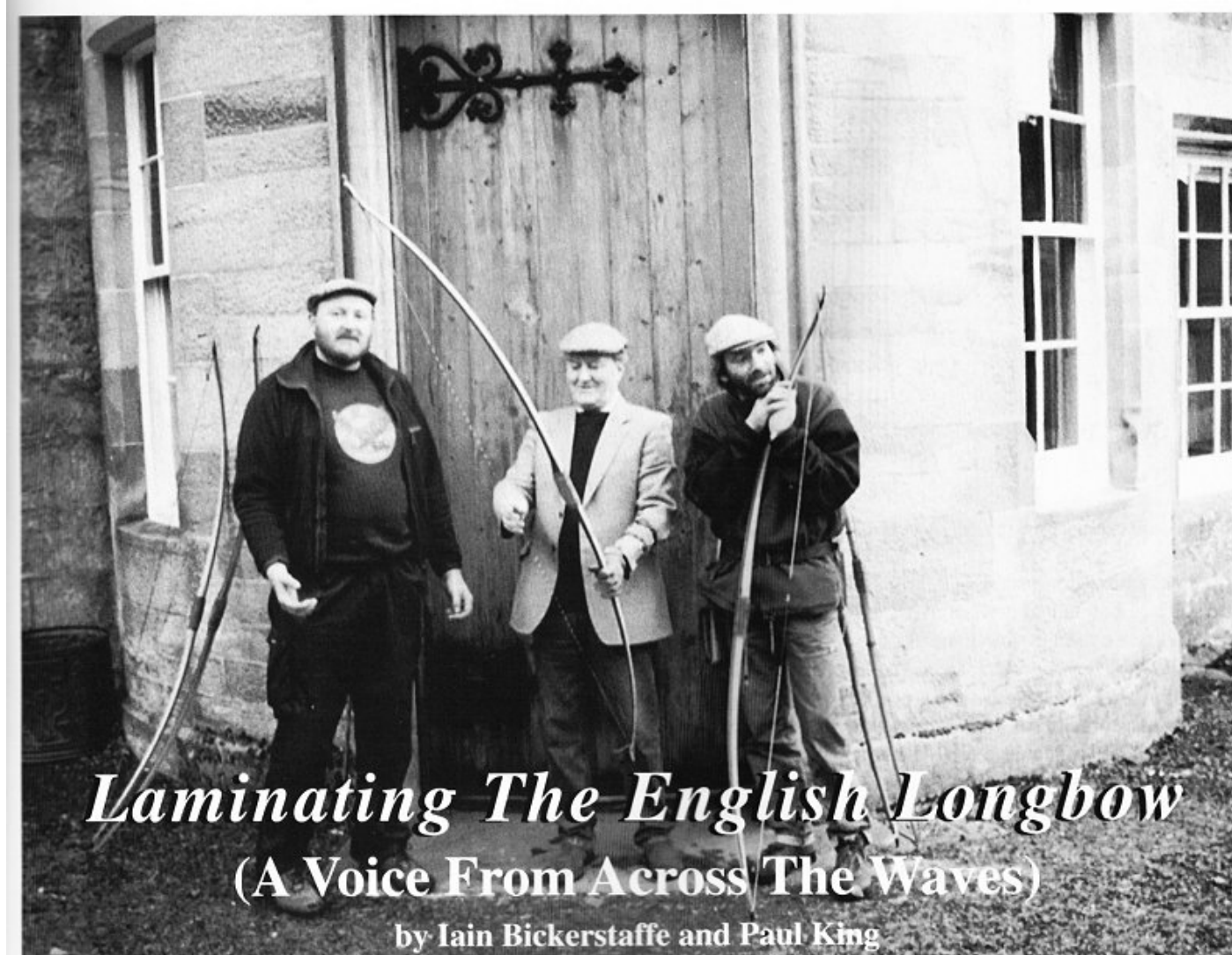
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Iain and his partner presenting Robert Hardy (author of *The Longbow—A Military and Social History*) with bows he had purchased for himself and his grandson.

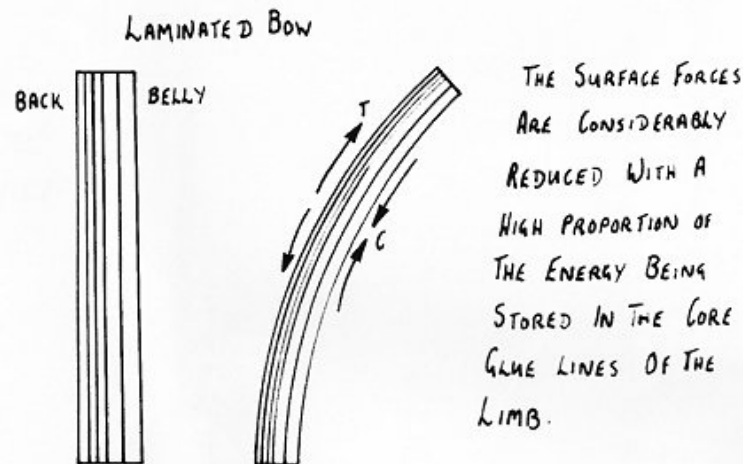
One of the few things I can remember about my middle school education was a seventh grade social studies class. We had a great teacher, a woman who had traveled the world, a considerable wonderment in my tiny southern Oklahoma home town. She was the first to bless me with the understanding that there was a world outside of that little town. The most memorable thing we did in her class was to choose a name and address from a list of kids from other countries and write them a letter. It was from that list that I found my first pen pal. I chose a girl from England. I imagined her, of course, as a Goddess, long flowing blond hair, sipping tea at a cricket match or some such nonsense. She turned out to be a rather homely farm girl from a rural area just north of Brighton. Her three-inch school photograph made it obvious that she was on the plainer side of physical beauty, but there was nothing plain about her letters. She had an uncanny ability to make me think about things, religion and politics and society, in ways that I had never dreamed of before.

Thinking back, I believe that it was my correspondence with this girl that spawned my interest in history, and

particularly an interest in the history of England. Young male students of English history rather naturally become interested in the development of weaponry, and certainly, the most interesting of those weapons has to be the longbow.

To make a longbow story short, I have wanted to own a "real" English longbow for as long as I can remember. It wasn't until I read a magazine article by Hugh Soar that I came to realize that owning an English longbow might become a real possibility.

I joined the British Long Bow Society (BLBS), and over the past three or four years I have corresponded with a number of bowyers from England. I have found them to be not only eager to share their considerable knowledge, but also to be as interested in the "American" archery scene as we are in English archery. One of my favorite correspondents is a fellow named Iain Bickerstaffe. Iain is a bowyer of considerable distinction and is quite well known in the British archery community. We have exchanged numerous letters and we have also exchanged little "treasures" from time to time. I've provided Iain with a few nice billets of Pacific Yew, and he has sent me a couple of beautiful bows. After receiving the



THE RESULTANT BOW (AT THE SAME DRAW LENGTH & WEIGHT)
IS BOTH THINNER & NARROWER THUS ALSO LIGHTER
& THEREFORE, MORE EFFICIENT IE, FASTER.

Figure 1.

first of these bows I wrote Iain and expressed my desire to learn to make such beautiful laminated bows. The following is Iain's response. It was one of the most amazing letters I have ever received, and I knew immediately that it was not only worthy of publication, but that it should be shared with other bowyers as well.

Here is the letter. I hope you enjoy it and learn as much from it as I did.

"Dear Paul,

There is much involved in the design and concept of all-wood laminated composite bows. If you use the right woods in the correct places and

thicknesses you can lay out the bow to a template thus producing reliable, predictable, fast, sweet-looking and shooting bows. Typically, in laminated bows, I will use three or more woods with no layer more than 3/8" thick. The best all-around backing is hickory at about 3/16" thick. The next layer should be strong in tension and have a high bend resistance. I have used many different woods in this position, including Purpleheart, Goncalo Alves, Yew, Ash, Zebrano, and Cedar. I have had most success with thin laminations of around 1/8". I often add a fourth layer (again about 1/8") using a lighter wood than the first one giving Purpleheart plus Goncalo Alves, or Purpleheart plus Ash, or Purpleheart plus

maple or Goncalo Alves plus Ash/maple/Yew etc.

Then I use a reliable "belly" wood such as Lemonwood, Piquia, or Osage. Sometimes if I have some dodgy Osage I will put this into the core in one or two thin layers with a belly of lemonwood or Piquia.

This I glue up with Casamite or resorcinol and bind to a form, using strips of inner tube. Preparation of the gluing surfaces is vital. They must be flat, smooth, dust free, and prepared immediately before being glued up. The form I use is slightly curved to put a slight forward set into the bow when cured.

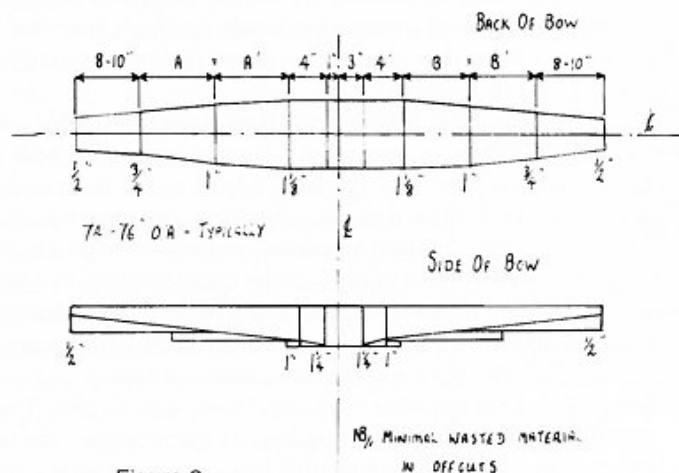


Figure 2.

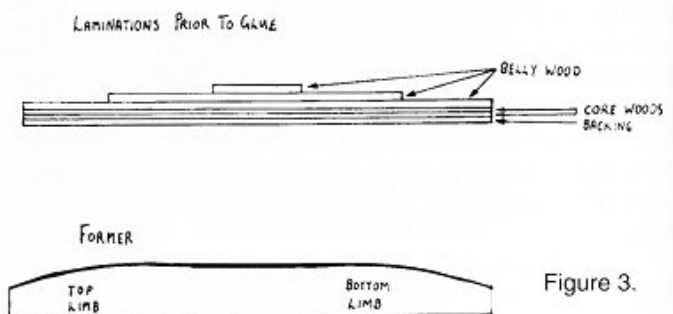


Figure 3.

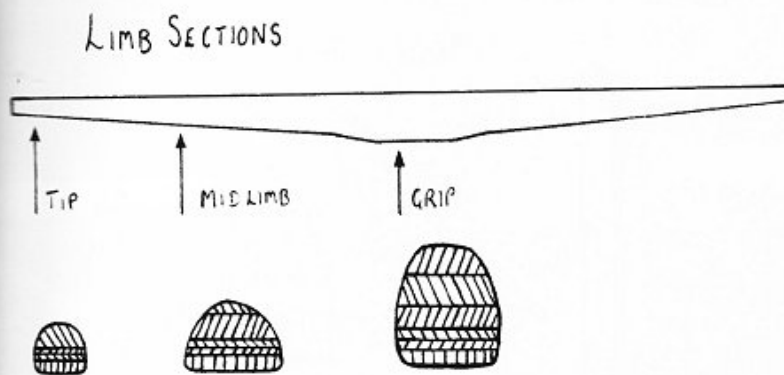


Figure 4.

This forward set is not essential, but does counteract the string follow that is inevitable in a longbow design. The glued-up stave is then marked out with a centerline from end to end, and then as below.

Many potential problems can be avoided if you very carefully work the stave into a smooth, even taper on the sides and belly, smoothing out the steps in the layout, and rounding out the handle (see figure 4). Once the stave is shaped (and checked with a caliper or similar at 4" to 6" intervals) its time to generate the "D" section.

With a "D" section bow, if the "D" is not quite symmetrical or if the woods vary in stiffness from one side of the bow to the other, at a later stage in tillering the bow will be curved to one side or the other (see figure 5). This problem can be easily cured as I will cover later. The bow should be tillered as per *The Bowyer's Bible*, but the best shooting bow would be a D-bow with a slight flattening in the handle area. Greater speed and performance will be achieved if the tips (first 8" to 10") are tapered down quite thin, using the thickness to retain adequate stiffness to avoid whip-ended tiller. Measured from the centerline 10" above and below there should be around 3/16" to 1/4" of positive tiller. The smoothest and fastest bows tend to be the ones where the bottom limb is slightly visually stiff whilst still tillered correctly.

If the bow should twist at all, this is revealed by the back being out of square when braced, viewed from either end of the bow.

In areas where the back looks high, that side of the bow is too stiff and wood should be removed SLOWLY. When sorting out this type of problem I clamp the handle area in the vice (in soft jaws) ensuring that the back of the bow is square in the vice. The bow will lean over to one side or the other, curving away from the stiff side (see figure 5). After removing some wood, gently bend the limb sideways (towards the stiff side), and gradually the bend will come out. It takes time and work and bending for wood removal to show its effect.

I always start with a bow over-long and work it into a good shape, not twisted, and in tiller. I will weigh the bow regularly to keep tabs on where it is in relation to the intended finished weight. Since I expect to shorten the finished bow after it is sanded, at this stage, the weight will be below the intended finished weight. By lightening the tips early in the process and by referring to the formula in Volume III of *The Bowyer's Bible* the bow will be correctly tillered and bend correctly as well.

I usually aim for around 68" for a 28" draw and add 2" or so for each extra inch of draw length. A longer bow is always smoother to shoot and safer in both tension and compression, if a little less fast.

The benefit of laminating bows, in terms of their performance, is that, weight for weight, a laminated bow will be both slimmer and faster than a bow of the same woods, but with fewer laminations. The more glue lines in the bow the safer it is, as any flaw in any piece of wood will be sandwiched and, therefore,

unable to travel and cause the bow to break.

The reason this works, and also the Perry Reflex, is that energy is stored in a different way than in a self bow. In a self or backed-bow, tension and compression forces are the main contributors to energy storage. In a laminated bow, the internal glue lines (and the laminations in between) are in sheer, thus energy is stored here also. The more layers, the more sheer-energy storage, and the slimmer the resultant bow. A slight forward set with multiple laminations produces an even slimmer bow, weight for weight. The slimmer the bow the lighter the limbs become and, therefore, the faster the bow will perform. The slimmer the bow the less material there is in it, therefore, the lower the hysteresis loss within the structure and, therefore, the faster the bow. The more layers within the bow the more these factors contribute to the increased performance of the bow, as does the forward set. Another benefit is that if energy is stored within the bow as well as in tension and compression, forces are lower and the bow is safer once again.

I shall attempt to illustrate diagrammatically how these internal forces work on the materials. The only drawback to all of this is that you are asking a great deal of the glues that are used. I am not convinced that anything but the best wood glues will suffice.

Each diagram represents a top limb, with each type of bow design the internal forces become gradually more significant to the performance of the bow. As I hope to have shown, one

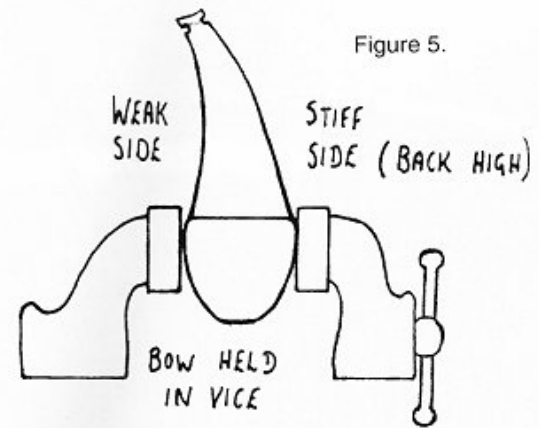


Figure 5.

REMOVE MATERIAL FROM STIFF SIDE
OF BOW TO CORRECT

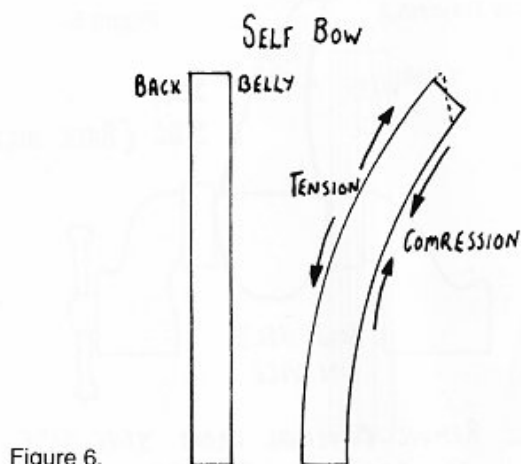


Figure 6.

THE BACK IS MEASUREABLY LONGER
& THE BELLY SHORTER WHEN
THE BOW IS DRAWN.

ENERGY STORAGE AT SURFACES

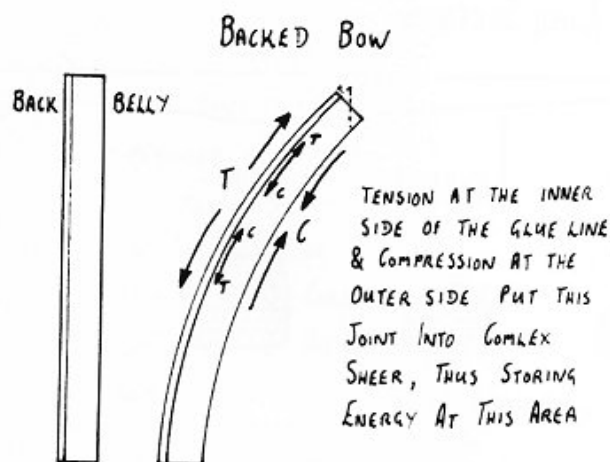


Figure 7.

piece of wood will stretch under tension and shorten under compression (see figures 6 and 7). As long as this is mainly "elastic" and not "plastic" deformation the bow will not follow the string too much. A backed bow will perform slightly differently with the back stretching on one side under tension and being held back on the other side in sheer on the glue line. The belly will compress on one side but be restrained by the glue line, such that it too is under sheer. Add more layers and with each successive layer, working in from the back, the tension forces are replaced by sheer only and as you approach the belly, compression and sheer become our considerations. The positioning of the neutral axis varies depending on the number of lami-

nations, their thickness, stiffness, etc., and the amount of forward set that is introduced when the bow is glued up.

I hope that you can follow my instructions to the art of laminating wooden bows. I do not claim to have covered everything. The truth is that I am still learning and with each new experiment I learn a little more and, as with each aspect of bow design, one change has an impact on several other areas of performance. The more I study and learn, the more insight I get into bow design and the more I realize there is yet to be found out. I enjoy our communications and hope that the transference of knowledge, ideas, and materials may lead to a greater general understanding of shared knowledge and experiences.

I feel that I am relearning skills that have been lost, rediscovering ideas that have been tried and tested, making mistakes from which new ideas emerge.

Yes, it is an obsession, but it is also an aim, a purpose, something to work towards, albeit an unclear goal as yet.

All for now. Regards,

Iain Bickerstaffe

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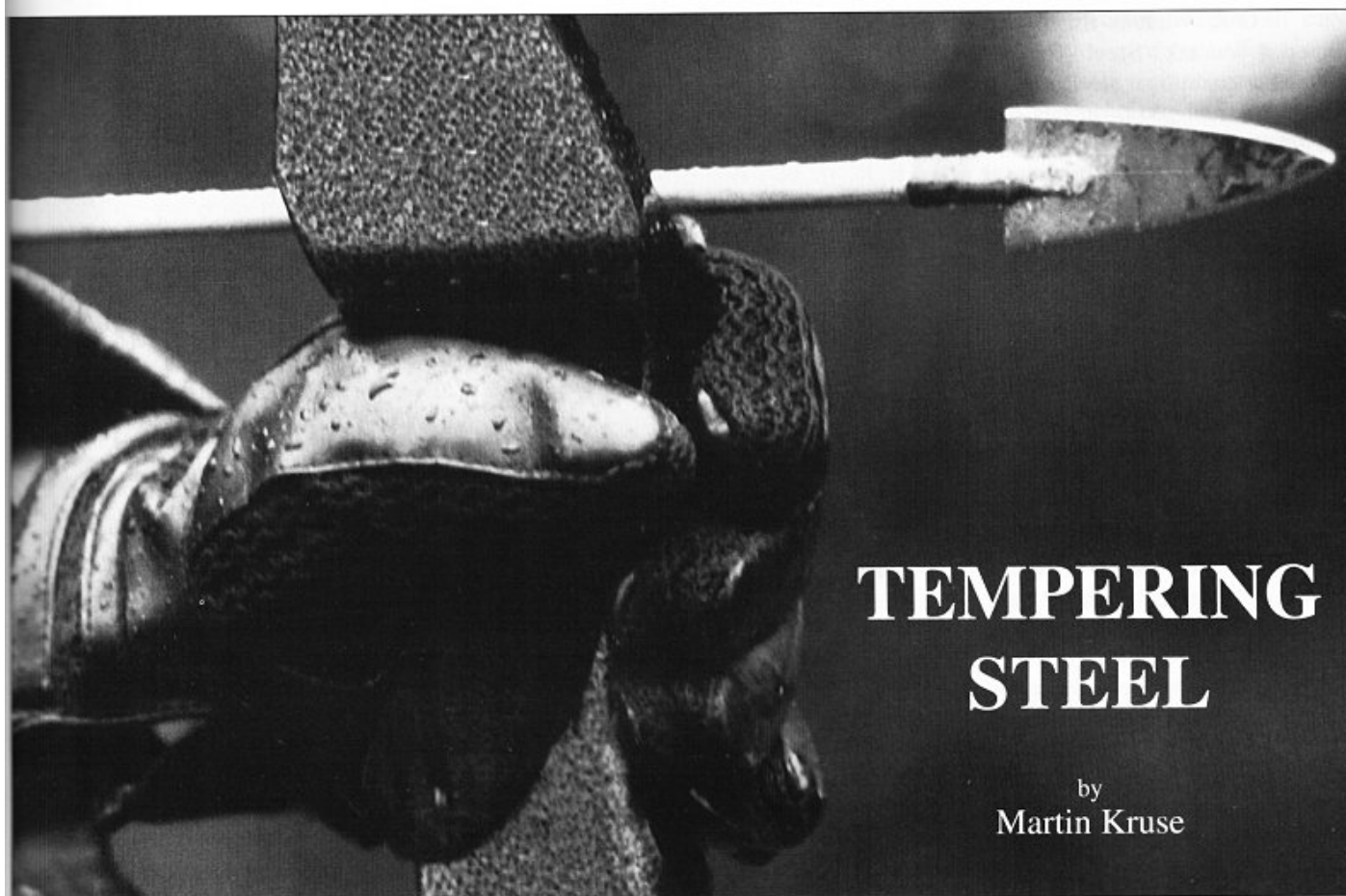
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TEMPERING STEEL

by
Martin Kruse

It's one of those phenomenon that's just naturally understood by those involved but almost impossible to explain to those on the outside. Traditional and primitive archers achieve greater satisfaction from their sport when part, if not all, of their tackle is created by their own hands.

This usually starts with making your own arrows and works its way through bowstrings, armguards, quivers, and finally to making your own bow as the infection spreads through your system. If you're a bowhunter, and you've totally succumbed to this affliction (the latter being my wife's word not mine) you start looking to your arrows again. Specifically to that critical component up front that actually does the killing. You start thinking about making your own broadheads.

This isn't surprising; after all, the reason most archers get more satisfaction from hunting with equipment they make themselves is to take greater control of their hunt. You get the feeling of being able to take sole credit for the outcome. (If I miss because of the equipment I still have nobody to blame but myself and if I connect, well, then I really did it, not some unknown stranger who sells a gadget to make it easier.)

There's also the satisfaction of doing things the way our forebearers did. Archers in growing numbers are harkening to this primal call as is evidenced by the growing circulation of this magazine and others like it.

Perhaps this explains why a growing number of traditional toxophilites are getting into the field of flint knapping. If you look at what most aboriginal or primitive people made their big game arrow heads from (horn, bone, wood, and stone) it's easy to see which were the most effective.

Stone, especially igneous stone like flint and obsidian, is much harder and can be formed to a superior cutting edge. It's that cutting edge which is all important. For as we all know, an arrow kills not by merely poking a hole in an animal but by severing veins and arteries to cause hemorrhage.

There's no doubt that properly-made stone heads work. If they didn't, our ancient ancestors would have starved to death before we got here or else we would have evolved into grass eaters. Besides, flint knapping is fun and many of us enjoy the added challenge of learning new (old) skills.

Like everything in life, however, there are down sides. It requires a lot of practice; your first points may not be up to the job. Perhaps worse, flint and obsidian heads suffer from very short lifespans. Worst of all though is that they are now illegal for hunting in many states.

While I support the efforts of those individuals who are working to reverse this legal situation, I'd like to point out that there is still a common, legal, inexpensive, easily worked, and highly effective material readily available to the would be broadhead maker.

All photos taken by Deirdre Lyons.

O.K. what is this wondrous material you ask? **Steel.** That's right, remember traditional steel broadheads? They work real good. In fact I'll even go out on a limb here and say that a well-made carbon steel broadhead will cut as well as a stone point. Maybe even better in some cases. (What the hell, if I don't kick a few sacred cows once in a while life gets boring.)

I know we've all heard it repeated frequently as sage wisdom that "they've proved" flint arrowheads kill better than steel. Well, I don't know who "they" are and I don't know how anyone could conclusively "prove" anything one way or another in this case. This position is often defended by pointing to the obsidian surgical instruments that some surgeons report cut better than the steel scalpels. No wonder, the common surgical scalpel is cheap, disposable, stainless steel like your safety razor blades.

If you're old enough to remember straight razors and/or barber shop shaves, you know that these disposables aren't the final word in smooth cutting ability. In fact I have customers who are surgeons and they tell me my skinning knives cut better than their scalpels. I also know some men who make special handcrafted carbon steel surgical instruments.

Comparing a top-quality, hand-crafted blade, whether it's obsidian or anything else, to the standard disposable instruments is similar to comparing a Ferrari to a Ford wagon when you're discussing racing performance.

Broadheads kill by hemorrhage and hemorrhage is caused by cutting flesh. Properly tempered and sharpened carbon steel cuts flesh real good. Besides when it comes to broadhead effectiveness there are other factors involved. In his book, *Secrets Of The Omaha Bow*, William Vonderhey points to the superiority of steel heads, citing the greater length of the cutting edge for heads of similar weight and the reduced drag produced by their thinner cross-section of the blade and less bulky hafting.

Durability is also a factor in ways that may not be immediately obvi-

ous. A steel head is more likely to hold together and keep cutting after contact with bone. It's also more likely to stay intact and inflict more damage as an animal runs with an arrow in it thus causing game to quit traveling and lie down sooner.

Fine, you say, but if you're going to shoot steel heads why bother making them yourself? Well, I used to say the same thing back when Howard Hill broadheads were seven and a half dollars a dozen and Bear Razor Heads were five. Lately I've been rethinking that position though.

Besides there is still the aforementioned satisfaction to be gained through doing it all yourself. This is where some of you are muttering "Yeah,

The simplest way to tell the carbon content of a piece of steel is by observing the sparks it throws off when you put it to a grinder.



but isn't working with steel too complicated or hi-tech for me to do myself?" The answer is a definite no!

Granted you need a few tools and they are a little more sophisticated than a piece of deer antler and a rock. But most people would be surprised at what can be done with very few simple hand tools. What's more, the level of metal-working skill required to make broadheads is a lot more easily acquired than the long hours of practice you'll need to knap good points. Trust me, you don't have to be a master tool and die maker or bladesmith to make anything as simple as

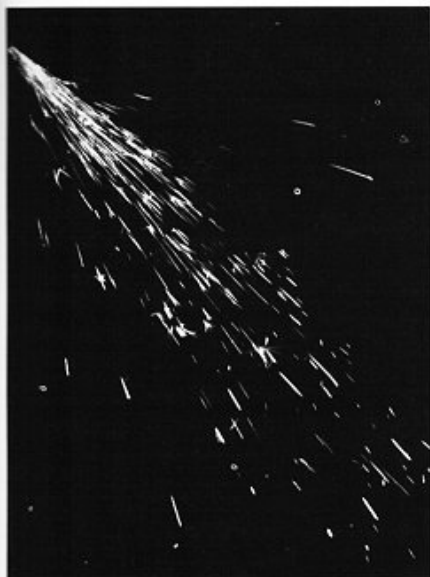
a broadhead. With a little knowledge and some very basic technology, your homemade broadheads can perform every bit as well as the best factory-made heads. In fact they'll probably work better than some of the mass-produced gadgets that some companies sell for broadheads nowadays.

Once you decide to do it, the actual making of steel broadheads is so simple that you don't need directions from me. More than likely you've already read how in any one of a number of books. In case you haven't, *The Traditional Bowyers Bible, Vol. 2* by Bois d'Arc Press has a chapter on making steel heads that is one of the best I've seen on the subject. In fact, there is so much information readily available that I'm not going to use up space rehashing it in this article; except for two omissions. Unfortunately these omissions are vital and without this information you'll probably be unhappy with the results you achieve.

This is in no way a criticism of Jim Hamm or any of his crew down at Bois d'Arc Press. I've never seen any book on making archery tackle that dealt with these issues properly. The two all-important factors so often overlooked are simply (1) picking the right steel and (2) heat treating it properly. There seems to be some common misconceptions that these two factors (A) aren't really important, (B) are beyond the comprehension or technical capabilities of the average home workshop enthusiast, or (C) are some deeply-guarded secret unavailable to the average person. To answer on all three counts:

(A) given a reasonable design, the selection of a proper steel and heat treating are the two most important factors in the performance of any cutting implement.

(B) You can do it in your home workshop. I make a living producing custom knives in a home workshop and while it may be fairly well equipped at this point, I started with almost nothing and knives are more complicated than arrowheads.



Low-carbon steel



High-carbon steel

(C) I'm going to give you all the info you need to accomplish this successfully by simply following easy directions. If you decide later that you want a fuller understanding of the process, just leave the archery section of the library and check the card catalog for books on knife making. You'll find a wealth of information.

So, with a minimum of complicated hi-tech theory and six-bit words that the metallurgical engineers throw around so casually, here it is. . .

In order to take a cutting edge steel must be hardened, and if you don't want it to shatter like glass it must be tempered. If you neglect both of these steps, not only won't it cut, but it'll probably crumple like a compact car on impact. So you can see that heat treating, hardening, and tempering, are vital.

But before we can get to that we must make sure you've selected a suitable piece of steel. You see before steel can be tempered it must be hardened. In order to be hardenable, steel must have an adequately high carbon content. There are a variety of different elements which can be found in steel, especially the more exotic alloys, but carbon is what makes steel hardenable, and renders it suitable for use as a cutting tool. In fact, carbon is what makes it "steel" since without it all you have is iron.

Small amounts of carbon give you what is called mild steel. This is useful stuff for a lot of applications but

totally unsuitable for our purposes. In order to be hardenable, steel must have at least .40% carbon (or forty points as the old blacksmiths used to say). What's more, in order to take the kind of temper which allows it to take a fine cutting edge and still have the resiliency necessary in a good broadhead requires that the steel have at least .60% carbon. Of course more is fine too. You just have to know what you're dealing with in order to know how much to draw the temper for proper performance.

Now if this were an engineering journal or one of the knife magazines I'd give you the addresses for a couple of specialty steel distributors where, along with your nice virgin steel, you'd get an alloy and heat treat chart and we'd move right along to the next step. But it's more than likely that most of you are thinking about using stuff you can scrounge instead of having to go buy materials. So I'm going to tell you how to do it the way the old blacksmiths do rather than the way the engineers do.

The simplest way to tell the carbon content of a piece of steel is by observing the sparks it throws off when you put it to a grinder. Look at the individual sparks. High-carbon steel throws multi pointed "starburst" sparks. The more complex the spark, that is the more points it has, the more carbon the steel contains. Of course those sparks reveal more than that to the experienced eye but for our purposes here we don't need to be all that sophisticated. Simply determin-

ing the carbon content is relatively easy especially if you give yourself a couple of "known-quality" pieces to use for comparison benchmarks.

A little searching will easily get you your "laboratory control group" for free. Plain old cold-rolled stock is usually mild steel with .20% carbon and will throw a very simple spark. If you've got a couple of big nails lying around your workbench, they will do fine. Car or truck axles are .40% carbon. You shouldn't have any trouble observing the difference in the sparks thrown by these two types if you pay close attention to the individual sparks. Automotive springs, either leaves or coils, are .60% carbon. Put a piece of this stuff on the grinder and you'll definitely be able to see what I'm talking about.

Now for the top end of the scale. Look around for an old file or a broken piece of one (no point in messing up a good tool here). The fireworks display these things throw off is really dramatic. They contain between 1.0% and 1.2% carbon. You'll probably notice some color differences in the sparks varying from white to orange and also varying degrees of brightness. This is due to other alloying elements in the steel such as nickel, chromium, tungsten and manganese. Don't worry about it. All we're concerned with is the complexity of the spark (the number of points to each starburst).

As I said, this indicates the amount of carbon and is all you really need to know. If you want an indicator between the spring and the file, find a piece of an old crosscut saw or sawmill blade, they run .75% carbon. By the way, stainless steel, no matter how high it's carbon content, won't throw the type of sparks we're looking for here.

In fact, without a great deal of experience you'll probably mistake it for mild steel. If you have another use for stainless, you can check it by applying some cold blue solution (available at most gun stores). Otherwise just discard it as you would mild steel. Stainless requires a slightly more sophisticated heat treatment and besides, it doesn't take as good an edge anyway and isn't really worth bothering with.

By comparing sparks from these samples to those of your intended broadhead steel, you shouldn't have any trouble determining its suitability. Some of the things I've found that make great heads are old saw blades, broken flat springs, and old barrel hoops, as well as many pieces of indeterminable origin. You'll have no trouble finding and selecting suitable steel, it's available in abundance and is usually free.

Now is the time to do all your cutting, grinding, shaping, drilling, etc. Do everything but final sharpening before you harden and temper the head. A note here, please take adequate precautions when operating a power grinder. This means safety glasses or a face shield and breathing protection like a good particle filter respirator. Breathing the abrasive dust from the grinder, not to mention the steel dust, can do irreparable damage to your lungs.

If you plan on soldering the blade to a ferule, do so after heat treating and use a low-temperature silver solder like Kesters (available at almost any hardware store). With a little care this won't effect the temper.

So now you've got a batch of broadheads that you know are made from a suitable grade of steel and are ready to heat treat. Heat one of them red hot, you know—the cherry red you've heard of. This is best done in shaded or dim light so you can see the color of the metal clearly. You can heat them with an oxy-acetylene torch or even a propane torch if you build a small oven like enclosure out of firebrick. You can even do the job in a wood or charcoal fire if you've got a bellows or simple blow-pipe. Or you can use a blacksmith's forge if you have one.

The steel must get hot enough or it won't harden, but remember, you just want it red hot. Don't overdo it. If you get it up into the orange range this causes something called grain growth which weakens the steel. Until you develop an eye for judging the correct temperature (in case you're interested it's about 1,500 Fahrenheit) you can check it with a magnet. At critical hardening temperature, steel becomes non magnetic. Get a magnet on a long handle or hold the magnet in your tongs and use it to check your red-hot broadhead. When it doesn't stick, it's hot enough.

Oh yeah, you will need a long-handled pair of tongs. If you can't find a pair of blacksmith's tongs you can easily extend the handles on a pair of pliers by shoving them into pieces of tubing. This will work fine for small, light pieces of work like arrowheads.

When the broadhead gets hot enough, quench it by dunking it in oil. You can use vegetable oil or motor oil or even automatic transmission fluid. Anything you have. Don't use water though, as it'll frequently crack thin pieces of steel. I use vegetable oil because it has a higher flashpoint and cleans off easier. Besides, it doesn't stink nearly as bad. Just use a metal container that won't be effected by the heat. It should be at least the size of a three pound coffee can, and a little bigger won't hurt. I quench arrow points in the same 100 gallon tub I use for swords and other large pieces, but that's definitely overkill. Just be sure the oil is deep enough (you'll see why in a minute, also why the tongs need long handles).

So fill the can to about an inch from the top. Use the tongs to pull the head out of the fire and dunk it in the oil. The surface of the oil may flash and catch fire—did I mention that you need to carefully pick a safe place to do this? Your first reflex will probably be to pull it out. DON'T!! That's the best way there is to get burned or start a serious oil spatter fire. What you need to do is get it immersed quickly. Once the source of the heat is far enough under the surface, the flames will go out. That's why you need the oil to be deep enough and your tongs to be long enough. Don't hit the bottom or sides of the can or you might warp or crack the steel.

Keep the broadhead in the oil until it stops bubbling, then check for hardness with a file. If it hardened properly, a dull, used file won't touch it but will just skip. A new, sharp file may bite, but just a little. If it isn't that hard, assuming you had suitable steel, you didn't get it hot enough and you'll need to repeat this step. If all went well and it's hard, set it aside on a brick or something and let it finish cooling while you harden the rest of the batch. At this point you're still handling them with the tongs as they're still hot enough to burn your fingers

By the time you've finished hardening a dozen, the first ones you did should be cool enough to handle. They probably look like the bottom of an old frying pan with all that burned-on oil. Take some emery paper and clean them up. Sand them off until you can see bright clean metal. Now you're ready to temper them.

Put it back on the fire at a much lower heat. Before long you'll see the surface of the steel begin to change color. The first color you'll notice if you're looking closely, is a pale straw color. This will progress to bronze, then a deep peacock purple, to dark blue, to lighter blues, to light sky blue, to silver gray. The color you want depends on how much carbon your steel has and will be somewhere between dark blue and sky blue. The higher the carbon content, the lighter the blue. When it reaches the right color, dunk it in the oil again and check it with the file. It'll bite much easier this time. But if it's still too hard you can heat it again to a little lighter shade and quench it again. If it's too soft, reharden it and start over.

If you want, you can use a commercial broadhead that you like for comparison and when it feels about the same under the file, it's done.

Clean off the oil with a little dish-washing detergent and hot water and it's ready to put on an arrow and sharpen up. Good hunting.



The author shooting home-made broadheads with an old compound riser that has been upgraded with home-made recurve limbs.



by Tom Keller

Introducing and Promoting the Great Sport of Bowhunting to Disabled Sportspersons in the U.S. and Canada

What should a bowhunter do when he or she becomes physically challenged? Until recently, most bowhunters thought that their bowhunting had come to a screeching halt when they became injured or ill.

The first thing physically challenged bowhunters should do is to contact the Physically Challenged Bowhunters of America (PCBA) to learn how they can get back into bowhunting as soon as possible!

Marvin Vought, first vice president, said the PCBA grew from a comment Billy Ellis made about crossbows in an article published by *Bowhunter Magazine* in 1989. Ellis is a nationally-recognized bowhunter and serves as trust officer for the Pope and Young Club. Vought said that Ellis didn't like crossbows and that they should be banned throughout the United States. Vought said, "When the article was published, Drew McCartney of Gorham, Kansas, wrote Billy Ellis an angry letter about the use of crossbows. McCartney was using a crossbow to hunt because he lost most of his right arm, left index finger and suffered other injuries when he came in contact with 7,200 volts of electricity.

"McCartney told Ellis of his accident and how the crossbow was the only bow he could use to hunt. McCartney and Ellis exchanged letters and telephone calls. Ellis apologized in writing and said that there was no way he could be against the use of crossbows by physically challenged bowhunters.

"A friendship and respect grew between both bowhunters and Ellis invited McCartney to go hunting at his

Indian Bluff Hunting Preserve near Lexington, Mississippi. The seed of a national bowhunting organization for the physically challenged also started to grow.

"Ellis and McCartney talked about bowhunting and the many physically challenged men, women, and children and the idea of forming a national bowhunting organization for the physically challenged."

In October 1993, physically challenged bowhunters from 18 states met at Indian Bluffs to discuss the possibility of forming the national organization that Ellis and McCartney discussed. The meeting focused on what was going on in each of the states represented. To the best of their knowledge, there was no national bowhunting organization for physically challenged bowhunters.

Discussions focused on bylaws and electing officers and directors, how to get physically challenged bowhunters back into hunting after an illness or accident, how to locate accessible areas to hunt, where to find adaptive equipment and various shooting techniques, and how to educate the public.

Marvin Vought is a quadriplegic as a result of an automobile accident 14 years ago. Karen, his wife, is PCBA treasurer and bowhunter. Karen said, "The PCBA is an organization for physically challenged and able-bodied men, women and children. We have friends helping friends, fathers helping sons, mothers helping sons, daughters helping fathers, brothers and sisters helping each other, and much more.

"Archery and bowhunting is a family sport and the PCBA helps family, friends and others get back to archery and bowhunting. PCBA members are physically challenged and able-bodied men, women and children who love archery and bowhunting and want to share this love."

"People come to one of our hunts as strangers and leave with memories and new friendships that last a lifetime."

The PCBA provides information on adaptive equipment, information on state laws, and who can help other physically challenged bowhunters. The club also provides names of organizations and companies who support the PCBA so members can support these organizations and companies.

Marvin said, *"One physically challenged person in Pennsylvania will shoot his or her bow a certain way and another physically challenged person in California shoots his bow slightly different. Through the PCBA they can exchange letters and ideas and help each other shoot and hunt better. The wheel does not have to be re-invented each time a physically challenged person wants to learn how to bowhunt again. There are many people out there who will gladly share what they learned the hard way."*

"The PCBA helps people learn how other people, both challenged and able-bodied, do things. Things like what adaptive equipment works and what doesn't. It's a group of people teaching each other to teach themselves."

Karen said *"Before our group was organized, many archery manufacturers, organizations and clubs never realized that a person who lost an arm or leg or was confined to a wheelchair because of an injury or illness would want to and be able to shoot a bow and go bowhunting again."*

"Though our newsletter, letters, telephone calls, TV shows, one-on-one conversations and our yearly meetings the PCBA has changed many peoples' thinking. Before the PCBA, there was little if any adaptive equipment for the physically challenged bowhunter. Most manufacturers felt there was not a market for such equipment and never considered making or marketing it."

"Today certain bows are not as heavy to pull and some safety straps for tree stands can also be used as a harness to hold a physically challenged person in his or her wheelchair. One company makes a brace for a bow and another company makes a brace to hold a person's arm straight so the bow can be pulled."

"Other adaptive equipment on the market includes a sip and puff release, specialized sights for blind archers, ground blinds, and a soon-to-be-market treestand for a person in a wheelchair."

"The mouth tab is one item that has helped many physically challenged bowhunters pull their bow. The tab is securely fastened to the string and then the tab is placed in the mouth and held by the side teeth. Hunters can pull heavy weights and shoot accurately time and time again."

A mouthtab is about one inch long nylon threaded on a bowstring. Shooters nock an arrow, grip the mouthtab with their teeth and extend their arm. At full draw, the shooter takes aim and releases the tab.

Biff Williams, a PCBA Board Director and a Martin Archery representative has pulled weights as high as 70 lbs. on both recurve and compound bows using the mouthtab. When shooting competition, Williams shot approximately

100 arrows per day using this system and he has taken many different big game animals.

Drew McCartney has put the crossbow aside and is now pulling his bow set at 63 lbs. with the aid of a mouthtab. McCartney, PCBA president, has taken different animals using the mouthtab.

Denny Campbell, another PCBA member, lost the use of his left arm when a tow truck wiped out Campbell and his motorcycle. According to the Voughts, Campbell learned of the mouthtab from a challenged hunter in South Dakota and placed 6 arrows in a 9-inch circle the first time he tried the mouth tab. They said Campbell told them he felt like a bowhunter again.

The PCBA will field test adaptive bowhunting equipment. Interested manufacturers should call Marvin to discuss their product and how it would help a physically challenged bowhunter. Marvin wants to know what it is and how it works. He then requests two units for field testing. He will field test one and send the other one to another PCBA member who will also field test it. Field testing is usually completed in 6 to 8 weeks.

Marvin receives all field test reports and publishes his report in the PCBA Newsletter. His report will tell how it works, the good and bad of it, and

IT WAS OUR HERITAGE, AND IT IS AGAIN!



how it can be used by different hunters. The field tests are completed throughout the United States under all bowhunting conditions and are passed around to as many club members as possible in a reasonable amount of time.

Both physically challenged and able-bodied bowhunters field test the equipment to get as much input as possible. When the field testing is completed the PCBA will return the equipment, but more often than not, the manufacturers donate the equipment to the club.

Marvin said that if someone has a product that they want to have field tested to call him at (412) 668-7439 and he will be glad to discuss PCBA field-testing procedures and their product.

The PCBA sets up bowhunts all over the United States for whitetail deer, boars, exotic animals, etc. According to Marvin, outfitters, landowners and others read an article or see a TV interview about physically challenged bowhunting and decide they would like to help someone hunt again and offer their land for a hunt, offer to sponsor a hunt, or attend a hunt and be part of the activity.

Hunts are open to all PCBA members (physically challenged and able-bodied) in good standing. Depending on where the hunt is located, five to fifty hunters can participate in the hunt. Some hunts are on a first-come, first serve basis and others are on a lottery system.

Hunts are usually 3 to 4 days, but some are longer and some are shorter. A guide goes out with each physically challenged individual. Many people come early to get accustomed to the facilities and to rest before the hunt. Some people come to see what goes on and then they decide if they want to participate in a future hunt. Still others come to be a part of the PCBA and to help out as guides, cooks, or whatever.

When asked who actually goes on a physically challenged hunt, Karen and Marvin smiled and said "anyone who would go on any other bowhunt!" Karen said they have parents who bring their challenged children, children who bring their challenged father, quadriplegics, paraplegics, amputees, totally blind individuals and many others with different illnesses and injuries, including MS, heart disease, respiratory



problems and more.

PCBA bowhunters shoot recurves, long bows, compound bows, and crossbows. Some hunters use sights, others shoot instinctively. Some hunters use a mouthtab to pull their bow; other may need someone to pull and lock their crossbows. Still others can pull their bow but need the eyes of a spotter to direct them to the target.

No matter what kind of bow they shoot, they are an active facet of bowhunting. Their physical challenge requires more effort and more creative

thinking to enjoy bowhunting and be successful.

On some hunts a "gator" or "quad" may be used to get a bowhunter to a spot and to help get the trophy back to the lodge. A hunter may walk in and out if he or she is capable and a guide is always with each hunter when in the field.

Safety and enjoyment are top priorities at any hunt as well as keeping the cost manageable. Cost depends on the services provided. One PCBA goal is to have all hunts paid for but that takes funding and it doesn't always work that way.

"The main goal of the PCBA is to introduce bowhunting to the physically challenged hunter again and to ensure that hospitals, doctors, physical therapists and others know what is available," Marvin said.

Individual memberships are \$10 per year. Corporate or business memberships are \$100 per year.

For more information on the PCBA, to sponsor a hunt, or arrange a field test of equipment, contact the PCBA, RD #1, Box 470, New Alexandria, PA 15670. (412) 668-7439 FAX (412) 668-7252.



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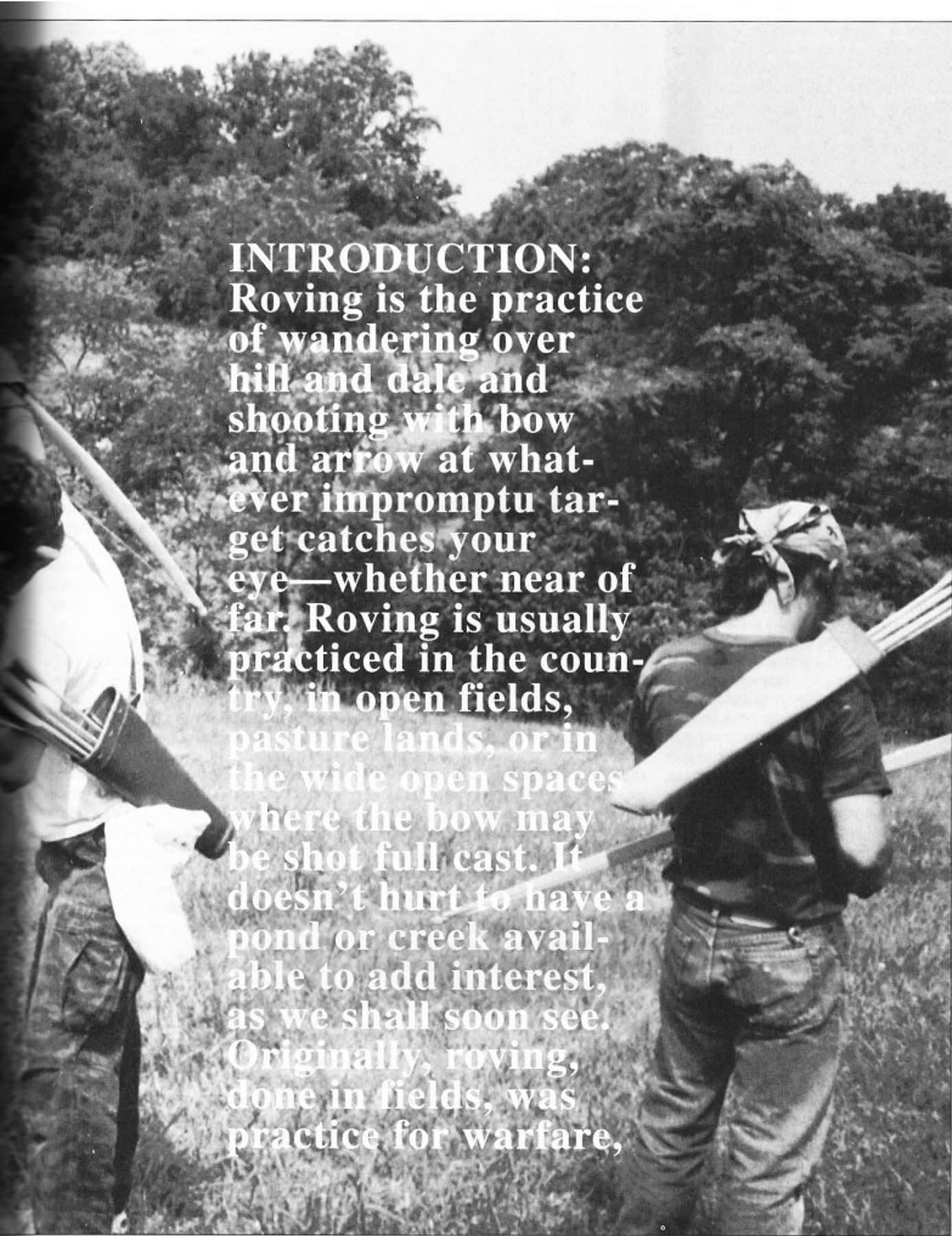
TRY ROVING

Here's How...

By
ERRETT CALLAHAN, Ph.D

"Get yourself a good longbow and go roving. Tuck a dozen tough birch shafts, fletched with long, low turkey feathers, under your belt or slip them in your quiver. Adjust your leather armguard and put the 'tab' in place. . . Saunter down the lane or strike off across the fields. . ."

L.E. Stemmler, 1942: 12



INTRODUCTION:
Roving is the practice of wandering over hill and dale and shooting with bow and arrow at whatever impromptu target catches your eye—whether near or far. Roving is usually practiced in the country, in open fields, pasture lands, or in the wide open spaces where the bow may be shot full cast. It doesn't hurt to have a pond or creek available to add interest, as we shall soon see. Originally, roving, done in fields, was practice for warfare,

whereas "stump shooting," done in forests, was usually practice for hunting. Roving is a year-round archery activity and can be done anywhere in the world. I've gone roving on the frozen wastelands of the Arctic, the rolling hills of Denmark, the fields and forests of Sweden, the deserts of Arizona, and all over the countryside of my native Virginia.

To me roving is an end in and of itself. I go roving simply because its fun. I don't use it as practice for hunting or for target archery—I did enough of those to last a lifetime. Nor do I need to practice for warfare nowadays. No, for me roving is the culmination of all my years of shooting the bow (over 50), a pastime which is not practice for anything except for more roving. Why not try it? You might like it too.

BACKGROUND

Classical roving was originally shot in the fields, meadows, and open forests of Merry England (Callahan 1988; 1991:13). The shots were across long distances, with scenery similar to what golfers enjoy today, but without the manicured lawns. (Weren't abandoned roving fields taken over by golfers?) In roving you shoot toward a distant target, one you know you can't, in all probability, hit (Figure 4). You watch the arrow arc up into the sky then swoop back down to earth far away, to land with a faint "tic." Roving is the only archery event I know of (other than archery golf and flight shooting) where it's ok to take your eye off of the target, after release, and watch the flight of the arrow. You should keep your eye on the target when aiming, and not be tempted to look at the arrow until its released. Aiming is thus done by instinct, by feel of the bow arm.

I prefer roving because its non-competitive. The object in roving is not to "see who can come the closest" but rather to "see how close you can come." You compete only against yourself and win only satisfaction and experience. Traditionally, the one who comes closest gets to pick the next target. Still, that doesn't necessarily make it competitive, for (usually) after having "won" two or three shots, the winner gives the next shot to another—so he won't be seen as selfish. Generosity prevails among rovers. To underscore this non-competitive, non-official attitude, distance in roving is usually paced off rather than measured.

As Stemmler describes in *THE ESSENTIALS OF ARCHERY* (1942:13):

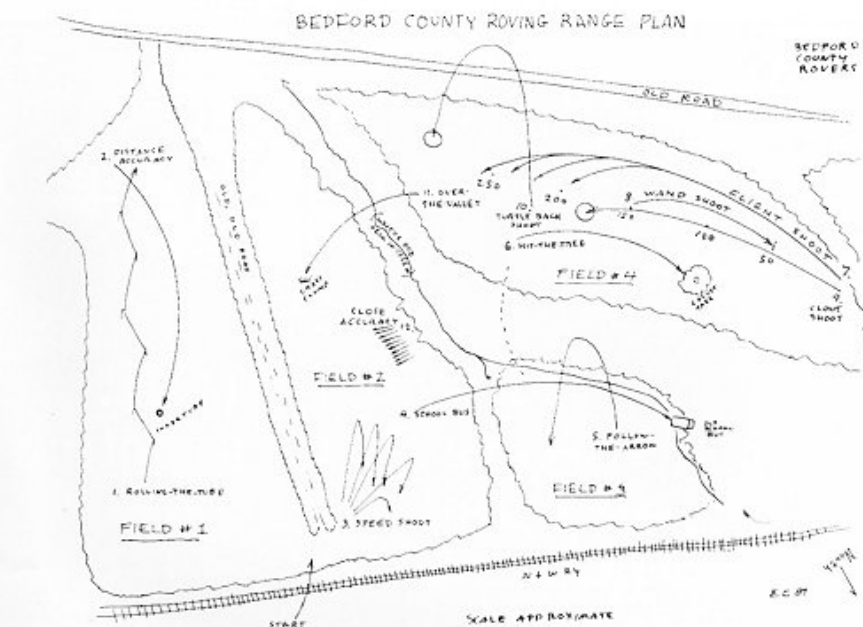


Figure 2. Sketch map of Bedford County Roving Range in Virginia. Similar ranges may be set up at almost no cost practically anywhere there are fields or open spaces. (Scale approximate.)

"years ago, in England, the home of the yeoman and long bow archery, elaborate roving courses were laid out. One of the famous ones, built around 1594, was near London and was called Finsbury Fields. The names of the butts or targets breathe romance and adventure. From The Castle to Gardstone was 185 yards; from Turkwale to Lambeth was 75 yards; from Bloody House Ridge to Arndol was 154 yards. From the Scarlet Lion to Jehu was over 82 yards. The course had hundreds of marks and could be shot over from many directions. After an exhilarating round of the course, "the merry party could drop off at the Egg Pye or Whitehall for a tankard of ale and a cut of cold beef."

In his excellent article, "The Fraternity of St. George" in a recent *Instinctive Archer*, Hugh Soar mentions some longer Finsbury Fields shots: from St. Martins to Young Powell was 363 yards. Another was 380 yards (1996:66). He also mentions some romantic names of other roving marks — Egpie, Sea Gryphon, Martins Monk, Thief in the Hedge, All Hallows, Pillar of Paules, Stone by the Pond, and Stake by the Stile. As you can see, in roving we have our own unique way of naming our targets.

Roving bathes in a sea of tradition (See "A Rover's Almanac," attached). Needless to say, for countless generations, roving was practiced with "classic traditional" equipment. (See my definition of this term in *Instinctive Archer* #1, 1996:20.) That is, wooden

longbows of English style and arrows of wood were used. Nowadays I suppose you could use about any kind of traditional equipment, but it just wouldn't seem right to me to go roving without a wooden bow and arrows I had made myself.

SETTING UP A ROVING RANGE

To set up a roving range all you need to do is find a suitable farm field, get permission and start walking 'til something catches your eye. Rolling hills, dotted with bushes, cedar trees, fence rows, or other natural features which are perfect for roving, are more interesting than flat, featureless fields (Figure 2). Also, pasture land, grazed by cattle year round, has shorter grass than hay fields, which are only suitable before the grass gets too high. Power lines sometimes provide excellent roving lanes. Good luck on getting onto a golf course.

You don't have to "prep" the course before you set off if you just shoot at natural features. However you can enhance the day if you carry along a few props (Figure 3). These you can set up as you go along. You don't need to make a special trip around beforehand. I'd suggest taking along the following props (see discussion below for their use):

- An old broom stick handle or two, sharpened at one end.
- A roll of yellow construction tape. It comes in 200 ft rolls and is quite inexpensive. Try your hardware or build-

ing supply store.

- A long string or cord (30 ft or so)
- A pocketful of colorful balloons
- Ten foam or cardboard squares, 3" x 3", and 10 coat hanger wire skewers with an "L" bent into one end.
- A handful of grocery store produce department wire wraps
- A small motorcycle inner tube, with leather, burlap, or rubber disk stitched to the middle
- A few 8-12 inch cardboard disks (from your local pizza shop or paper goods store)
- A small, soft sponge rubber ball, 2-3" (your local toy store)
- A 5-10 ft. linen thread (or monofilament fishing line).

For a list of suggested archery tackle to take, see page 46.

CLASSIC ROVING EVENTS

The following are a few classic roving-type events you may wish to try out. You don't have to do them all each outing. Do five or six each time out; do different shots each session, as the landscape, your mood, or your time allows. You can easily pass two or three hours roving so allow plenty of time and don't rush.

The rule of thumb in roving is not to shoot more than three arrows. Its just too hard to remember where more than three go. Exceptions are long shots on close-cropped, open fields, where you can see your arrows sticking upright, speed shooting, or shots with a clear backdrop such as an embankment or large, round haybale.

DISTANCE ACCURACY

Distance accuracy is shooting at far away targets, where you aim above the horizon. For example, you spot a small cedar tree far down the field. See how close you can come (Figure 4). Or perhaps a clump of grass, a rock, a patch of earth, a fence row, a shadow, or the bank of a creek. Traditionally, in roving, a dark object is called a "black," while a light-colored object is called a "white" (see *A Rover's Almanac*, attached). A far away object is also called a "long out," whereas a close object is called a "short out" or "hoyle."

For distance targets, you're forced to rely on pure instinct to come close. Practice helps, but its most difficult to judge the "gap" by relying on the conventional methods we use on close targets. Yet instinct is a wonderful thing. I've seen some rank beginners who have

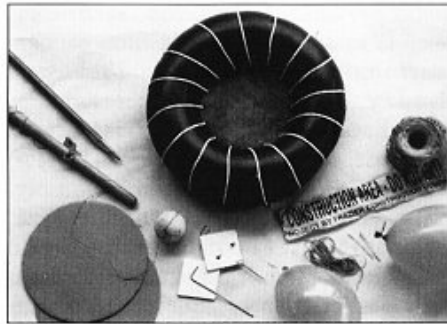


Figure 3. Suggested props for roving. From upper left clockwise to right: wand sticks, motorcycle inner tube with leather insert bound inside, construction tape roll, balloons, wire wraps, string, 3" foam core squares and wire skewers, 10" cardboard disks, foam rubber ball, and string.

never shot a bow before that day lob their arrows in as closely at distant targets as old timers. Thus, distance accuracy shooting can be fun for all concerned. Use field, target, or flight arrows.

HIT THE TREE



Figure 4

Hitting the tree is a favorite variation of distance accuracy shooting (Figures 2, 4). Trees and bushes are favorite targets in roving and have probably been used more than any other target since time immemorial for practice. You may hit anywhere within the reach of the foliage; it need not be just the trunk (which would make it a kind of a wand shot). Thus its not so intimidating to beginners as aiming at tiny stems or spots. This makes it fun for all. Shoot at any distance. Use rubber blunts or judos if up close or if far away, use metal blunts, field or target arrows.

OVER THE POND

My friend, Jack Jeffers, has a unique variation of the distance accuracy shot. He places an object (cardboard box) near the far edge of his pond. A natural object would work just as well. Then you shoot at it from the opposite shore (Figure 5). Undershoot and you



Figure 5

have to go swimming. (Jack keeps his canoe handy.) Your natural inclination is to aim extra high to stay dry and that is okay. But to really face the challenge you should forget all about the water, block it out of your mind, make your best instinctive judgment, and let fly. Needless to say this is a summer-time event. Use field or target arrows or blunts.

OVER THE VALLEY

If you're lucky like we are and have a little valley you can shoot over, you've got a prime roving shot. Stand on one side of the valley and shoot to a mark on the far side. We have a little creek at the bottom of our valley with trees growing in the bottomland. Such terrain makes it most challenging to calculate the flight of the arrow correctly. Again, its not important whether or not you actually hit the mark, but its satisfying if you come close. The real challenge, as in all archery, is to make a tight group, not to shoot helter-skelter all over the hillside. But that is how you learn. Besides, its just as much fun if you miss. Use target or field arrows.

OVER THE TREES

If you have no valley, but a fence row of tall trees, don't despair. You have a great shot ahead. Try to lob your arrows over the tops of the trees and hit a mark on the ground in the far field. If you have no natural mark, see how close you can come to the first arrow. Many variations of this shot are possible. Target or field arrows work best here.

PAR SHOOTING

In yet another variation of distance accuracy shooting, you select a target well beyond the cast of the bow,

perhaps even behind or around a hill (but check first for safety). You shoot toward the mark several times before you get close enough to hit it—exactly as in golf. Thus for a 400 yard target you may have a par 3. (Refer to my earlier discussion of Finsbury Fields for classic examples.) Use target, field, or flight arrows.

TURTLE-BACK SHOOTING



Figure 8

Turtle back shooting is shooting up in the air, aiming above 45 degrees, trying to lob the arrow near some target relatively close to the shooter (Figures 2, 8). Since the arrows should be sticking nearly straight up, they are thus easy to find. Field or target arrows are the kind to use.

To let you know how ancient this practice is, Faris and Elmer, in their 1945 translation of *ARAB ARCHERY*, a 1550 A.D. Arab text, says the following (P. 131, 132): "*Zone shooting (ramy al-datar) ...consists of drawing a circle on the ground and then going away from it the distance of the cast of the bow, from which position you shoot upward high into the air, toward the circle. When the arrow falls it should alight in the circle. You should practice this until you master it, say from a distance of 100 cubits.*" [According to the authors, p. 165, 166], this is the "black cubit" which measures 21.28 inches. Thus 100 cubits is 59 yds. This, of course, is not the full cast of the bow; it's just a practice distance.]

"*You then come up twenty cubits (11.8 yards) nearer the circle and practice shooting up into the sky and having the arrow alight in the circle. Once you master the cast from that distance, you again come up twenty cubits closer and shoot again in the same way. You should continue your practice from successive points, each twenty cubits closer, until you can drop your arrow into the circle in that fashion from a distance of twenty cubits. If you can do that successfully you have mastered the art of zone shooting: One of the most useful in storming towers and fortifications, where no other type of shooting*

would prevail. In this way the arrows descend upon the enemy from above like crashing thunder while they are unaware." (This ancient manuscript is loaded with lots of other trick shots which rovers would like. Check it out.)

To make such a circle, simply drape your yellow construction tape (Figure 3) in as big a circle as you'd like to undertake and you're ready to shoot turtle.

FOLLOW THE ARROW

For this shot, you shoot one arrow up into the air, rather vertically. Then you see how close you can come to making all subsequent arrows come to it, using the same trajectory (Figure 2). Naturally, this is a variation of turtle-back shooting. Use field or target arrows.

CLOUT SHOOTING

Strictly speaking, Clout Shooting is shooting at a 48" target set in the middle of a 48' circle at 180 yards. But in roving you may go about it a lot more informally. Simply make a circle of any size and shoot at it from any far distance (Figure 2). Be sure the weakest bow in the group, when held at 45 degrees, can reach the target. If not, move up until all bows will reach.

Rolls of yellow construction tape, mentioned above, work great for quickly-made clout circles. You may have to pin them down with rocks on windy days. It's easy to see such a target at full cast and can be easily picked up after you shoot. Target, field, or flight arrows are the kind to use. (Be sure to see Roy King's excellent article, *An Archer's Mecca*, on classic clout shooting in England today. It's in *INSTINCTIVE ARCHER*, Winter 1996: 47-49).

WAND SHOOTING

Officially, Wand Shooting is shooting at a 2" x 6' vertical stick at 100 yards. In roving, the wand may be any old stick rammed into the ground and shot at from any distance (Figure 2). As mentioned earlier, an old broom stick handle, sharpened to a point, makes for a fine wand. 100 yards is a bit intimidating to beginners so we usually start closer and move up 5 or 10 paces each round until someone hits the stick. You may use any small, vertical object as a wand — a weed, a sapling trunk, even a grass stem. Use field or target arrows, metal blunts, judos or rubber blunts.

FLIGHT SHOOTING



Figure 9. Randy Martis shooting flight with his hickory Sudbury bow. Top of far hill is 200 yards away. Whole field allows about a 300 yard shot. Bedford County

Flight shooting is, simply put, shooting an arrow as far as it will go (Figures 2, 9). To shoot at full cast, aim at 43 degrees to 45 degrees and pull to full draw. Release smoothly. Any bow and any arrow may be used to shoot flight, but if you use traditional wooden flight arrows in about a 50 lb bow, you can get 50-70 or more yards over your field arrows. Light target arrows should reach out 20-30 yards farther than field arrows. As noted earlier, in roving we usually pace off, rather than measure our distance to keep the unofficial spirit. See Seton's Third Test, below.

Traditional archers nowadays usually have to make their own flight arrows as they are not on the readily available market. See Figure 11 (2nd arrow from bottom) for example and Stemmler 1942, p. 74, for excellent directions for making your own flight arrows.

Official flight shooting is a formidable field with distances of over 1,300 yards having recently been recorded. Usually high-tech, laminated recurves are used, being shot through a hole in the center of the bow and using an overdraw shelf. Modern flight arrows are tiny little slivers, but then we're no longer talking "classic traditional," which is the focus of this article.

Anyway, don't get intimidated by fancy flight equipment. Just take your snappiest bow and your lightest arrows and see how far you can reach. All we're after in roving anyway is fun, not world records.

SPEED SHOOTING

In speed shooting, also known as Hiawatha shooting, you try to put up as many arrows in the sky at once before the first one lands (Figure 2). See Seton's Second Test, on page 47). Get in the middle of your biggest field, use your lightest arrow for that first shot (your other arrows may be of any kind), aim nearly vertically, but not exactly so you won't hit yourself or your friends, pull to full draw, and let fly. Have someone else watch the first arrow and yell "down!" when it lands. That is when you stop shooting. Assign someone to spot each subsequent arrow so they won't get lost, if you have the people to spare. Keep onlookers, if any, well back.

Shoot your arrows as fast as you can, keeping your eyes on the string and nock as you shoot. Don't look where the arrows go; it'll slow you down. Also, pay attention to the cock feather. A few "wrong" shots won't hurt. You also needn't pull subsequent arrows full draw. And remember, shooting cleanly, rapidly but without hurrying, will give you better results than rushing, for as we all know, haste makes waste.

There are as many ways of holding arrows in speed shooting as there are archers, it seems. Elmer (1946:429) has a sketch of how Saxton Pope held his arrows, which he shot Turkish style, and set the record of 8 arrows in the air at once. (Longfellow said Hiawatha did 10.) He also used nocks with bulbous ends and large V-shaped notches, which catch the string easily either way. Cross-cut nocks and four fletch should also help.

CLOSE ACCURACY

In close accuracy, which we'll call aiming below the horizon, you shoot at relatively near targets. Most "stump shooting" falls in this category, as does most target and field archery. But in roving the targets are usually natural features of the landscape—a bush, a clump of grass, a clod of dirt, a stick, a stone, or the like. The possibilities are endless. See what presents itself in your field and shoot away. Just remember though, that for close shooting, it's easy to lose arrow under the grass so rubber blunts or judos are the kind to use.

One of our favorite close accuracy shots is Seton's First Test (page 47). For this, we try to hit ten 3" marks in succession at 10 paces. We skewer 10

little foam core or corrugated cardboard squares with a coat hanger wire (Figure 3) and stick them in a row before an embankment (Figure 2). You get one shot at each and work on down the line. Several archers can shoot at once.

SKIM THE ICE

My friend, Jack Jeffers, has another interesting shot, which, I suppose, is a variation of close accuracy, as you shoot below the horizon, though it could be shot at quite a distance. It's a variation of his over-the-pond shot. Wait till you have a good winter freeze and the pond ices up. Then skim your arrows across the ice, trying to hit a spot at the far shore. Or forget the spot and try to make them come to a stop as close to the far shore as you can without touching it (it's a bit like shuffleboard). Underestimate and you have to go out on the ice to retrieve your arrows. On thin ice, you've got a problem if you under-shoot. Use target or field arrows.

SOME NOVELTY SHOTS

In addition to shooting at naturally occurring objects, near or far, you may also set up some fun, roving-style novelty shots. For these you'll need a few props.

ROLLING THE TUBE



In Tube Rolling, you simply roll your small, motorcycle inner tube

(Figures 2, 3) along the ground and have your archers try to hit it. (You could use a larger tube, but it's a lot more difficult to lug around.) The shooters line up and face perpendicular to the path of the tube, shooting at the moving tube as it rolls or bounces along. The stitched-in central disk stops arrows that hit the middle, letting you know if you get a hit there. Otherwise they just pass on through unnoticed. Stand at any distance you'd like. Ten yards away is a good distance to start out.

With our groups, the first to hit the tube gets to roll the next time, and the former roller gets to shoot. Be sure to use rubber blunts. I've seen metal blunts punch a hole right out the side of an inner tube.

POP THE BALLOON

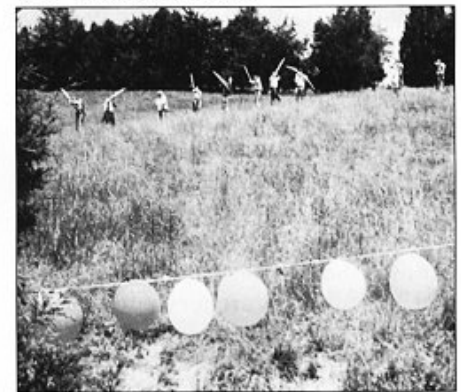


Figure 10

Popping balloons is a dramatic novelty shot which lets the shooter know in no uncertain terms if he hits the target. Shoot at any distance. Tie a balloon to a bush, a wand, or a grass stem, step back, and try to connect. Start far back to make it a challenge and move up 5 or 10 paces each round till you make contact. (A suggestion—use rubber balloons, not plastic ones, if you want a "pop.")

An interesting version is to tie a row of balloons to a string stretched between two trees, bushes, hay bales, or wand sticks (Figures 3, and 10). This

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way a lot of archers can shoot at once and all can get a hit. It's a lot easier to attach the balloon to the line if you use the wire wraps mentioned earlier, instead of fighting to tie the balloon directly to the line.

Or tie a helium balloon to a thin kite string and let it soar up into the air. Shoot at it somewhat vertically. (A version of the Popinjay shot. See below) Or let it go and shoot until it pops or goes out of site, as Tom Laskowski does. (Use a big field.) To slow it down, tie on several regular balloons. With each hit, it rises faster until the helium balloon is hit. If it's windy, the tied balloon will trail out horizontally instead of rising, but this also makes for an interesting shot as it just won't hold still. Depending on your backdrop, shoot field, target, or judo arrows, with or without flu-flu fletch. Be sure to check for a clear background on vertical shots.

Once, in Denmark, I saw a bunch of archers take on some black powder shooters shooting at a string of balloons at about 40 yards. They wanted to see which group could pop the most balloons in a five minute or so period. The archers missed a lot while the black powder shooters hit almost every shot, but because the archers could shoot much faster, they easily won.

You may also set the balloons in your pond or running creek and shoot at them in the water. (This is great for a swim on hot summer days.)

HIT THE DISK

Hitting hurled disks is fun when you have a good backdrop, embankment, or clear field beyond. Otherwise you may just lose your arrows. The thrower needs to stand behind some kind of shield (large round haybale, low shed, wooden fence, or a tree). As noted earlier, you may use cardboard disks (Figure 3) or even 5-gallon bucket lids if you don't have standard 12" aerial disks. You may not be able to hit thousands in a row as Chief A. J. does. (See *INSTINCTIVE ARCHER*, Spring 1997: 8-12, in Jim Dickson's article), but you can have just as much fun even if you just hit occasionally. Use any kind of point but be sure to use flu-flu fletching to save you a lot of walking.

HIT THE SWINGING BALL

Hitting a swinging rubber ball is my answer to shooting the disk when you don't have a thrower or a suitable backdrop or if you're alone. Simply tie

a cord between two trees or poles and droop a second line down from the center. Stitch the ball at waist height (or lower if you don't have a good backdrop). Start the ball swinging sideways, step back, and shoot from any distance. I like to start at five yards and go back a step every time I hit. Each a glancing hit starts the ball swinging all over again. If you skewer it, you'll want to stop and remove your arrow so you won't damage it.

If you shoot in front of a backdrop, such as your hay bale target, a doubled rug thrown over a horizontal pole, or an embankment, you won't lose your arrows. Use field arrows if you have a good backdrop, or rubber blunts or judos if not. Avoid using your lighter target arrows as they could snap upon impact, especially with a glancing blow.

SCHOOL BUS

We have a derelict old school bus parked in a corner of our roving range (Figure 2). The farmer uses it to store hay for his cows. Hitting it with a rubber blunt sure won't do it any harm. You won't have an old school bus, of course, this is just an example of a vast array of weird obstacles you might encounter in your area. (We even used the broad side of a barn once.) Just be sure the arrows won't harm the target and vice versa. We shoot at our bus from near full cast. Anyone can hit up close. Use rubber blunts.

POPINJAY

The Popinjay shot, or variation thereof, is an ancient novelty shot, going way back in Europe and the Near East (Elmer 1946:509; Faris and Elmer 1945:136, 137). This shot entails shooting straight up at a wooden bird figure or similar target propped up on a small platform well above the shooter's head. The object is to knock the "bird" off its perch. You may see this demonstrated in the excellent video, *ARCHERY: ITS HISTORY AND FORMS* by Mike Loades, 1995. (It highlights roving too.) The video also shows how to put the bird back on the perch (using a long stick).

You can have a similar shot by tossing a rock with cord attached over a tree limb and hauling up your target. (We use a small burlap sack.) Or, as mentioned earlier, let a helium balloon go on a calm day and try to pop it before it gets out of range.

Use rubber or metal blunts and watch out where those arrows fall.

EDITOR'S NOTE:

The author's original manuscript included an excellent section on a type of shooting called "Hit the Runner" which we were unable to include. If you would like to read about it, and perhaps give it a try (it does sound like fun), send a self-addressed, stamped envelope to:

Dr. Errett Callahan, Cliffside Workshops
2 Fredonia Ave.
Lynchburg, VA 24503

EQUIPMENT NEEDED

In addition to the props mentioned earlier, you'll need your basic traditional archery gear, including some special types of arrows. For a bow, use any kind of traditional bow. Stronger bows give you the advantage on the roving range (Elmer 1946:512. See *Rover's Almanac*, below). One that pulls 50 lbs. or more should throw an arrow far enough on the long shots to give you satisfaction. With lighter bows you'll have to approach closer before you can start shooting. Don't forget an extra string and a bow case to get your bow to and from the site unscratched.

As for arrows (see Figure 11), you must have three or four rubber blunt arrows (preferably the soft HTM blunts). You could do all your shooting with these blunts if you had to. For short shots they are hard to lose and easy to find. They are great for rocky fields too. But for the long shots, you'll actually do most of your shooting with the field arrows. Why do you think they're called "field arrows?" Take along five or six. Then there are some optional arrows you might like to add to your quiver in time to enrich your experience. If you have lighter target arrows, take along three or four to reach way out there. A flight arrow or two is even better for maximum distance. Judo point arrows are most useful for the short shots where, like rubber blunts, the arrows might get lost in the grass or brush. (They are even harder to lose.) Take two or three. Metal blunt arrows are useful for long shots where you don't want penetration. Climb a tree to dig out field points and you'll see what I mean (take two or three). Flu-flu arrows (one or two) are needed for your aerial shots. But if you just have a limited space, you could do all the roving events with flu flus. Just think of all the possibilities.

Other equipment includes a quiver (belt or back), armguard, finger tabs or shooting glove, and a tassel to

wipe off wet or muddy arrows. I also take along an "arrow finder" in my quiver. Its a stick with an L-shaped projection at one end. I use it to scratch the grass and look for lost shafts.

And, to make the day complete, don't forget a picnic lunch, some drinks, bug lotion, sun lotion (in summer), and a camera (if you want photos). Most of these you might leave in your car until needed. The rest, including your props, you can carry in one hand and in a small bag or knapsack. A jug of water or something better is nice to have for the "upshot" at the end of the day.

THE UPSHOT

"In ancient times, when archery was practiced in open fields and shooting at butts or clouts, men walked between their distances much as golfers do today, and having completed their course, it was often customary to shoot a return round over the same field. This was called the upshot." (Saxton Pope 1923:243)

CONCLUSION

Roving is a great equalizer. No matter how inexperienced you are you can still have a ball. Occasionally the beginner will outshoot the expert in roving. That never happens on the target range. In roving you have instinctive archery at its best, for instinct, more than past experience, tells you how to aim.

Roving is also that great undiscovered middle ground between target archery and hunting. While being good practice for both, it can also be an end in itself. An ever-increasing army of archers are taking to roving. I wouldn't be surprised if roving ranges started popping up all over the country. Wouldn't it be great someday to attend a national roving tournament, non-competitive, of course, at a range like the old Finsbury Fields?

Well, maybe that's just dreaming. In any event, roving is an awful lot of fun. Its the highlight of the year for us. At the end of my week-long bow-making workshops at the end of May (see ad on page 48), I take my students out with their newly-made wooden bows and spend the day roving. We go to our Bedford County Roving Range (Figures 2, 7, 9) or elsewhere in the country and make a day of it. The students get to know their bows pretty well by the end of the day and they learn what archery is all about. Students learn not only that they can turn a log into a functional bow

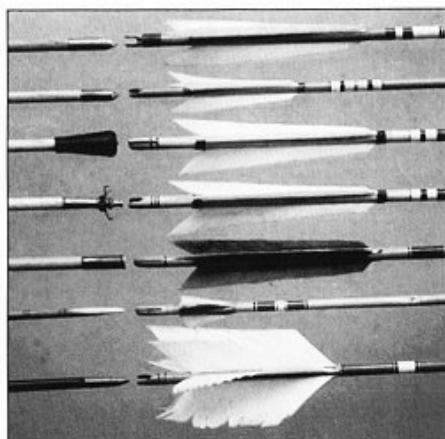


Figure 11.
Suggested classic traditional roving arrows made by the author. From top to bottom:

- field
- target
- rubber blunt
- judo
- metal blunt
- flight
- flu flu.

but that archery starts, not ends, here. They learn that unless you get out and do some shooting (on a regular basis, I must add) then you're not an archer, you're just a woodworker. So "use it or lose it" is my motto.

On our roving outings we have a lot of laughs, get in some good exercise, and build some great memories. At the end of the day, we usually go out and eat, echoing the words of Stemmler, cited earlier: "*The merry party could drop off at the Egg Pye or Whitehall for a tankard of ale and a cut of cold beef.*"

After your first day of roving, life will never be the same. Everywhere you go, driving down the highway, you're seeing roving ranges. As the miles flash by, you see a hundred imaginary shots—from one fence row to another, from there to a large rock down by a creek, from there to a lone, round haybale halfway up a hillside. You can't wait to get home and go roving (Figure 12).



THE THREE ARCHERY TESTS OF ERNEST THOMPSON SETON (From Rolf in the Woods 1911:39, 40).

"The first for aim: can you shoot so truly as to hit a three-inch mark, ten times in succession, at ten paces?"

"Next for speed: can you shoot so quickly and so far up, as to have five arrows in the air at once? If so you are good: Can you keep up six? Then you are very good. Seven is wonderful. The record is said to be eight.

"Last for power: can you pull so strong a bow and let the arrow go so clean that it will fly for 250 yards or will pass through a deer at ten paces? . . . If you excel in these three things, you can down your partridge and squirrel every time; you can get five or six out of each flock of birds; you can kill your deer at 25 yards, and so need never starve in the woods where there is game."

A ROVER'S ALMANAC

In order to acquaint the modern traditional archer with the ancient terminology used in roving, I offer this brief almanac. Unless otherwise indicated, all of the terms are quoted from the glossary in Robert Elmer's 1946 classic, *Target Archery*. The page numbers are so noted. (A few other terms from other writings are inserted in parenthesis.)

487 - BLACK: Any dark spot shot at in rovers.

489 - BUTT: A flat-faced mound of earth or sod on which a mark or target is set.

EARTHEN BUTT: In reality backstops - 21' long 3' wide and 5' high, were raised at each end of the field (Elmer: 15).

490 - CAST: The right to shoot first, got by winning the last mark.

491 - CLOUT: A white rag, often stretched on a hoop or square frame, to be shot at long range.

- A range for clout shooting (clouts). - (In classic clout shooting, you shoot at a 48" circle at 180 yards)

CLOUT SHOT: A shot over any long range at a clout. Not necessarily in a regular round or competition.

- (In roving, clout shooting involved dropping your arrow into any circular mark at any long distance.)

495 - FAST: A call of warning to one about to pass in front of an arrow, either in flight or about to be loosed (not fore!).

FIELD ARROW/SHAFT: A strong roving arrow.

FINSBURY FIELDS: Famous old shooting fields of London, protected by royal patent and in use until 1791, containing about 200 rovers.

497 - FLIGHT SHOOTING: Shooting for the greatest distance without regard for aim.

501 - HIAWATHA SHOOTING: The feat of keeping as many arrows as possible in the air at once by distinct looses. (See "speed shooting" below.)

HOYLE: A small natural eminence such as a mole-hill, thistle, etc. used as a mark at short range.

HOYLES: An archery past time like roving except that the marks or hoyles are at close range. [Same as "stump shooting."]

504 - LONG OUT: A distant mark in roving.

507 - PARTY: Five ends of 2 arrows in Scottish clout-shooting at the rings.

509 - PRICK: A sharp stick . . . stuck in the ground as a mark at any distance. - A small piece of paper or the like pinned to a butt.

POPINJAY: A wooden parrot on a high pole, used as a mark.

511 - RINGS: In Scottish clout shooting, rings marked on the ground with radii of 3, 6, 9 and 12 feet.

512 - ROVE: To shoot at rovers.

ROVER: A casual mark at an uncertain distance. - One of a series of fixed marks at long range. - A strong arrow used in shooting at rovers. - An archer shooting at rovers.

ROVING: The art and practice of one who shoots at rovers.

ROVING ARROW: See "Rover," above.

ROVING BOW: A bow of far cast for shooting at rovers.

ROVING MARK: See "Rover," above. Marks as defined in this quotation from Roberts: "These marks are of three sorts; namely, 1st ground marks, as landmarks or stones; 2nd high marks, as trees, tall bushes; 3rd butts and prick marks."

513 - ROVING PILE, POINT: A blunt pile that will not stick in a high mark. - A bodkin point - A rubber blunt, metal blunt or judo point.

514 - SHOOTING FIELD: A field, or fields, in old England, near a town, where archers were privileged to shoot at rovers. Of Finsbury Fields.

515 - SHORT OUT: A near mark in roving.

SPEED SHOOTING: Same as Hiawatha shooting.

517 - STAKE: A wooden post, often elaborately ornamented, sometimes set up as a rover in an Old English shooting field.



Figure 12. What's over the next hill? David Callahan II and Soren Moses roving the hills and dales of the Ledreborg Castle grounds in Denmark. Roving targets don't have to be planned in advance.

518 - STANDING MARK: A mark at which the archer always shoots from the same position . . . "These butts were often shot at as roving marks and not as standing marks without changing the distance at every shot." Roberts.

520 - THUMB: A measure in butt and clout shooting; standardized at one inch.

522 - TURTLE BACK SHOOTING: Shooting with nearly vertical trajectory to hit a target or other mark laid flat on the ground.

THE UPSHOT: Time and inclination permitting, shoot a return round over the same field. From Pope 1923:243.

WAND: In English ballads, usually a peeled stick as prick. Officially in America, a slat 2" wide, standing 6' above ground.

523 - WAND SHOOT: In America, a round of 36 arrows shot at a wand, at 100 yards for men and 60 yards for women.

524 - WHITE: Any light colored mark used as a rover.

REFERENCES:

Callahan, Errett 1988: A Day in the Life of a Rover. *BOWMEN'S BULLETIN* 2:7-11. Society of Traditional Archery.

1991. Setting Up and Field Testing a Classic Roving Range. *BOWMEN'S BULLETIN* 17:13-25. Society of Traditional Archery.

1996. Just What is Traditional Archery Anyway? An Opinion. *INSTINCTIVE ARCHER* Spring: 20-21.

Dickson, Jim 1997 Chief A. J. Sets New World Record! *INSTINCTIVE ARCHER* Spring: 8-12.

Elmer, Robert P. 1946: *TARGET ARCHERY*. Alfred Knoff.

Faris, Nabih Amin and Robert Elmer, 1945. *ARAB ARCHERY*. Princeton University Press, N.J.

King, Roy. 1996: Rambling on the Longbow: An Archer's Mecca - Part II. *INSTINCTIVE ARCHER* Winter: 47-49.

Loades, Mike. 1995: *ARCHERY: ITS HISTORY AND FORMS* (Video). Running Wolf Productions, P.O. Box 10, Knebworth SG3-6PZ, ENGLAND.

Pope, Saxton. 1923: *HUNTING WITH THE BOW AND ARROW*. James Barry Co.

Seton, Ernest Thompson. 1911: *ROLF IN THE WOODS*. Grosset and Dunlap, N.Y.

Soar, Hugh. 1996: The Fraternity of St. George. *INSTINCTIVE ARCHER* Winter: 63-67.

Stemmler, L. E. 1942: *THE ESSENTIALS OF ARCHERY*. Stemmler Archery Co. Queens Village, Long Island, N.Y.

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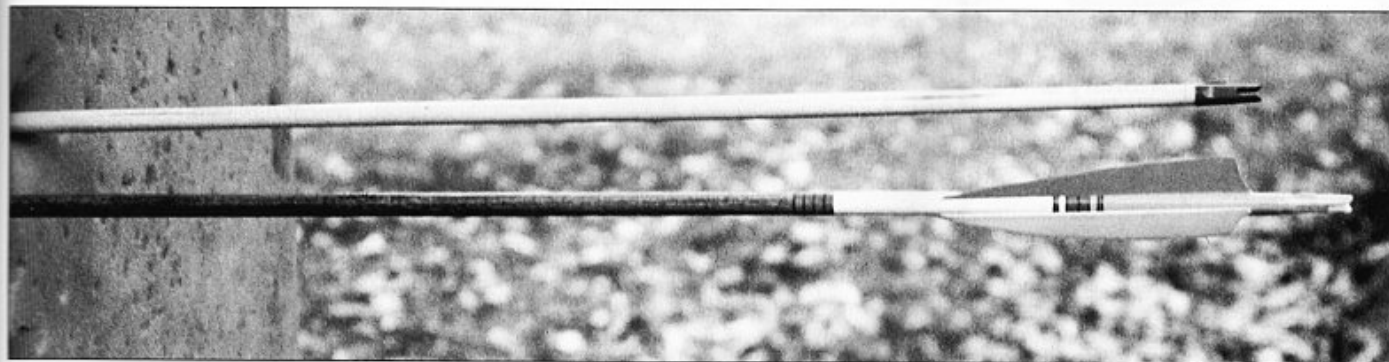
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BARE SHAFT SHOOTING AND THE TRADITIONAL BOW

by
Dan Quillian



The purpose of shooting an unfletched, bare shaft is to achieve, as nearly as possible, perfect arrow matching to the bow. The results of shooting an unfletched arrow will close your groups, make you a better shot, give you better penetration on game, make broadheads fly like field points (I never saw a broadhead that would wind-plane if everything else was correct), require less feather area for accuracy, teach you about tuning your bow, and demonstrate to you that shooting arrows that are not matched to spine will not give you the accuracy you are capable of achieving.

For an arrow to come out of the bow straight, it must go through the normal oscillations of the "archer's paradox," if this seems difficult to understand, it is why it's called a paradox.

Now, the down side. Over the years, I have seen quite a number of archers become so frustrated that they gave up archery because they could not get a bare shaft (wooden, metal, or otherwise) to fly straight out of their bows. For consistent bare-shaft flight, the archer must have good technique. If he torques the bow, it won't work. If the fistmele is incorrect, it won't work. If you don't know the correct fistmele for your bow, contact the manufacturer. Your fistmele will vary with string material and bow design. If you do not have a consistent draw, it won't work, if you do not pull to your full draw consistently with good archery technique, you'll end up shooting an under-spined arrow because you are not getting the power out of your bow. Over the years, regardless of arrow material, I have worked with hundreds of archers to achieve perfect arrow matching. In every case where perfect arrow flight was achieved, the archer became a better shot.

Now, let's get down to actually achieving perfect arrow flight. You need to get a target butt of soft, urethane foam. The reason for this is that with a hard butt if an arrow hits it crooked the arrow will bend, or even possibly break. Any time the arrow hits the butt at an angle other than nearly straight, even if the butt is urethane, you need to check to see if the shaft has been bent. If the shaft is crooked, straighten it before shooting it again. If a wooden arrow is bent, check it carefully for cracks. A cracked arrow is dangerous to shoot. This can easily be done by holding the arrow by the point end and tapping it across your other hand. If the arrow is cracked, you will be able to feel it.

**In every case where perfect
arrow flight was achieved, the
archer became a better shot.**

Buying the correct set of arrows to start with can save you a lot of time and money. The standard old spine chart from the 1930s will work fine for most self bows but, if you own a bow

of a laminated material or shoot with fast-flight string, I would strongly suggest that you use the spine chart published by the TALLAHATCHIE WOODWORKS (c/o Sales Manager, 483 W. Cloverhurst Ave., Athens, GA 30606 or call (706) 543-6492 for a free spine chart). Ask your arrow maker if your wooden arrow shafts are hand-spined with proper grain alignment. I know of no electronic system that does this and it is important.

To use the chart correctly, you will need your correct arrow length. A large percentage of archers do not pull what they think they do. While you are shooting and not conscious of your draw length, get a buddy to watch and see how much

Photo: When a fletched and an unfletched arrow fly almost identically at 20-yards, broadheads and field points will group together and you will be a better shot.



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arrow overhang you have and figure your spine length from the back of your bow (the back of the bow is the side away from the shooter). This is a good time to correct under-drawing. It has been my experience that many archers make the mistake of under-drawing to compensate for shooting under-spined arrows. Read the instructions carefully that come with the spine chart.

EASTON also has hunting arrow spine charts. Visit your local proshop or contact EASTON at 5040 W. Harold Center Dr., Salt Lake City, UT 84116 (801)-539-1400. Be sure to specify you are talking about a traditional bow.

Have your bow properly set up. To start with, nocking points should be measured for an approximate setting. With a properly-made bow, the nocking point will have the back end of the arrow up or above perpendicular to the string between 1/8" and 7/16." (Note: We are saying the back end of the arrow, not the nocking point itself). If you nock underneath the nocking point, then the width

of the nock will have to be included in this figure. If your bow requires something beyond these points (1/8" and 7/16"), and the arrow is striking the bow, then there is something wrong with your bow. I have seen a number of so-called custom bows that were quite beautiful but, because the maker did not understand how a bow works, the bows would not shoot accurately nor shoot a bare arrow in a straight line.

Now, let's start to shoot a bare shaft. Put a point and a nock on a sealed wooden shaft of the correct spine. Use the chart. The laws of physics don't change. Use a traditional-style nock (the string on a traditional bow is not stressed as highly as on a compound bow and a snap-type nock will cause distortions in arrow flight).

Be very careful that the nock is on straight and that the shaft is straight. Start at about six yards. Be sure you get a full draw and a good release. If you screw up on this, disregard the results of the shot.

If you did it all right, look to see how the arrow stuck in the target. If the arrow is nock high, you will need to lower your nocking point but be sure the back of the arrows does not strike the bow shelf when shot. If it does strike the shelf, it will give you a false reading. Any time in your tuning of the bow, if the shaft hits the shelf, you'll get a false reading. If the nock end of the arrow, when shot, is down, you will need to raise your nocking point, just a little bit at a time in all cases.

If the nock end of the arrow is to the right, the arrow is too stiff or you are torquing your bow (See below). If the nock end of the arrow is to the left, the arrow is too weak in spine or the bow has been cut too close to center to shoot the diameter shaft you are shooting. No bow that is shot in the Mediterranean style (one finger above the arrow, two below) should be cut closer than 1/8" to the center line of the bow. If your bowyer has done this, you can correct the bow by building out with pieces of leather or other materials. Olympic style shooters correct this with an adjustable Berger Button, but this is not really traditional.

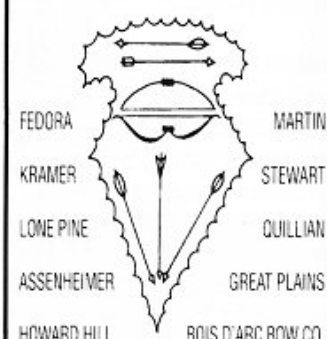
The nock, if right or left, may be due to your torquing the bow. Have a buddy stand behind you and see if the

string lines up and down on the center line of the bow with you holding it at a full draw. If it does not, you are torquing the bow and this will affect how the arrow flies. You will have to change your hand placement on the bow before you can get a straight flying shaft. Also, nocking points are affected by how much you heel the bow (pressure from the lower part of the hand). If you change hand positions to try to correct torque you may also affect your nocking point, so repeat this step.

I realize this all gets pretty complicated but that's the way it goes. Using this technique will make you a better archer, a more successful hunter and, at the same time, help you understand how your bow and arrow work. One thing is for sure, almost anything you do to a bow and arrow affects everything else on them. A correctly-tuned bow is a quieter bow and a harder hitting bow.



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The Competitive Edge

by
Gary Sentman



TARGET PANIC - Part 1 of 2

TARGET PANIC CAN BE THE CANCER OF ARCHERY IF IT'S ALLOWED TO GROW!

I am not a doctor of the mind, but I have read my share of books by doctors etc., on the subject of target panic. Some were better than others, but I must say, at least for me, they all failed to get rid of my problem of target panic. The problem I had off and on for years just wasn't helped by the experts suggestions of "think about relaxing in the sun as you move to the next target" or "visualize the perfect shot." As always, I had to do it my way. In writing this article I hope I can help those of you who face the humiliation, depression, and defeat that target panic brings. Those who have never experienced the problem might have a hard time relating to what I am referring to here.

Now for those of you who want to hear my opinion on how to avoid target panic or how to get rid of it, let's get started. Target panic is based on the fear of missing the shot. There are several basic kinds of target panic including: snap shooting (the inability to get to full draw), freezing off target (cannot hold the arrow on target), and not releasing the arrow at full draw. These are the most common forms of target panic. All are based on the fear of missing. The big problem is that target panic is a subconscious act, not a conscious act. If it were a conscious effect one could say "all I am going to do is relax and have a good time and who cares." But since it developed as a subconscious reflex, it is programmed into a chain of events that for one reason or another, creates the fear of missing the next shot.

There is no quick or easy fix. Once you have formed passageways in your brain you cannot erase them but you can reroute them in a more positive way. It's like a person who has sat around for three years growing fat and expects to lose it all in six weeks, its not going to happen.

What has happened to create the target panic? As a beginning archer, your brain was in total command of performing the act of drawing, anchoring, aiming, and releasing the arrow. After your brain had worked out every thing, it said to muscle memory and condition reflexes, "You take over now, I have other things to work on." So now muscle memory and conditioned reflexes are in total command of how you

perform. You have shot over and over until there is no direct thought from the brain. The cancer of archery has begun. Soon it will take over and you will have no other option than to do what you have been programmed to do. If you are a snap shooter and want to hold the arrow at full draw, you can't do it. You are too programmed. If a time comes when it is important to hold the arrow back for a more deliberate shot and you call for the brain to once again take over, what would happen? The brain says, "I want my command back!" But your muscle memory and conditioned reflexes say, "No deal, you put us in command now for weeks, months and perhaps years and we're the boss now." So a battle takes place and the brain probably loses.

The shot is still snapped away or shot prematurely. Now a new factor enters the computer (mind). The fear of missing the shot. Especially when the pressure is on (a trophy animal you have worked hard for, or perhaps points in a 3-D shoot). The more important the shot, the more you fear missing that shot. You probably start missing more and more. Consciously you let that shot pass, but subconsciously you store the defeat in your mind. That night while asleep your brain will try to work the problem out for you. The brain sees this as very stressful for you.

This kind of shooting may bring your blood pressure up. It may be taxing your nervous system to a danger point. It reaches a point where your brain says, "I just won't let you aim the arrow at the spot. But you can hold the arrow off target all you want." The brain allows you to jerk the arrow on target just for an instant and let loose. However, you're thinking "I can't shoot good this way. I must be able to hold the arrow on target." Your brain says, "No way," because it causes too many problems with muscle memory and conditioned reflexes." Your brain is convinced the best way to protect the whole mechanism is to try to get you to forget this

Target panic is based on the
fear of missing the shot.



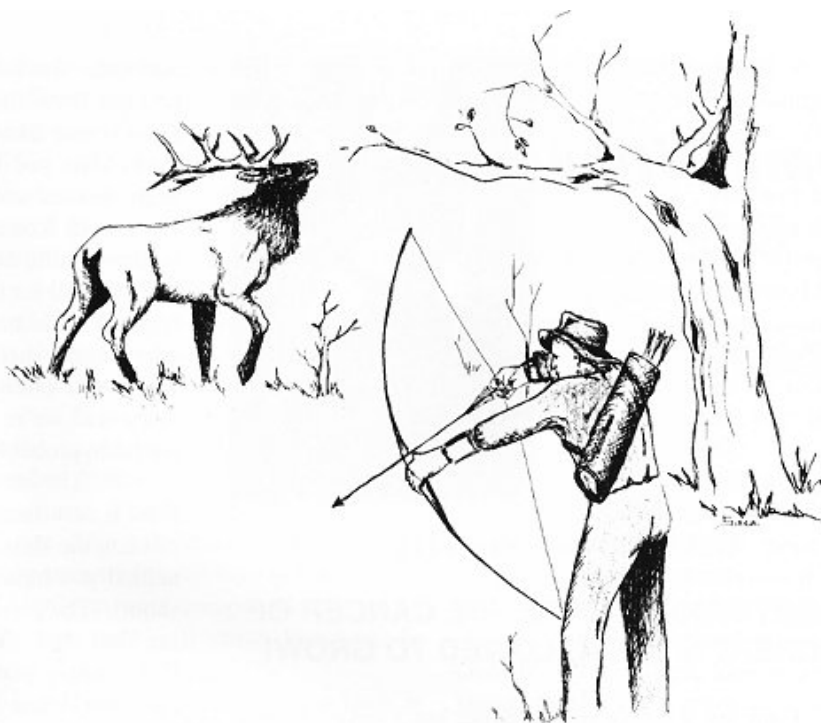
game of aiming the arrow. Every time you play this game you get stressed out. In some cases your brain may shut down and not even let you know what you are doing. I saw a person on a 3-D range draw his bow and release the string with no arrow on it. His brain had shut down and said "*this is enough pain*" and the guy didn't know that an arrow wasn't on the string.

There are several causes for my target panic, starting with pulling too-heavy bows through the years. I allowed myself to shoot for long periods with a heavy bow. I would become tired and start missing the target. I would be on auto-pilot and not realize that I was tired and shooting poorly. I was just shooting arrows with no given thought. When on the target range with someone watching me practice I would start snap shooting. Then when I deliberately held the arrow at full draw I would freeze, unable to bring the arrow on target or reach my anchor point. If there was someone I really wanted to out-shoot, I would freeze, snapshoot, and get stressed out.

People could talk to me and I would not register what they were saying. I had tunnel vision to the next target, not hearing or seeing anything. Like a drunk that is so far gone that he is talking back to you but nothing is stopping between the ears.

After many years of shooting, one is expected to be a good shot. When other shooters asked me how long I had been shooting the bow I would tell them. They probably hadn't been shooting nearly as long as I, therefore I would have a competitive fear that they would outshoot me. Thus, making my problems worse.

I was elk hunting one season and hadn't been able to get a shot at an animal. With only three days left in the season to hunt, I came onto a five-point bull, broadside, looking at me, with no branches or anything else in the way. He was less than 30 yards from me. He stood looking at me and I at him. There were no other hunters around, just me and the bull staring at each other. And yet I was unable to aim the arrow at him. I froze with the arrow at half draw, pointing right to the ground in front of me. I took a deep breath trying to relax. Still I was unable to bring the arrow up



to where I could aim it at the bull. I could look down the arrow or even bring it up to aim at a leaf or stick. But as soon as I would try to aim it at a spot on the bull, I couldn't do it. After what must have been minutes the bull trotted off and I never even got a shot off. It was the fear of missing. I was unable to aim the arrow because of this fear.

Archery is such a personal thing to some of us. It's an extension of ourselves. It's very easy to have a love affair with archery, especially traditional archery. Because it is you, without the help of mechanical aids, that sends the arrow to its mark. To take a traditional bow of simple lines and grace of limb, draw, aim, and loose a feathered arrow and watch it go true to its mark is indeed a love affair. When target panic develops, this love affair, like so many affairs, can become a nightmare.

You may be wondering what you can do to avoid getting target panic. Some shooters are more prone to target panic than others. Just like some are more relaxed than others. Some people wouldn't get excited if the house were burning down. Remember, target panic isn't like a cold where one day you wake up and have it. It may start in a very small way. Perhaps fishing for your anchor point, not quite reaching your anchor point, maybe tilting your head back away from the arrow so your eye is

not over the arrow the way it should be. If you don't realize what is happening in the early stages, you will go from bad to ugly. It's just a matter of time. From my observation shooters don't recognize having a form of panic until it is too late.

Up to this point I have said very little about how to get rid of target panic. The reason for this is because one must first recognize they have a problem before they can overcome it. Target panic in its advanced stage will not be a quick fix. How long and to what degree you have the problem will determine how long it will take to control the problem. In my next column I will cover how to control and beat target panic.

There was a time when I would have gladly paid \$1,000 to get rid of target panic. Hopefully you will learn in the next issue of *Instinctive Archer*, in *The Competitive Edge*, how to bring yourself back to a sound, confident level of shooting and overcome target panic. 'Til then . . .

Good Shooting





MAKIN' QUIVERS

by
Bob Krout

Quivers, quivers, quivers! Is there any one article of equipment that more clearly defines that "traditional" look? Along with the bow and arrows it is one of the essential elements of traditional archery.

Quivers come in all shapes, sizes, and types of material. They perform the vital function of holding your arrows so that they are readily accessible when needed, but out of the way until then. There are hip quivers, back quivers, bow quivers, and a multitude of variations of each type. Quivers have been, and are, made from just about any type of material imaginable from the finest leather to the worn out leg of an old pair of bluejeans. But I think it would be safe to say that the one type people picture when they think of quivers is the classic leather back quiver.

Quality back quivers are available from many traditional archery dealers and not a few fine leather craftsmen. However, if you are like me and like to make things, it is comparatively easy and satisfying to make your own. It will be "your" quiver. A custom-made work of art that

reflects your thoughts and personality. All you need is a piece of leather, a few simple tools, and a design!

LEATHER:

There are many types and sizes of leather available and, in truth, most will make an acceptable quiver. My favorite, and the one that seems to please most people, is seven to nine ounce Latigo leather. The tanning process used in making latigo produces a supple, flexible leather with a high oil and wax content. It has a great feel, molds well, and stands up to a lot of hard outdoor use. It makes a great looking quiver. Unfortunately, along with "English Bridle" leather, it is usually the most expensive.

Photo: The finished quiver is at left. The quivers at right and center are my personal quivers. All three have a capacity of 18-20 arrows. The center quiver is a wider, flatter design which holds the arrows more quietly. It is punched so that my Pennsylvania licenses can be displayed in the middle of my back as required by law.

I have used other types of leather including chrome oil tan, oak tan, chap leather, and just about anything I could get for a good price. They all make decent quivers. Be guided by what you want and what is available!

Leather is sold by the foot and is measured in "ounces." Originally that meant that one square foot of six ounce leather weighed six ounces, one square foot of ten ounce weighed ten ounces" etc. To convert this to thickness, a much more useful measurement, just remember that each one ounce equals 1/64th of an inch. In other words a six ounce leather will be 6/64" or 3/32" thick.

Where do you buy leather? Here in Somerset county, Pennsylvania we have a large Amish population. The Amish eschew modern conveniences and travel by horse and buggy. Consequently we have a number of harness shops. Many rural communities have harness and/or tack shops as well. Even larger cities will have shoe repair/shoe making shops. All are good places to acquire leather. Failing all else, you can still fall back on the old reliable leather craft dealers like "The Tandy Leather Co." or "The Leather Factory" stores. A quick check of the Yellow Pages should put you on the right track.

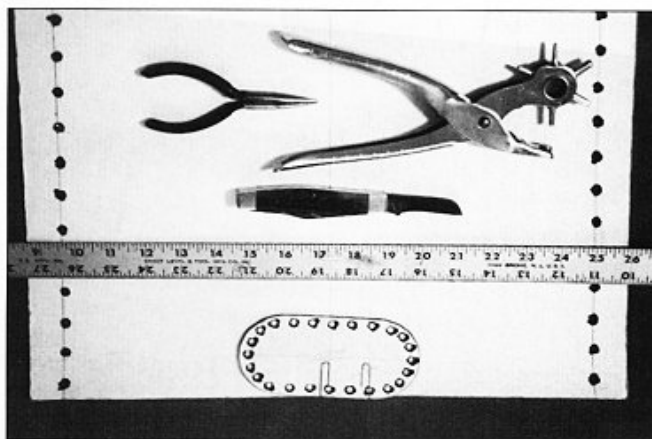
How big a piece of leather should you get? Be forewarned that you will usually have to pay a premium price if the dealer must cut a "side" of leather. Many times you can get a small side, say ten to twelve square feet, for just a few dollars more than a "piece." Don't worry! You will find a use for it all! This leather thing gets in your blood. One quiver becomes two or three. Scraps end up as armguards, tabs, knife sheaths and many other useful items.

You will put your quiver together with leather laces. The common 1/8" by 72" long leather laces work just fine. They are available where you get your leather or as boot laces at your local Wal-Mart. If they are available, and you are so inclined, you might want to try slightly wider 3/16" by 72" laces. They can generally be found at most leather shops and give a slightly more custom look. Either will work fine. You will need 2 1/2 to 3 laces for each quiver.

TOOLS:

Now that you have your leather you must have a few basic tools. I use a metal yardstick as a straight edge and also to measure my leather and layout hole locations. For cutting I prefer the "sheeps-foot" blade on my old Case pocketknife. I always keep a stone handy for touching up the blades edge. Dull blades are dangerous! Holes are

punched with a generic type leather punch. Mine was made by the General Tool Co. It resembles a pair of pliers in which one of the jaws holds a wheel with different size punch tubes. You simply turn the wheel to align the proper size tube for the the size of hole you need. I purchased my punch and yardstick at the local hardware store. Both were very reasonably priced. You will also need something to punch holes which are located too far from the leather's edge to reach with your regular punch. I located some individual hole punches, the kind used with a hammer, at a local craft shop.



All the tools you need. A metal yardstick to measure and to use as a straight edge. A good knife, a rotary leather punch, and 4-inch needle-nose pliers. All laying on my homemade template for the quiver described in the article.

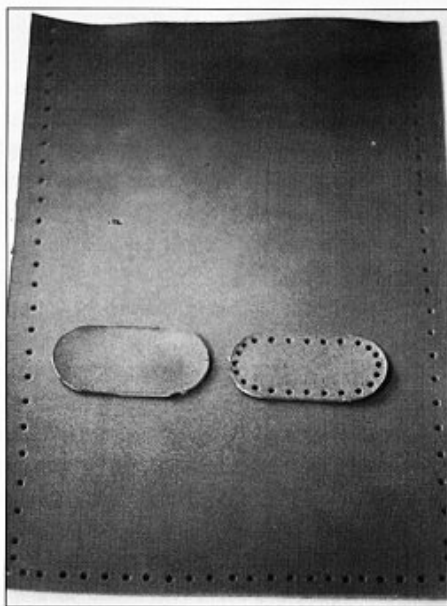
You can also use a piece of expended .22 rifle brass. It is the right size and can be used for 3 or 4 holes then thrown away. You will also need a hammer or rawhide mallet and a cutting board. My board is a piece of old countertop approximately 2 feet by 3 feet, the remnant of an old remodeling project. Finally, you should have a small pair of needle-nose pliers. I have a cheap 4-inch pair that work just fine. They are like a third pair of hands that are indispensable for pulling laces tight, enlarging holes, or grasping the ends of laces that don't protrude through the holes far enough to grasp with your fingers.

DESIGN:

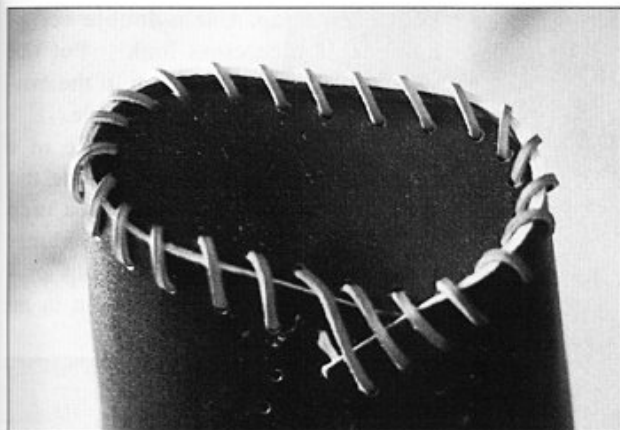
OK! We have our tools and leather. Where do we go from here? Before you can start cutting, punching, and lacing you have to know what the finished quiver will look like! We need a design. How big will your quiver be? What capacity? What depth? What shape?

My favorite quiver is more or less of an oval shape, tapering from bottom to top. It holds 18 to 20 arrows without undue crowding and is 23 to 24 inches deep. Remember, there is no right or wrong about this. If your quiver looks and performs like you want it to then it is right!

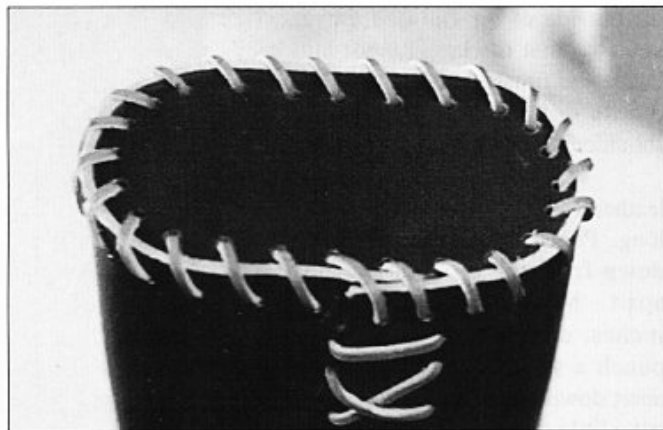
Now lets get started! The way I do it, the shape and size of the bottom determines the shape and size of the quiver. If you want a round quiver, start



The three pieces of the quiver - cut out and punched. The body piece, the bottom piece, and the lining piece that gets glued in to make a double thick bottom.



Here is the bottom piece laced in - but before the laces are pulled tight with the needlenose pliers.



The bottom piece with laces pulled tight and the free end of the lace tied off inside the body.

with a round bottom. If you want an oval quiver, start with an oval bottom. Now would be a good time to also consider whether you want a collar or rolled top. Personally I like a rolled top on all my quivers. It looks good, adds strength to the top opening and is easy to make.

Our first step is to cut out the bottom pieces and the body piece. To make the quiver described above I have determined the proper size bottom piece will have a circumference of 14 inches. To get that size, simply place 2 Campbell soup cans side by side on the leather and trace around them, straightening out the front and back. Cut two of these pieces. One will be the liner that gets glued in place to make a double thick bottom. The other will get 24 evenly spaced holes punched around its circumference, 1/4 inch in from the edge.

When you lace up your quiver you will overlap the body piece one inch. Therefore you want the bottom of your body piece to be 15 inches. 14 inches to match the circumference of the bottom piece plus 1 inch for the overlap. We are making a tapered quiver so we must add about 3 inches to the top width of the body. We want the inside depth of the quiver to be approximately 23 inches with a rolled top that is turned over about three inches. Thus the body piece will be about 26 inches long. Carefully lay out these lines and cut your pieces. In order to get the body straight and proportional, it is sometimes helpful to lay out a bottom base line and a centerline at 90 degrees. Measure off your top and

bottom lines from this centerline to get a nice even body.

You will now have a flat piece of leather 18 inches across the top tapering to 15 inches across the bottom and 26 inches tall. Measure up 1/2 inch from the bottom and evenly space 26 holes sized for your 1/8" laces. That is 24 holes to match the bottom piece and 2 more for the overlapping 1 inch. Measure in one inch from each side and layout holes starting 1/2 inch up from the bottom

holes and spaced at an even one inch all the way to the top. The last hole should be about 1/2 inch down from the top edge of the body piece.

Now, if you are a right hand shooter, measure up 5 inches from the bottom and 6 inches in from the left edge of the body piece (viewed from the inside of the leather) and punch two holes about one inch apart. Lace a 12 to 14 inch piece of 1/8" lace through these two holes so that the ends will hang on

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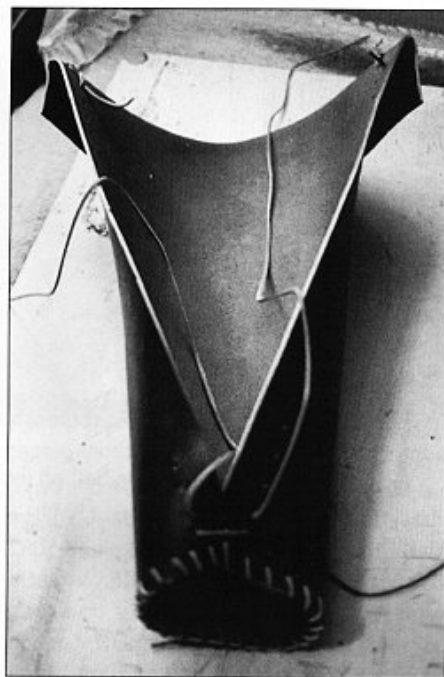
the outside of the finished quiver. Tie knots so that the lace cannot pull back inside the finished piece. This will be the tie down for the bottom of your shoulder strap.

The shoulder strap is a piece of leather 1 1/2" wide and 39 to 40 inches long. Punch two sets of holes about 1/2" down from the top end and one inch apart. Measure down about 34 to 35 inches, depending on your size, and punch a series of two holes one inch apart down the strap. If you have room, cut a little decorative fringe at the end of the strap.

Now it's time to put it all together. First, fold over the top of the body piece so that the top three holes line up with the three immediately below. Tie short pieces of lacing through to hold the fold in place. Put the body piece on your cutting board and, with your hammer or mallet, tap all along the top of the fold. This establishes your top edge and ensures a nice even collar of uniform width.

Next prepare a 72-inch lace by tying a knot in one end and cutting a tapered point on the other end. Starting with your bottom piece, lace through about one hole over from where the overlap will be on the front of your quiver. Lace from the inside out—so that knot is inside. Lace through the corresponding hole in the body piece (outside - in) and back through the next hole in the bottom. Continue around in a counter clockwise direction until you are at the last two holes which will overlap each other. You should end up with the end of the lace inside the last free hole in the body. Don't tie it off yet! Instead take your 4-inch needlenose pliers and, starting at the first loop, pull each loop of the lace tighter. As you go around tightening the loops you will find that your lace is starting to look neat and much more professional. By the time you have gone all the way around, you will have taken a good 3 to 4 inches of slack out of the lace. Now draw the free end tight inside the body and tie off with a simple overhand knot. Trim off the excess.

Now is the time to install the lining piece in the bottom. Use Barge Cement (or a good contact cement) and apply liberally to both surfaces.



Once the bottom piece is laced into place, and the lining piece is glued in, start lacing up the front with a 72-inch lace. Lace exactly like you were lacing up a new pair of shoes leaving a nice cross pattern.

Carefully position the liner over the bottom inside the quiver. Press firmly in place. You will notice that this not only makes a double-thick bottom, but the liner also covers the laces, protecting them from sharp broadheads.

Take another 72-inch lace and taper-cut both ends. Start lacing up the front of the quiver exactly as if you were lacing up a new pair of shoes. You want a good snug lace and a pleasing cross pattern. Every four or five crosses pull tight with the needlenose pliers. Keep going in this manner until you reach the bottom of the collar. Here I like to tie off the laces inside the quiver. I then use another lace to finish off the last three holes, starting at the top and lacing down. On the top two holes the lace will come from the inside out. Second two holes are outside in and the last two are inside out again. Now tie off with a simple overhand knot. Leave the lace ends long for a nice visual effect. This is also a good place to tie in an antler button or other decoration.

Now locate two holes one inch down from the top of the collar and centered at the back of the quiver. Tie in

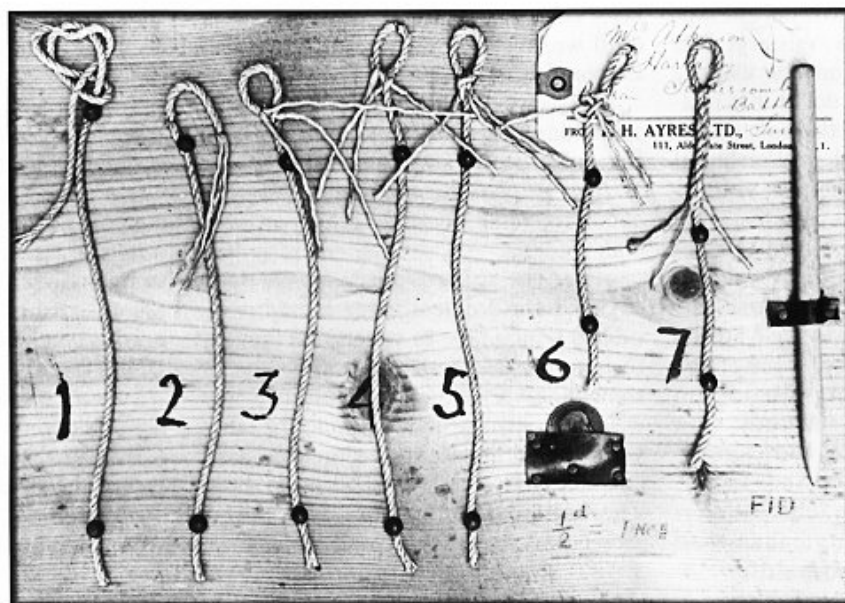
your back strap. Use a double set of holes for a nice cross look. Put the strap over your back and tie in the bottom end wherever it is comfortable.

One last touch is to tie in a piece of lace, front to back, inside the top of the quiver. This makes a nice divider to keep broadheads and blunts separate. They will get mixed up anyway but at least you can start out in an organized manner.

That's it! You have just made your first quiver! You can add decoration or not. Oil it or not. Whatever you like! It is uniquely yours and I'll bet you couldn't buy one better! But beware! Like the infamous potato chip, I'll bet you can't make just one!

If you like your style of quiver you would be smart to make a template for future projects. Mine is simply heavy poster board paper. I cut to size and punch all the holes. When I want to make another quiver I simply lay the template on the leather, trace around and dab the holes with a magic marker then cutout, punchout, and lace up! Enjoy!!





THE LONGBOWSTRINGMAKERS

By. Hugh D. Soar

*As unto the bow the cord is,
So unto the man is woman;
Though she bends him, she obeys him,
Though she draws him yet she follows.
Useless each without the other.*

Longfellow: Hiawatha.

Ask an archer in the field to show you the piece of his gear he prizes above everything, and he will show you his bow, extolling its perfection, drawing your attention to the texture of its wood, the shape as it comes around in compass and the speed with which it shoots. It occupies a place in his soul, you might reasonably infer, somewhere between his car, his dog, and his wife!

Ask the same archer the same question after his only bowstring has broken, and you may well get a different answer!

Roger Ascham in his "Toxophilus" said of strings "An ill stringe breaketh many a good bowe, nor no other thinge half so manye." Roger was not wrong. He went on to say that the decision of what a string should be made of, whether of good hemp as they did in Tudor times, or of flax, or silk, he left to the stringer "of whom we must buy them."

Of the artisans who made the Nation's archery equipment, the longbowstringmakers came a bad third to the bowyers and the fletchers. It seems incredible today that whilst Ordinances were drawn up and carefully followed to ensure that only the best wood was used for bows and arrows, there were no such strictures placed upon stringmakers to ensure the quality of their work until events obliged them!

For, whilst the Worshipful Companies of Bowyers, and of Fletchers, were in existence during the 1370s, it was

not until nearly half a century later that the Stringers came under organized quality control, and only then through military pressure. Indeed, the circumstances of their formation are interesting. The French Wars of Henry V having terminated satisfactorily at Agincourt in 1415, the army returned home, and at subsequent technical wash-ups, solids started to hit the fan!

Time and time again the breaking of bowstrings at inconvenient moments was mentioned by military gentlemen with a direct interest in the matter, and the Stringers of London in particular were taking their share of flak. It was one thing to parcel up a skein of strings, send it off to the Continent and pocket the profit; it was quite another to have an aggrieved "Goddam," built like a brick privy, and clutching two halves of a piece of string appear at one's workshop door demanding explanation!

With some reason, the stringers moved fast. On the 2nd of August, 1416, "reputable men of the trade of Stringers," petitioned the Mayor and Aldermen of the City, declaring that in the past many had lost their lives fighting in the King's wars, owing to defective bowstrings for which London Stringers had been blamed. They might have added, "justifiably!"

So that things could be remedied, the Stringers asked that they might have Wardens with power to inspect work, and to punish those who persisted in the old ways. This was promptly granted, and Ordinances were set up. Various restraints were introduced. Fines for wrongdoing were imaginative; for not attending a meeting when told to do so, the recalcitrant stringer forfeited one pound of beeswax to the "common-box," whilst those whose work was deemed regularly unsatisfactory had their strings burnt under their noses.

Members were required to use "well-chosen" English hemp (female plants were to be preferred), and not

"tubbed" hemp, or "Coleyn" hemp, whilst no member of the "mistry" was to bring in strings from outside the city for resale. There is little doubt that matters improved, and although never enjoying the prestige of their Worshipful bowyer and fletcher neighbours, vilification of them eased off.

Unlike the bowyers and fletchers, the stringers had no Hall at which to meet. Neither did they gather at one particular tavern; they seem to have spread their custom widely between "The Dagger," and the "Kings Head" on Friday Street, "The Mouth" on Aldersgate, and the "Fox and Goose," and the "Dog and Duck" on Shoe Lane!

In common with other "misteries," the Longbowstringmakers had "Arms." However no heraldic authority for these seems to exist; the College of Heralds has no record, and they appear to have been decided on by the Wardens without reference to officialdom. The Motto they chose: "*Nec habeo: Nec careo: Nec curo*" (I have not, I lack not, I care not) is in some contrast to the heroic "*True and Sure*" of the fletchers, and "*Crecy, Poitiers, Agincourt*" of the bowyers Companies, and probably reflected their attitude to authority.

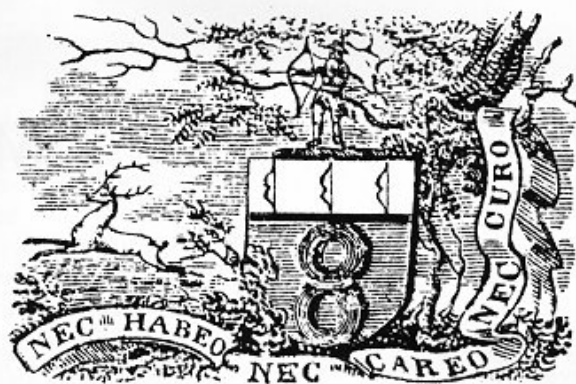
"Misteries" of longbow stringmakers existed outside London alongside bowyers and fletchers guilds. Crests differed however from that of the London. That of Chester, "a man holding a staff on his shoulder with a knot, or "bung" of bowstrings at the end of it. It seems more in keeping with a "trade sign" than the more stylized heraldic symbolism of the guilds.

Small groups of stringmakers formed in other major cities. Bristol, important in the context of its Port and Castle, is perhaps unusual in that in one case at least the trade of stringer was coupled with that of barber. John Copy, "Barber & Stringer" took his son John as apprentice for ten years in 1536, whilst other members of the Copy family engaged apprentices during the century. There is a suggestion that the Copys, and Ralph Sancky, (the other City stringer) may have been of Flemish origin. Flemish bowstrings have long been sought for their quality and it would be consistent with good business for immigrant families to have cashed in on this. Perhaps one should gloss over any connection between the detritus of a bar-

ber's shop and a bowstring! Maybe dandruff was the secret ingredient of a Flemish cord?

Notwithstanding this, we know something of the making of strings from Sir John Smith, whose "*Discourses Military*" provide much information about sixteenth century archery in general.

The string is made, so Sir John says, of the longest threads of hemp, rubbed with a type of water-glue (similar to isinglass, or fish-glue) and this, or something very akin to it, was in regular use on hempen strings well into the latter years of the nineteenth century as many examples in the author's Collection show. The composition of this glue was a secret, possessed latterly by just one man,



LONG BOW STRING MAKERS.

the last surviving representative of an ancient family, in whose keeping the recipe had been for generations. He died without revealing the secret, but Thomas Aldred's grandson, and successor James Izzard claimed to have rediscovered it by experimenting and it does seem to have been fact that early 20th-century bowstrings were every bit as good as their mid 19th century counterparts.

A quality waxed string, laid up with water-glue would be as long lasting, and as strong as the best linen, or even dacron. Single-looped strings were in general use until the turn of the eighteenth century, although by then experiment with double-loops had introduced these as an alternative. As might be expected, the whipping of bowstrings has been common practice, either latterly by the stringmaker, or formerly perhaps by the archer who decided where he would be nocking and drawing.

Amongst the many references to archery and its associated gear in the ballads of Robin Hood are some to strings. In the "*Littell Geste*" (perhaps the earliest of the original ballad tales), we read that

the "... strenges were well ydight (well-dressed)," and this suggests protection at the nocking-point and upper loop.

Thomas Roberts, in his "*English Bowman*" mentions making a nocking-point in white thread, on well-waxed string, using coloured thread on either side for "*exactness of arrow-positioning*." He instances the use of catgut, or even silver wire by some "modern" archers of his generation, but not surprisingly dismisses these as liable to burst the arrow-nock.

Continental bowstrings are described in the early French Manuscript *l'Art d'Archerie*, a work published at the end of the fifteenth century. These were made from raw green silk, or hemp. The silk used should be "natural," and not dyed in any way because this damaged the texture. Silken strings were good for flight or distance shooting because of the inherent strength of the material which allowed a thin cord, and because when properly made it was so springy that the arrow was propelled further. This belief is in direct contrast to present-day thinking which offers the inertness of Kevlar and similar material as a wholly desirable characteristic when shooting modern target bows.

Hempen strings should be made of strands from female plants, male plants being coarse, and thus, according to this early French writer, worthless!! Even the female hemp had to be carefully chosen and picked. Since Continental bowstrings continued to be prized within living memory, the advice is worth considering although it probably proves impossible to follow.

The writer advised that loops should be made as small as possible. Whilst there is no direct evidence in the Treatise for the use of side-nocks on Continental weapons, this advice is consistent with their use. There is much circumstantial evidence however that early Tudor (English) bows were side-nocked, and England was the destination of many contemporary strings.

The author of *l'Art d'Archerie* concludes his short chapter on strings with advice on how to know whether a string is good. Untwist the middle of it, he writes, and if the three strands are separate and distinct, it is a good one; always provided that when it is twisted up again it remains hard and firm, for "*...the harder it is the better will it be...*"

Archers have ever taken an interest in their equipment, and elite archers more especially so. Mrs. J. H. Atkinson, four times British National Championess between the Wars had just such an enquiring mind and was interested to know how a single looped string might be converted into one with loops at top and bottom. Accordingly she wrote to F. H. AYRES Ltd, whose bows and arrows she regularly used, and the reply, by their master stringmaker is a masterpiece of lucid explanation. I have the "answer" in my collection. The explicit instructions which came with the wooden board were headed "To splice an eye in a bowstring," and, being read in conjunction with the sequence on the board (page 57) were as follows.

1. String the bow, and at the lower end of the string, where the timber hitch is, mark with ink, the top of the loop.
2. Undo the knot, and tie thread one inch on either side of the ink mark, TIGHTLY. Unravel the tail of the bowstring up to the thread, and then straighten out the strands.
3. Lay the strands over the bowstring at the other thread. Take the centre strand and using the fid (see photograph on first page of this article) lift a strand of the bowstring and pass the centre loose strand through.
4. Take the top loose strand and pass it under the next strand of the bow string.
5. Take the last loose strand and bring it around to the left (see the board) and pass it under the third strand of the bowstring. Pull all loose strands tight.
6. Pass each strand in turn over one strand of the bowstring and under the next, until;
7. The splice is long enough. Cut off the ends, and the threads.

NB., A halfpenny is (was) exactly 1/2 inch.

Presumably, Ethel Atkinson then modified her own bowstrings from one loop to two; certainly it is fact that the string on the bow of hers which I have in the collection has a double loop and it is nice to think of the good lady, instruction board close to hand, carefully preparing the second loop!

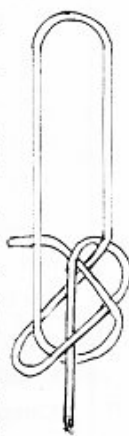
As might be expected, American interest in bowstrings, so evident in today's elite competitive scene, has been considerable across the years. Two particular contributions come to mind; the first by seven times National U.S. Champion Louis W. Maxson, and

the second by the renowned Scottish/American bowyer and archer, Jimmy Duff. Maxson's Article, "How the Yankee makes his bowstring" appeared in the 1903 edition of the *British Archer's Register*. Although by then no longer National Champion, Louis Maxson, with the legendary Will Thompson, and talented Col. Williams, and G.C. Spencer was part of the Potomac Archers winning team at the Third Olympiad, held at St. Louis in 1904.

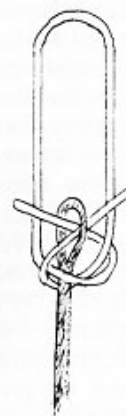
Maxson's strings were made up of 45 individual strands of Barbour No. 12 linen thread, divided equally into three well-waxed skeins of 15 strands apiece preparatory to their being "laid-up" together.

The loops, (Maxson habitually used double-looped strings) were each protected by additional short cut strands and when complete, the finished article was rubbed down with a piece of paper until all was hard and round. He finished off with a coat of varnish (a substitute for water-glue) and the usual serving. He mentions, a bit ambiguously, "... if the owner prefers, a silken serving may be laid on from loop to loop. . ." It is not clear quite what this means, but one presumes that it refers to a protection of the loops rather than the entire string! He concludes by suggesting three skeins of 13 strands each for ladies bows, although with the difference in weight between men's and women's bows, this quantity seems disproportionate.

As one might expect of an indentured bowyer, (and Jimmy Duff is the only exapprenticed bowyer ever to have revealed his secrets in writing), his chapter on string making in *Bows and Arrows*, (1927) treats the subject seriously, and in some depth. A convinced exponent of Belgian/Flemish strings, he once gave a selection to a well-known American maker of fishing lines for him to duplicate if he could. He wasn't really surprised to be told "It is the queerest thing I ever saw. I've never seen anything like it. We couldn't lay up bowstrings in that same way for anything like the price you (Duff) sell them for."



NEAR-EASTERN BOWSTRING
LOOP-KNOTS.



TIMBER-HITCH.

Although Duff recommends novice stringers to start with ready-twisted Italian hemp twine, he suggests Barbour's Irish flax, for those determined to do it the hard way from scratch—as Maxson had 25 years earlier. Where Maxson was precise about thread numbers however, Duff is vague, dismissing it as a matter of personal choice; somewhere between 12 and 40 per skein should do. The diameter should not exceed 3/32", (2 mm) at the nocking point though, and it is difficult to see how a string of 120 separate threads with a serving in addition could be accommodated within 2 mm diameter! He recommends rubbing the finished string "strenuously" with a mixture of linseed oil and glue size, again to harden it.

Duff prefers the single-loop string with a timber hitch to the double loop, remarking that a bowstring with just one eye allows correct adjustment to the bow; most useful, as many archers have found when their bow's characteristics change across a day's shooting. His interesting chapter finishes with a recommendation to use a combination of pure beeswax and resin mixed thoroughly together (preferably in a bowl of hot water) as a protective skin over the oil and glue sized string.

As Duff suggests, a well-made bowstring is a very slender thing, even with its built-up protective nocking-point. Evidence from the Tudor arrows whose nocks accommodated strings made by members of the Ancient Company to power the great war bows suggests a diameter of scarcely more than 3mm, whilst comparison of early and late 19th century hempen strings in the author's collection shows an almost

invariable diameter of slightly over 2mm. Even the multiple-strand Barbour linen strings which immediately preceded Browning's Dacron, maintained this small diameter when properly made.

It was not always thus however. A feature of the 100 or more arrows found at the NYDAM, Sleswig, archaeological site, and dating prospectively from the middle of the 5th century AD, is their large bulbous nocks, the slots of which are as much as 5mm across. Even allowing for a built up nocking-point, and since no strings survive, the presence of nocking-points can only be surmised, it is apparent that the string would need to have been significantly thicker than later examples in order to sit snugly within the nock. The absence of bow strings in an environment friendly to the preservation of vegetable matter has suggested manufacture from an animal substance; perhaps gut or sinew. This suggestion is supported by the size of nock, since to be serviceable, strings of this material need to be thicker.

Before passing on to other matters, it is worth stopping for a moment to consider the bulbous nock in the context of the draw and loose. We are accustomed today to use either the three-fingered "Mediterranean" or the two-fingered "Flemish" draw. The thumb plays no part in our drawing-hand. Things were different in earlier times. In a book on the life and battles of Gruffudd ap Cynan, a medieval Prince of Wales and perpetual thorn in the flesh of 12th century Norman Earls, we read that when he and his motley collection of Irish and Danish mercenaries were treacherously betrayed, and captured by Hugh, Earl of Shrewsbury, the right thumb of each mercenary was cut off before they were set free, suggesting a hitherto important role for this digit! Those who are familiar with legendary hunter Will Compton and his exploits will also know that he was taught a thumb-assisted draw by the Sioux Indians who supervised his archery instruction, whilst many primitive archers use a thumb when drawing even today.

A string is only as good as its construction; that's certainly so, but it is only as effective as its knot. Most archers who use the single-looped string are well familiar with the timber-hitch, often erroneously called the "bowyers knot." (As an aside, I've never really understood why it should be called the "bowyer's knot," when it is mostly the

archer who ties it, but we'll let that pass. Not all, whether bowyers, or archers, know however that the true bowyer's knot was tied rather differently.)

Bowstring loop knots were almost an art form in Middle-Eastern archery (see illustration on previous page). The Turkish "tundj" is a case in point. The "conventionally" looped string is secured to the bow limb by a second loop, which by its nature holds the string tightly either into the nock-groove, or directly to the tapered bow limb. The accompanying drawing shows how, and readers with nothing to do for five minutes are invited to spend them productively by trying the knot for themselves!

A second, rather more elaborate knot was also used to secure (self) strings of Saracen bows. Again the drawing is explicit for those blessed with that sort of mind; in this case however I suggest first preparing a stiff glass of Southern

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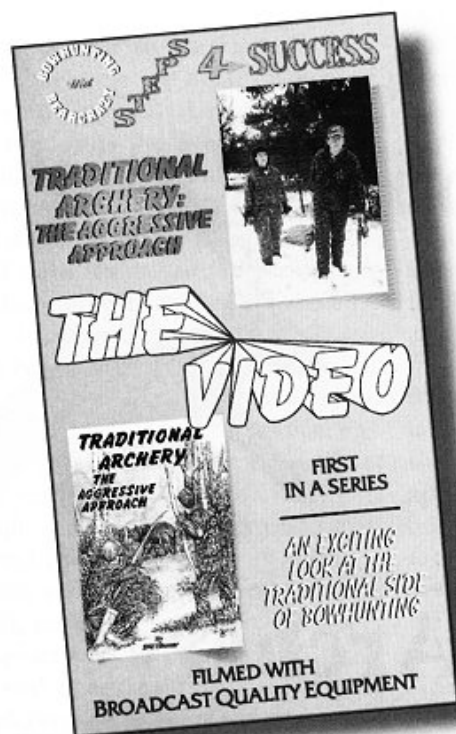
Comfort, locking the door, and declaring oneself incommunicado for the better part of the afternoon.

A sobering thought, if one were needed, is that amongst the materials of which 12th century Saracen strings were made was human skin! Perhaps we purists should be glad for Dacron after all!!



Sources Referenced.

The Fletchers & Longbowstringmakers of London. James Oxley 1968
Toxophilus, Roger Askham 1544.
The Archer's Register 1903.
L'art d'Archerie. Anon 1499
Saracen Archery. Latham & Paterson 1970.
Turkish Archery. Klopsteg 1934.



Bearcrazy's *Traditional Archery: The Aggressive Approach*

A Video Review by Phillip Foss

About 25 years ago I decided to bowhunt. I saved money working as a fire lookout in Oregon and ordered a Herter's 52 pound recurve. The solid walnut riser and tan glass were, and are, beautiful. I also ordered some broadhead-tipped cedars, a bowquiver which left the heads bare, a glove and armguard. Then I went deer hunting.

Luckily, I didn't get a shot; I was a disaster. I had no experience with archery and had no friends who were bowhunters. As a result, my broadheads were dull and my arrows were overspined; I had no idea of brace-height and established my nocking-point by eyeballing the arrow. If I would have had access to Bearcrazy's *Traditional Archery: The Aggressive Approach* at that time, these problems would have been primarily solved.

In essence, the video is an introduction to traditional archery. Clearly and succinctly, Bearcrazy demonstrates and explains all the fundamentals of the sport.

He begins with a description of how longbows and recurves are assembled using laminations and bow forms. Doug Duncan of Zebra Longbows demonstrates his methods of creating a longbow—in this case a severely reflexed one. Whole videos have been made on this process and Bearcrazy doesn't try to establish any definitive description, but enough information is provided so that the viewer understands the gist of the bowyer's work.

Bearcrazy then goes on to explain some bow tuning fundamentals, such as brace-height and nocking point, and how the nocking point can shift as the brace-height is changed. While these are basics, if they are not followed correctly, nothing else works.

He then proceeds to shooting form, emphasizing canting and anchor point. I found this segment particularly interesting. During it, he shot a longbow lefthanded, a recurve lefthanded, and another recurve righthanded. Painfully, (to me) the three arrows formed what looked like a 2 inch group.

What was also exemplified by this segment, but which characterizes the whole video, is Bearcrazy's personality. Rather than projecting the persona of an arrogant, didactic, archery expert, Bearcrazy emphasizes that his techniques, his equipment preferences are just that: his, and he urges the viewer to experiment and define the techniques and equipment which work best for you. While Bearcrazy shoots as soon as he hits anchor, I'm right handed and left eyed and it takes me a second of holding at anchor before I can get un-crosseyed.

Bearcrazy proceeds to discuss arrows, limiting the segment to cedar and aluminum. His preference is clearly aluminum, stating that wood is "inconsistent," but I've tried getting through a scrub oak patch with aluminum arrows in a back quiver, and my resulting version of a one-man band still has the elk laughing.

His description of broadheads was likewise brief, being limited to puncture point versus cutting point. He described tests where chisel-point heads were unable to puncture rawhide, while cutting point heads breezed through. However he dismissed this comparison as a "static test" and stated that "dynamic testing" was necessary, but he never tells us what the latter entails (shooting animals, I assume). Here his preference is for Grizzly heads.

Bearcrazy, who looks like he's pushing 300 pounds, proceeds to give us his tips on nutrition and fitness. This was great and worth the price of admission in itself. His deadpan rendition had my whole family fooled.

His discussion of fletching was excellent, describing parabolic, shield, and maxifletch. Here he made it clear that the heavier or larger the broadhead, the greater amount of fletching was required to stabilize the arrow in flight. He also dismisses the old notion that left or right helical twists are required for left or right handed shooters.

Bearcrazy lives in Wisconsin, so he had a detailed segment on whitetail hunting from treestands. I live in New Mexico and could sit in a tree stand the rest of my life without seeing a game animal, so I had trouble relating to this segment, but tried to assimilate as much information as possible in case I ever go east.

And finally Bearcrazy's discussion of quivers, while he doesn't outright state it, was emblematic of traditional archery. He describes bow quivers, hip quivers, and back quivers. He describes the efficiency of the former two, allowing that the back quiver can be noisy and awkward. But he shows the viewer a 1930s era back quiver which he was given and proclaims that this is the only quiver he intends to hunt with again. Not only is it noisy and awkward, it is a right handed quiver and he's left handed! (Talk about awkward.) What I saw here as emblematic of traditional archery as a whole is that efficiency alone is not the goal. Throughout history traditional archers have practiced sympathetic magic, have carried talismans in pouches, have prayed, and have had special equipment and techniques. There is a technical efficiency and there is a psychological efficiency, and the latter is not merely a psychological crutch or some kind of voodoo. I have a 150 f.p.s. Osage Orange bow that has more juice than any 300 f.p.s. magnesium bow will ever have.

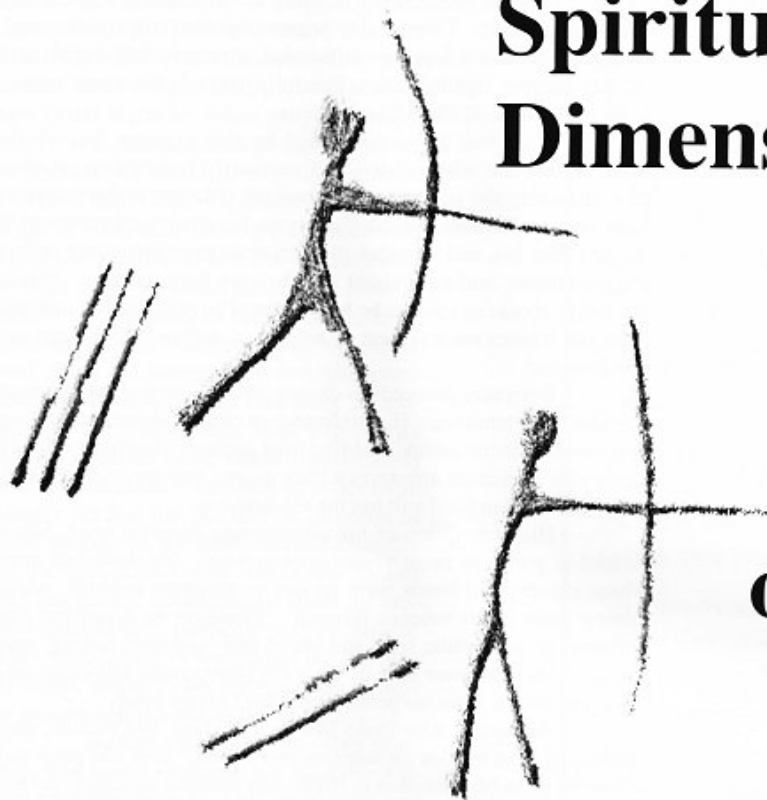
Likewise, Bearcrazy knows the old backquiver has more "juice" than a commercial quiver. In this choice, he reaffirms that traditional archery is not a pursuit of the machine, but a pursuit of the oldest values of humanity.

Traditional Archery: The Aggressive Approach, is available from:

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Spiritual Dimensions



of Archery *

by James A. Swan, Ph.D.

The most distinguishing characteristic of man is tool-making. A stick or bone was one of the first human tools. It extended the reach and enabled an increase in the power of the human arm, enabling important advances in digging, hunting, and war. A stick can be used as a potent weapon, as is seen today in the fighting jo-staff used in many of the Oriental martial arts. The striking distance of the stick increases when a point is carved on the end of the stick, making a lance, or when thrown, a spear, and later a javelin, capable of being accurately thrown over much larger distances.

Adding a special head of stone or bone, combines the potency of a knife, with its cutting edges, with the added distance of a spear. The value of a spear is related to the distance with which it can be used effectively, as well as the sharpness of its point. In many cultures, people invented devices called atlatls, or spear throwers, to help increase leverage and throw a spear more accurately. They first appeared in Eurasia 30,000 years ago and then in North America some 12,000 years ago. When Columbus landed he was met by Carib Indians who used atlatls.

The atlatl is a grooved stick about the length of the forearm which connects to the end of the spear. It dramatically increases the leverage which the spear thrower can apply to casting the spear. To add distance, the atlatl spear is shorter and lighter than the hand-held projectile, and it is called a "dart." Today there is growing interest in reviving hunting with atlatls, as with practice a person can cast one 50 yards or more with considerable accuracy and potency. A 5-ounce dart can be cast at 100 miles per hour, delivering a dart with as

much potency as an arrow from a hunting bow at short distances.

One of the great synchronous events in the evolution of human consciousness is the invention of the bow and arrow. Before modern communication technology, people from pole to pole and all around the world independently discovered that by bending one stick or spear and connecting the ends together with a cord of animal or vegetable origins, a spear could be projected considerable distance. Paintings and carvings in Paleolithic caves in Spain dated 25,000 to 30,000 years ago show people hunting with bows and arrows. Some experts speculate that Neanderthal people 100,000 years ago may have used crude archery equipment, but this is open to question as we have little evidence to support it. The best substantiated evidence of archery in use is in 13,000 BC. The oldest bows tended to be made of wood or bone and sinew, both of which may be eaten by rats and mice, as well as being decomposed by the forces of nature. The only major group of people who did not develop archery for war or hunting appears to be the Australian aborigines. They instead invented the boomerang and used atlatls with great accuracy.

The bow and arrow was the principal weapon of war in modern times for over 300 years. In 16th century England it was mandatory for every able-bodied man to own a bow and arrow. Some of the greatest early archers were the Turks, Egyptians, Vikings, Greeks, and Chinese. American Indian bows and arrows tended to be smaller and less powerful than those in other parts of the world, but their skills in tracking and stalking made them equally-effective hunters.

It is common practice to carve or paint images on the shaft or head of spears and arrows. Unique patterns serve to identify the weapon, making it easy to tell who had struck the lethal blow in the heat of the hunt or battle, or to locate the shaft for re-use. In traditional cultures, weapon decorations often had spiritual connotations as well.

In earlier times, in many cultures, it was believed that weapons had soul or spirit, as did the owner of the weapon. Invoking the spirit of the weapon was thought to increase its accuracy. This spirit might come to the craftsman through a dream or vision, or perhaps an unusual encounter with an animal. Eskimos (or Inuits as they prefer to be called), for example, believe that tools like spears have an "inua" which could work with or against the hunter. In making weapons, ceremonies and rituals frequently were conducted to identify and invoke the spirit of the tool, asking for its cooperation so that the tool could become an ally guided and empowered by the spirit, as well as the prowess of the archer.

Magic is based on two principles, sympathy and contagion. The principle of sympathy is that like patterns, symbols and colors attract, resulting in invisible sympathies of harmony—a spider web of energies being drawn to the integrating object resulting in more potency. Contagion is based on the belief that once something has come into contact with something else, a harmonic linkage is established. Skin, bones, and feathers from predatory animals wrapped on the shaft call in the qualities of these creatures, increasing the success of the hunter and his weapons, as well as identifying the owner. In many cases ritual sentiments inspired by the spirit were combined with tribal and personal signs and symbols and translated into art through decorations—carvings, paintings, attaching items like feathers, skin and bones to the shaft of the weapon. The art work transformed the utilitarian tool into a numinous object, for in traditional cultures art is a magical invocation of powers beyond the material plane.

A weapon, created through a ritual process and designed with magical art, is a symbol of unity of spirit and

material worlds. It exists in material form, but the shape and colors of the device are believed to originate from another dimension, mythic consciousness. Art then preserves a sympathetic harmony with that mysterious other world, as well as bestowing beauty on the artist's creation. Weapons made in this fashion become a talisman and an amulet, as well as a tool.

For many cultures, the materials from which the bows and arrows were made had a spiritual connection to the spirit of the bow. Making a bow from the antlers, horns, and ribs of deer, elk, reindeer, and caribou, for example, was felt to increase the chances of hunting success. If the bow was made from wood, the species of tree was felt to influence the spirit of the bow. In *The White Goddess* by Robert Graves, which is a classical study of Celtic and Druidic lore in poetic form, the lines of the famous poem *The Battle of the Trees* describe nine magical trees of Ireland—oak, ash, willow, yew, whitethorn, blackthorn, sloe, elder, and the reed. The reed was considered a tree, for it could be used to make arrows, and the yew was seen as being a gift of the gods for its wood made the finest longbows.

American Indians made bows from osage orange, yew, and hickory, as well as the bones, horns, and antlers of deer and elk. The best arrows were made from cedar and pine, both of which are light weight, easily worked, durable, and do not readily warp. My friend Lummi Indian Seyowyn spirit dancer Cha-Das-Ka-Dum, tells me that his tribe, which lives in Northwestern Washington state, preferred yew wood for making bows.

They began by finding a yew tree. Then they asked the tree's permission to use a branch for making a bow. This involves prayers, a ritual, and some kind of sacrifice, such as some food placed near the tree for the spirits. If the tree approves, then the process begins by selecting an appropriate limb, and placing weight on the limb so that over a year or two, the limb naturally curves into the desired shape of the bow. When it comes time to cut the limb, the basic shape is already in place with the aid of the tree, whose spirit is then working with the archer.

Cha-Das-Ka-Dum also tells me that when he was taught to make arrows, there was a rule that if you shoot an arrow at a deer or bear, you cannot retrieve the arrow if you miss. Aside from the miss being an omen that the spirit of the arrow wasn't working correctly, he says it made Lummi outstanding archers because making a good arrow takes a long time and a lot of hard work.

Making a bow from bone or horn, according to ancient tradition, may involve obtaining "permission" from the animals before the artist can begin. In many animistic traditions, where spirits are everywhere, each animal does not have a soul but the entire species is believed to have a collective soul which is ultimately linked with spirit keepers who reside in other spiritual realms. As in the Pacific Northwest Indian tradition, where totem poles outside a lodge announce those animals with which a family has special kinship ties, each person has their own special totem animals. These kinship ties to specific species come through dreams and visions, unusual encounters with live animals, or they are passed on in families. In such a tradition, one makes a bow from the horns or bows of an animal, such as a caribou or elk, because the spirit keepers have a special kinship tie to that person. Such a person has the "medicine" of that animal, it is said, which is a mental or physical power that is associated with that species; i.e. the eyes of an eagle, the strength of a bear, or the speed of a deer. So long as one shows respect for that species through ceremonies, rituals, and right livelihood, one is blessed with those powers to aid their use of those weapons.

Some Deeper Meanings

An arrow is a symbol of truth and intentionally, especially when it becomes connected with the thought that propels it. We call someone a "straight shooter" or a "straight arrow" because they are truthful and are not deceptive. Arrows are symbols of potency found in mythologies all around the world.

Archery is a frequent theme in the myths and legends of many cultures. The Greek god Apollo was their god of archery. Eros or Cupid shot a magical

arrow causing him to fall in love with Daphne, the daughter of Peneus, the river god. Eros, it seems, did not want to get into a permanent relationship, and so he shot a lead arrow of hate into Daphne, causing her to hate Apollo and turn herself into a laurel tree. The root of the modern word "arrow" is thought to be Eros. It seems no mere coincidence that a hunter aims for the heart to execute a humane kill and Cupid also shoots for the same organ.

The Greeks also named a constellation in the southern skies of the Milky Way Sagittarius, which means the archer. Typically, mythic archers are passionate people, using their arrows to effect change in the world and gain recognition for their prowess, such as Robin Hood. William Tell, the Swiss archer who shot the apple off another's head, apparently used a crossbow, not a long bow. Feats of marksmanship were once seen as a divining. Shooting arrows at a target, instead of at each other, was one way of settling a dispute in many lands. The reasoning here is that someone who knows they are telling the truth will be dead sure of themselves, whereas a liar will know in his heart that he is wrong and the awareness of telling a lie will cause his aim to waver.

In traditional cultures, archery has many ties to religion. A shaman, a magico-religious practitioner who works with natural spirits and forces, is a spiritual teacher and healer. Shamans are said to have special gifts for accessing altered states of consciousness in dreams, trances, and visions. Bows and arrows may be used by shamans for spiritual purposes, as well as hunting and warfare. In his classic anthropological study of traditional religions, *Shamanism: Archaic Techniques of Ecstasy*, Mircea Eliade says that a worldwide common metaphor to describe shamanic soul journeys to the Upper World is ascending "the chain of arrows." Climbing "the chain of arrows," typically involves the shaman performing a ritual process where prayers are aimed at progressively elevating one's consciousness. If each prayer is true to its aim, one ultimately reaches the desired level of spirituality, which is the ultimate "target."(3)

In the sacred yarn paintings of the Huichol Indians of Mexico, who consider the deer spirit their guardian ally, prayers are symbolically depicted as arrows. In the actual process of conducting rituals, participants are often instructed to make "prayer arrows," which are sticks decorated with feathers, shells, and other objects and wound with colorful yarn. In a ceremony one might make a prayer arrow, weaving together thoughts and prayers. The arrow is then planted in the ground inside a circle of stones ringing a ritual fire. When performed at night, one asks that the spirit of Grandfather Fire will carry the prayer on to the next world and result in a dream for the arrow maker. In other tribes, shamans might shoot arrows into the sky as part of a ceremony to make it rain or snow. Some shamans also speak of negative "thought arrows" which are mentally shot or thrown at people by sorcerers, and cause disease when they enter the body of a person and disrupt their energy flow.

Flutes, drums, and rattles are some of the most common shamanic instruments, with rhythms they make being used to entrain brain waves and lift the mind into other dimensions. Studies show that drumming rhythms of 4 to 7 cycles per second are used by many tribes to induce trance. (4) While a drum may have many symbolic qualities, a bow also can be used as a rhythm instrument. It is not hard to imagine a hunter sitting beside a fire at night, feeling a little lonely and wishing to call on the spirits to help guide his hunting, who would use an arrow to tap out a rhythm on the taught bowstring as an aid to a chant or song, or another Bowman who would want to celebrate the day's success and would beat out a rhythm on his bow as he danced around the fire in ecstasy. Mircea Eliade says that "*the shamanic drum originally was used to drive away evil spirits, a result which could also be obtained by the use of a bow,*" among the Tartar and Altaian shaman.(5)

One evolution of archery is the string instrument, such as the guitar, lute, dulcimer, sitar, or the violin, where the modern bow may have once been an arrow drawn across the string. The pitch of a musical bow can be changed by applying pressure to the bow, which changes tension on the string. Some

tribes made a shorter "mouth bow" which was played like a Jew's harp, one end of the bow staff being placed against the cheek, using the mouth cavity as a resonator. The popular American Indian singer Buffy Sainte-Marie sometimes uses a mouth bow to accompany her songs.

One can readily see how a bow and arrow can become a stringed instrument in Brazil, where the berimbau is played. The berimbau is a short single-stringed musical bow with a gourd at one end. It can produce a remarkable range of sounds through a combination of changing tension on the string, striking the string in different places with a stick like an arrow, and cupping the gourd resonator against the body. The musical score for the feature film "The Emerald Forest" features a berimbau performed by Junior Homrich.

Combining the bow with a drum results in a simple guitar or lute. The steps to heaven became frets on a fingerboard, and now the arrows become notes. Listening to the wail of a passionate frenzied electric guitar lead, one knows that Eros is still watching over the use of the craft, perhaps from the constellation of stars in the southern skies named Sagittarius.

Some native archers dip their arrow points in poison. In South America, a common arrow poison is curare, which is made from a tree, *Strychnos toxifera*. To gather the poison, the hunter must ask permission of the spirits of the tree before it is cut. Typically, this begins with a prayer, making an offering of food as a gesture of sacrifice, and then explaining to the tree why the hunter must cut it. This procedure is followed so the spirit of the tree will not be offended, which could bring misfortune to the hunter. Native peoples believe that the spirit of the tree must agree to give up its poison to attain optimum potency and success in the hunt.

The Zone

Shooting archery with accuracy requires one to enter a state of consciousness where mind and body are one and all senses are in high gear and applied through concentration on the target. In modern sports psychology, this is

known as "the zone." In the Orient in the Zen tradition, where archery is commonly seen as a meditative discipline, the "zone" is considered a state of "satori," which is a spiritual state of mind where mind, body, and spirit fuse into a unity of action. Zen scholar D.T. Suzuki observes:

"If one really wishes to be a master of an art, technical knowledge is not enough. One has to transcend technique so that art becomes an 'artless art' growing out of the unconscious."

In the case of archery, the hitter and the hit no longer are two opposing objects, but are one reality." (6)

Kyudo is the Japanese martial art of archery. I have had the good fortune to visit a kyudo dojo (training hall) in Japan and was deeply impressed with this tradition. When shooting in Kyudo, one wears an outfit similar to those worn in other martial arts. Japanese bows are long bamboo staffs that are grasped below the center.

Preparation for the shot requires slow, disciplined breathing and a step or two forward to reach the mark. The arrow is pinched with a gloved hand and in a graceful slow arching draw, it is drawn to an anchor point that is near or

behind the ear. All attention is focused on the target so that the shooter and the target become one. The

soft release that follows is "like a whisper." If one has attained the proper state of mind and concentration, the arrow flies straight to the mark as a reflection of one's mastery of concentration. Typically the shot is fired from inside a hall

with beautifully-polished hardwood floors across an open courtyard to a covered target placed against a sand hill. When people are shooting, the hall is silent, except for the sounds of arrows and bows. In my visit to the kyudo dojo, the atmosphere of the hall was reverent, similar to that of a Buddhist temple.

One could also say that success in archery, especially in hunting, depends on a person achieving a similar state of mind to the zen archer. Every step must be silent. Every sound heard may be a sign. Even odors on the wind may be telltale signs of game, or may reveal the hunter's presence. When you see a big boar or a buck, you must somehow get the bow drawn and shot without spooking it, enjoying the rush of adrenaline that comes, while knowing that you must be still in mind and body in order for your arrow to strike the kill zone.

When we pick up bow and arrow, whether the target is alive or paper on a bale of straw, we are stepping into line with a heritage of hunters and warriors that traces back to the Paleolithic, and earlier. Sometimes I can almost sense them watching me as I draw back my bow and take aim.



*Adapted from *In Defense of Hunting* by James A. Swan, Ph.D. Harper San Francisco, 1994.

Footnotes

- (1) Robert Graves *The White Goddess*. New York, NY: Farrar, Strauss, Giroux and Cudahy, 1948, pgs. 16-21.
- (2) Richard K. Nelson *Make Prayers To Raven: A Koyukon View of the Northern Forest*. Chicago, IL: University of Chicago Press, 1983.
- (3) Mircea Eliade *The Sacred and the Profane*. Princeton, NJ: Princeton University Press, 1964.
- (4) Andreas Neher *A Physiological Explanation of Unusual Behavior in Ceremonies Involving Drums*. Human Biology, 34 (1962): pp.51-160.
- (5) Mircea Eliade Op.Cit.
- (6) D.T. Suzuki from the "Forward" to *Zen In The Art of Archery*, by Eugen Herrigel. New York, NY: McGraw-Hill, 1964.



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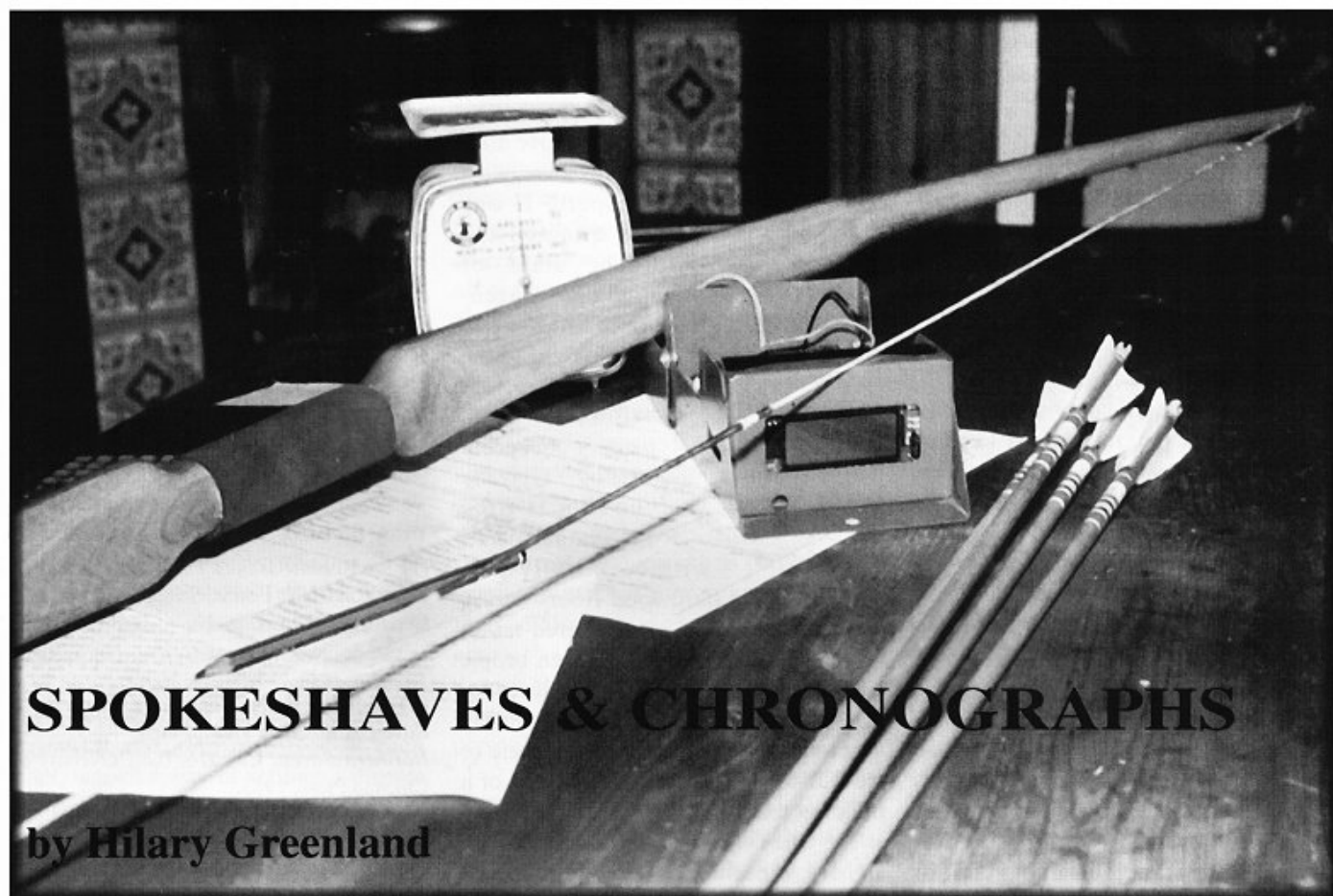
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To the keen bowmaker, the bow he has just finished, crafted with tender loving care and many hours of toil may well be the fastest, sweetest, most forgiving and beautiful weapon in the whole wide world. Therefore it's very difficult to admit to any faults in your creation, particularly bearing in mind the time taken and the hard-won skills employed, let alone the hopes invested in the stave since it was carefully selected, cut down, and seasoned.

We all know that any bow is more than the sum of it's parts, whether these are sinew, wood, hoof, hide, or horn (or even, dare I say it, carbon and metal). Each piece of wood is as different and full of character as the archer who wields it, so the two together form an impossible combination when it comes to objectively assessing the bow's quality. How is quality assessed exactly? Can it be defined by narrowing it down to a soul-less set of specifications? I don't think this is something easy to deal with when talking of a "traditional" bow, particularly a "self" bow of character. While developments in bowmaking have always taken place with increased arrow speed in mind, the bowmaker has always known that it must possess other good characteristics—stability, longevity, a "forgiving" nature, and ease of draw, all in combination and, to a certain extent, compromise. (Beauty is in the eye of the beholder, so I won't mention that one!)

Many archers who shoot a "primitive" style of bow will say that it is not in the right spirit to quote arrow speeds for bows that are singular in nature, and that their true value

lies in being unique—their quality lies in the stave's character as drawn out by the skills of the bowmaker.

Producing a good working bow from a difficult stave is as true a test of quality as producing a superbly fast bow out of ideal materials. Let the pre-occupation with arrow speed be the province of the mass-produced bows that the more technically minded enjoy! Arrow speed alone is not the sole test of a "good" bow: after all, what point is there in a bow which shoots amazingly fast, but which stacks, kicks like a mule, or is so unforgiving that, to borrow a phrase, you "couldn't hit a barn from the inside with the door shut"?

So why bother with speed testing? To some archers the thought of shooting an arrow from a self bow through a chronograph seems not only an anachronism, but is also akin to heresy. However, the insatiably curious are bound to do it, just to test whether their bow is truly as fast as they believe. There is a danger here, for if the "magic" foot/second figure that the archer hopes for isn't reached, will this start a nagging worry in his mind that either he, or his bow, could do better, despite the fact that he was a perfectly happy archer beforehand? On the other hand, a bad reading could stir a bowmaker into trying harder for the next stave!

In a competitive world, where bowmakers are continually experimenting and striving to achieve the "dream" bow which combines all the best attributes in a perfect compromise, there is a need for some sort of objective testing which can help overcome prejudice, self-delusion, or blind

belief—something which most of us are guilty of at some time or another. However, arrow speed is not the be-all and end-all, and results should be treated with more than a little circumspection.

Like many bowmakers, I record the vital statistics of every bow I make, this includes weight in hand and type of string as well as the arrow specification and speed when tested with a chronograph. (I haven't quite gone so far as to measure temperature and humidity!). The results are interesting for their own sake because of experiments with prestressing, different tillering profiles, limb sections, backings and materials, as well as different types of arrow; hopefully the stark reality of "feet per second" prevents me from deluding myself, in the same way that the aching bow-arm elbow tells me that I'm shooting a "mule"!

Chronograph results can also indicate whether the bow is at least adequate for its purpose—for example a bow for flight shooting requires less sweetness or stability—it's all arrow-speed. A target bow is a different matter and a bow which kicks in the hand indicates a problem which should be tillered out or the bow put aside for re-working. On the other hand, the "slugs" sit in a reject box with the twisters and experimental failures.

I have tested well over 100 traditional bows of various types and materials (the majority have been English and American longbows) a few have been tested at various stages in the tillering process to judge the effect of wood removal from areas of the limb; this is



"The moment of truth." An anxious Don Adams with Hilary Greenland's shooting machine.

nowhere near enough to provide anything other than the most general of conclusions about bow design and performance. The tests are hardly scientific, but they have helped me work out the methods, materials, and designs least likely to produce inadequate bows. I try to use the same set of test arrows for comparative purposes, but have found some differences in speed readings between arrows of similar weights, which I can only put down to the fletching, or spine,—or what?

There have been more detailed attempts to assess more accurately how well a bow stores and imparts energy to the arrow, using arrow speed as the measure of efficiency. At a meeting of the Craft Guild of Traditional Bowyers and Fletchers in 1992, I learned of the formula for measuring bow "performance," developed by Paul Klopsteg and relating to his theory of "virtual mass," published in America in 1943; it was used on results obtained at a chronograph test of longbows at that Guild meeting. (I include the formula at the end of this article for those unfamiliar with it: please

refer to *Archery: the Technical Side* for more details and explanations if you want them!).

I am not a physicist, nor am I a very good mathematician, but I learned early in my bowmaking career of the dangers of applying "science" to traditional bows.

The formula doesn't take into account some of the variables encountered

in shooting: e.g. of the arrow (fletching type, style and shape of shaft), of materials (hysteresis), of the archer (his loose, or true draw weight at what could be a varying draw length), the force/draw curve, etc. I suppose it is a bit much to expect it to, and I certainly couldn't cope with the resulting complicated adjustments to the calculation!

However, sloppy science is no science at all and such tests must not only be carefully monitored, objectively and accurately recorded, but also the results must be calculated without prejudice to make them worthwhile. I have found that when using Klopsteg's formula it takes just a small deviation in some of the data (an extra pound on the draw weight or ten grains on the arrow) to cause large changes in the results. I learned this the hard way when a bow of mine (a regular 300-yard shooter) tested at a Guild meeting had an appalling "VM" figure when shot by one archer. I was mortified until I discovered that the bow was chronically under drawn when the relevant chronograph reading was taken, something which the archer in

charge of it at the time freely admitted later. I admit I am not strictly scientific with my bow tests and they aren't anywhere near "laboratory" standard, but they suit my own purposes. I would say though, that if anyone is to draw meaningful conclusions about bow design and materials, a strictly scientific approach to gathering data must be necessary. A full time job, and I'll leave it to others while I get on with making bows.

One problem with chronographs was brought to my attention by a fellow archer who also tunes and shoots air rifles: when several chronographs were used at his Club meeting, despite coming from the same manufacturer and (they swear) untouched since purchased, they each produced different readings, varying consistently by a margin of several feet per second overall, despite repetitive tests. The absence of a "benchmark" reading made meaningful comparisons with other speed meters, and therefore other test results, impossible.

In a similar way that cameras can "lie," a reading from the chronograph can be misleading. A bow which achieves early high arrow speeds does not necessarily have a correspondingly good cast. Because achieving good distance is a function of the match of arrow and bow, together with a good technique, it isn't always possible to assess the bow's potential for this style of shooting through mere arrow speed. I test my heavier bows by using a shooting machine, and I've found that speed tests with heavy "war" arrows of over 30 grams weight are virtually pointless—the bow's function in this case is to shoot such an arrow over a fair distance, and actually shooting the bow in this manner is the only truly adequate test; a shooting machine can also have a slower release than a good flight archer. (Simon Stanley, our top longbowman for the heavy draw weights, out-shot a machine by several yards recently to illustrate the point). The "law of diminishing returns" which applies to bows over 70 pounds draw weight is clearly illustrated by the results of calculations: bows become less efficient pound for pound over this weight. Of course, this statement isn't as simple as it looks—most people familiar with the "war bow" of

medieval times know that a heavy draw weight bow is needed to shift a business-like arrow of over 60 grams in the direction of the enemy.

Added problems arise when an arrow is whipping violently from a slashing loose (as used for flight shooting) or from arrows with a long, heavy shaft—getting readings at all from 32-inch ash shafts out of 100 pounders has presented a problem or two, not least when lining up the shooting machine with the chronograph. The wall behind my target is peppered with bodkin marks!

Despite stating some reservations about the use of arrow-speed as a test for bow quality, I feel it is the only way we can get some basic objective idea of a bow's efficiency at the moment. Whether bowmakers see any advantage or value in going to the added trouble of applying Klopsteg's equation has to be a personal choice, in my case it is largely a matter of curiosity. However, I feel that for anyone interested in testing for themselves the various merits of different bow designs (in performance terms at least!) I reckon a chronograph is an essential part of the bowmakers kit.



KLOPSTEG'S EQUATION:

(Thanks to Tony Roe/Jim Wiggins for initial explanations).

Record the following data:

- Brace Height (inches)
- Draw length (inches)
- Bow weight: (lbs)
- Arrow weight (grains)
- Arrow speed taken over at least six shots. (fps)

EXAMPLE

- 6.5" Brace height
- 25" draw length
- 40 pound bow weight
- 360 grain arrow weight
- 140 fps arrow speed

Step 1:

Draw length minus brace height (draw)
 $25 - 6.5 = 18.5$ in

Step 2:

Bow-stored energy (draw x draw weight)
 $18.5 \times 40 = 740$ inch/lb.

Step 3:

Divide by 24 (assumes straight draw-force line)
 $740 \text{ divided by } 24 = 30.833 \text{ ft/lb}$
 (stored energy in bow)

Step 4:

Input energy (velocity squared x arrow weight divided by kinetic formula)
 $\frac{140 \times 140 \times 360}{450240}$
Arrow Energy = 15.672 ft/lb

Step 5:

Allowance for hysteresis (estimated 4% in this case)
 $30.833 \times 4\% = 1.233$

Step 6:

Deduct hysteresis from bow-stored energy
 $30.833 - 1.233 = 29.6$

Step 7:

Subtract arrow energy from bow-stored energy
 $29.6 - 15.672 = 13.928$


Step 8:

Divide missing energy by arrow energy
 $13.928 \text{ divided by } 15.672 = 0.889$

Step 9:

Multiply result by arrow weight to obtain virtual mass
 $0.889 \times 360 = 320 \text{ grains}$

The result represents lost energy, so the lower the figure the better. For traditional bows 250-350 is a considered a good value range.



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TBOF

State Championship

by
Bob Wynkoop



Smiling participants in the 1996 TBOF State Championship.
Left to right: Joey Buchanan, Keith Bain, Tasos Gavrilis, John Hood, and Bob Wynkoop.

February 9, 1997—As I write this, winter has its grip on us here in the Northeast, and while it has been comparatively mild in New England this season (I wouldn't want to live in Minnesota), cabin fever has begun to set in. So I'm reminded that it was about this same time last year, that the record snowfall (157 inches) and the generally miserable state of mind, not to mention sore back, that comes with one's twelfth snowstorm, had put the notion in my head to travel South to "The Sunshine State." I had remembered seeing an ad in one of the archery publications about a traditional archery event in Florida. After flipping through a few back issues I found the announcement and after reading it, I realized there was less than two weeks left before the shoot. Now it just so happens that I have a shooting buddy/nemesis named Tasos Gavrilis who is as good a shot as anyone I know and is always ready for an adventure. So when I called him and floated the idea of flying down to the Traditional Bowhunters of Florida State Championship, he was somewhat excited, but still that voice of reason was there too. "You realize, it's gonna cost us each \$700 by the time all is said and done, and that's if we can get a discount flight at this late date!" Normally I'd agree that

When the weekend was over, it had, indeed, taken a nearly perfect score to win.

it's nuts to spend that kind of money on a 3-D shoot, but what can I say? The Winter doldrums can be a powerful motivator.

Don't even ask me how I got this one past my wife, but the next thing I knew, Tasos and I had booked the flights, reserved a car, and were prepared to wing the rest once we got to Orlando. Unfortunately, we couldn't have known our arrival coincided with the beginning of "Bike Week"—

"something you have to experience to appreciate," they say. All I know is that it was next to impossible to find a room any closer than Jacksonville.

Saturday rolled around cold and wet and the three hundred competitors gathered in the light rain for the opening instructions and target assignments once the shotgun start

commenced. My first impression of the event left me thinking, "You've got to be kidding—just look at all the close shots. These guys would be lost on our 3-D course back home." I leaned over to Tasos and whispered, "This should be pretty easy. Just look around, the elevation here is 35 feet plus or minus 10. That eliminates the peak and valley shots we deal with back home." Tasos just kind of shrugged, he had competed against the likes of John Hood, Keith Bain, and Joey Buchanan previously in Alabama and knew it would take



1997 TBOF 1st, 2nd, and 3rd place winners, Men's Primitive.
Left to right: Doug Durant (1st), Mike Privity (2nd), and Johnny Smith (3rd).

a near perfect score to beat them here, but he kept those thoughts to himself. In so doing, he left me to continue in my delusions of dominance.

Well, . . . ahem, after the first round of twenty targets I had gained a new appreciation of what Florida vegetation can be like and just what this Southern game is all about. Many of the shots were indeed close, less than 20 yards, but that didn't mean I could see any easy way to thread my arrow through the tangle of tropical jungle. Sometimes I had to nearly lie down to make a shot below the undergrowth while at other times stretch out past my six foot frame to get around a tree or mass of Spanish moss and hanging vines. In Florida nothing is insignificant about the vegetation. There is an abundant plant there called the Palmetto—it's a spikey looking thing with leaves the consistency of the plastic on a milk jug. One cannot brush it with an arrow, let alone shoot through it, and hope to know where the arrow will wind up. All the plants down South are hearty, thick, and anything but delicate. I guess that is how they survive the blistering summers. Shooting in those conditions can rattle one's confidence. Subconsciously you will want to pull your face away or drop your arm to take a peak at your shot. If you do, it likely will cost you a zero despite the short distances.

The T.B.O.F. has all McKenzie targets but uses their own scoring system

of zero, five, and ten. What is normally considered the eight, or kill ring, here counts as ten points with no premium for hitting the I.B.O. ten or twelve circles. The T.B.O.F. spring course is unlike anything else I've shot from Michigan to Maine. It is truly a different competition; one which I wasn't prepared for but thoroughly enjoyed. After the first round of twenty targets, I had scored a lowly 115 and was feeling mighty humble.

The weather steadily improved throughout the weekend until Sunday dawned in a spectacularly clear sky and temperatures warmed into the 90s. Those who had camped were smiling and noticeably rejuvenated. The third and final round was scheduled as a "heads up" competition, where competitors are sent out by standings in groups of five. Friends or not, things often get tense and quiet until the last shot has been taken. When the weekend was over, it had, indeed, taken a nearly perfect score to win. Joey Buchanan, from Georgia, narrowly took the top mark in the Longbow class. There couldn't have been a more gracious and deserving champion, and while very few take home a trophy, everyone gets a smile and a laugh from Joey.

I highly recommend this competition to anyone who wants to expand their competition experience or just to be part of a great event. You will find top competitors from throughout the Southeast and around the country along

with welcoming hospitality from the event organizers. The T.B.O.F. is a family oriented club that very much caters to children, so bring the whole family.

Ron Weatherman, President of the T.B.O.F., expects to host 400 competitors in 1997 and has increased the number of targets from 60 to 75 to accommodate the additional shooters. The event is held in a part of the Ocala National Forest which is equidistant from Daytona and Orlando, both of which are about a two hour drive away. I'm scrambling right now to make the last plans to get to 1997's event and once again beat Old Man Winter.



Addendum

The 1997 TBOF State Championship was held the first weekend in March in the Ocala National Forest near Astor Park, FL. With perfect weather forecasted for the weekend and temperatures in the 80s, participation grew to a record 391 shooters. "We expected as many as 400 to show up this year, so the course was expanded to 50 targets in order to accommodate everyone for the shotgun starts," said Club President, Ron Weatherman. "The event has grown so large that we won't even advertise it for next year and we expect to have to require everyone to preregister," he said.

With more out-of-state shooters than ever, some of whom came from as far as California and Massachusetts, the field of competitors as well as the awards ceremony displayed great geographic diversity. This brought out some good natured "Yankee" jokes and right-back-atcha "red-neck" ribbing, along with boastful predictions for next year. The final tournament standings after two days and 75 targets were as follows:

Men's Longbow:

Dan McMahon, 1st; D. D. Quillian, 2nd, Bob Wynkoop, 3rd.

Men's Traditional:

Damon Riggins, 1st; Alan Bates II, 2nd; David Stone, 3rd.

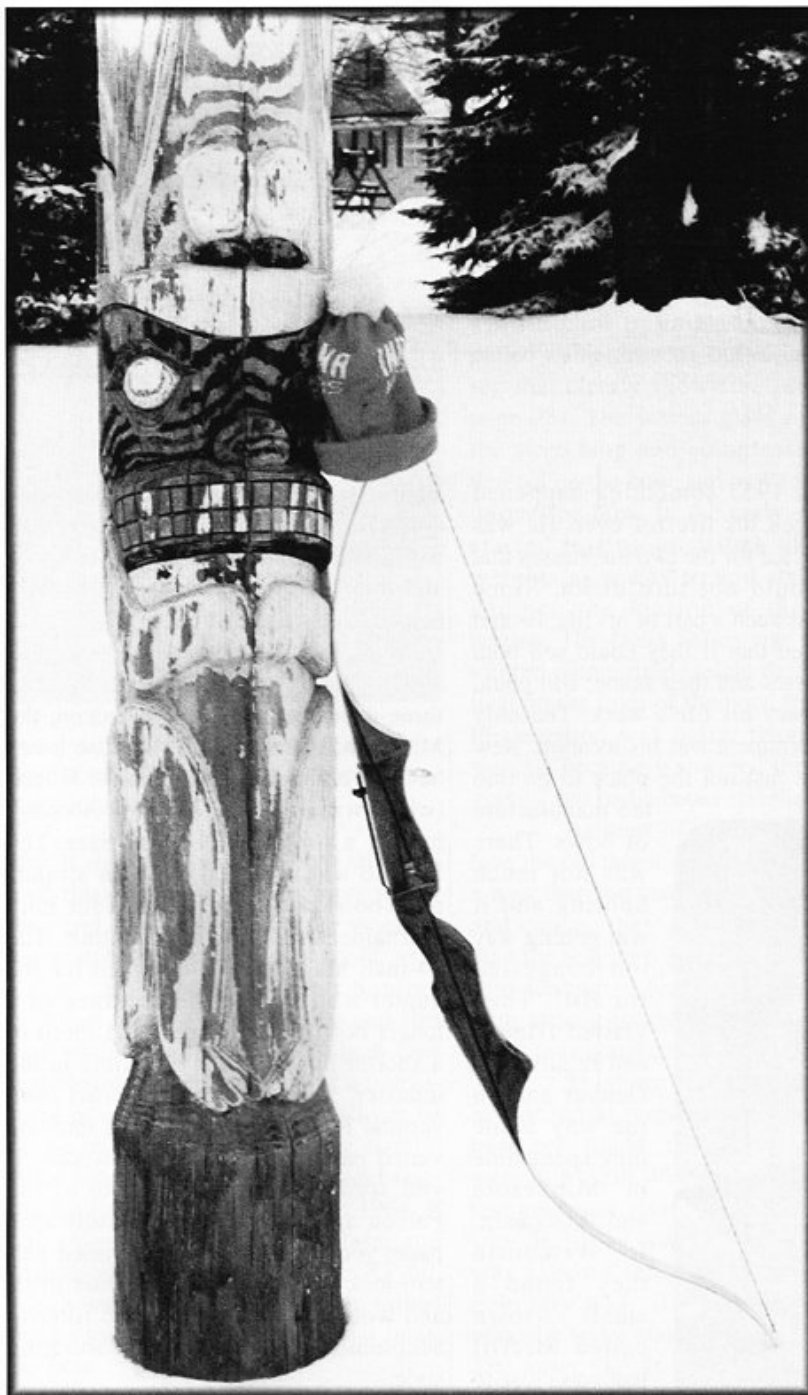
Primitive:

Doug Durant, 1st; Mike Prince, 2nd; Johnny Smith, 3rd.

Women's Traditional:

Linda Graham, 1st; Bet Hill, 2nd; Judy Marsten, 3rd.

For more information on the 1998 event contact Ron Weatherman (352) 669-5636 or Mike Kuhn (813) 526-6159.



Bill Pyle and *STAGHORN* *ARCHERY*

1951 to 1981

by
Gary Altstaetter

tells me that the first time that he ever rode in a twin engine plane, she was at the controls. Like most pilots in WWII, he had his share of close calls. In one particular instance, they were dive bombing a tunnel in a mountainous area in the Philippines. As Bill was pulling out of his dive, he started to black out. He instinctively hit the dive flaps, and as he regained his sight he could see the plane in front of him starting to climb another mountain. He poured on the power, but forgot to dump the flaps, and only cleared the mountain top by about thirty feet.

After the war Bill and Ellie settled in Ridgewood, where he established two businesses—a body shop and a tire shop. Through the business he met a doctor who talked him into joining the Ridgewood Archery Club. His first bow was a wooden bow that as he puts it, “*didn’t shoot worth the effort put into pulling the string.*” He showed the bow to his father to see if he could figure out what was wrong. His father told Bill that the bow was way out of tiller and showed him what he would have to do to make it shoot right.

Through his membership in the Ridgewood Archers he became friends with the owner of Bulls Eye Archery. Tired of struggling with that wooden bow, he spent a whole afternoon with this gentleman talking about composite bows. Armed with the knowledge that he had gained that afternoon and a basement full of powers tools, he started his first bow. His first attempt at bow making was a success and he began to make some bows for the club members.

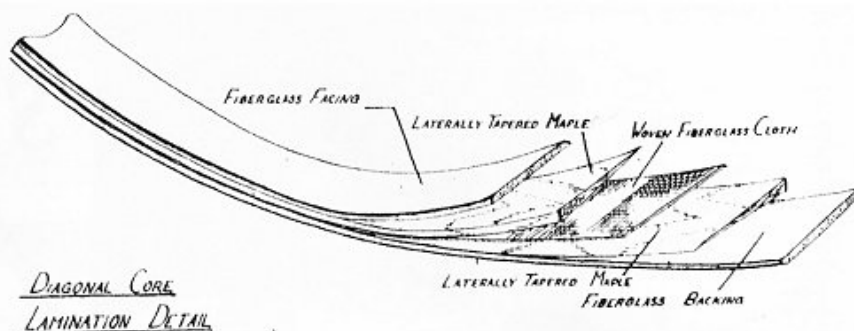
Bill said, “*One big problem with composite bows in the early fifties was the quality of the glass. A lot of them had a rather short life span. They would develop a white spot at*

Staghorn archery was founded in 1951 in Ridgewood, New Jersey, by Bill Pyle; a third generation bowyer. Bill’s grandfather was a bow maker in Belgium, and his father, Alphonse, worked with him until he immigrated to this country in 1920. It is interesting to note that Pyle (spelled Pyl in Belgium) means arrow shaft. With a family heritage like this, bill’s destiny was written before he was born.

Bill’s first love was flying. He entered the Air Force and instructed flying to cadet pilots in Greenwood, Miss. Before being transferred to the Pacific theater where he was a P-38 fighter pilot. It was while he was instructing cadets that he met his wife Ellie. She was a military ferry pilot flying B-26s out of Wilmington, New Jersey, to the other bases. Bill

the end of the riser tongue that would continue to get worse. Before you knew it, the bow gave up the ghost and you could carry it in two pieces. I remember shooting a Flint Round, and hearing that dreaded 'whraak!' I would look around to see whose bow had rolled a seven." He stood behind his bows and the introduction of gordon glass finally corrected this problem. The best advertisement for his bows came from the Ridgewood Archery Club. Most of the members shot his bows and they went out of their way to recommend his bows at every event that they attended. Through their efforts, he had more orders than he could produce in his home shop.

The name Staghorn would make you think that the company was named because of Bill's love for hunting. It was not! Bill said that "To him the word Staghorn meant something tough and enduring, and that's the way that he wanted people to think of his bows."



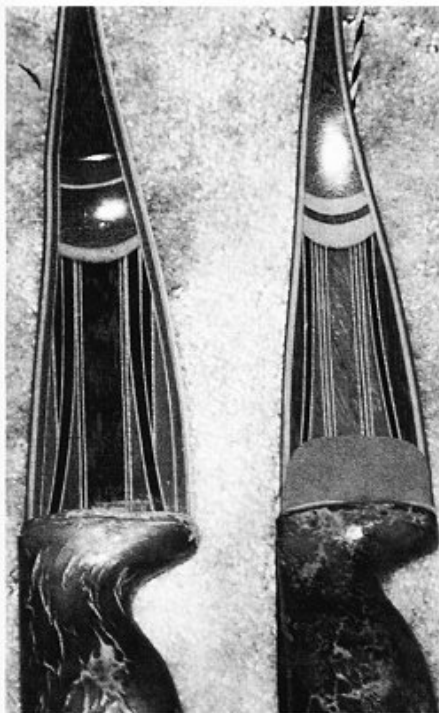
In 1957 something happened that changed his life for ever. He was offered a price for the two businesses that he just could not turn down. Since archery was such a part of his life, he and Ellie figured that if they could sell both the businesses and their home; Bill could make archery his life's work. The only fly in the ointment was his location. New Jersey was just not the place to go into

the manufacture of bows. There was not much hunting and it was getting way too congested for Bill. They visited friends and relatives in Denver and on the way home they spent time in Minnesota and Wisconsin. In Wisconsin they found a small town called Merrill that was close to

Blair to pull up stakes in New Jersey and come to Merrill with them. Harry had worked all his life in the aircraft industry, and was a talented craftsman. His wife helped Ellie run the office. Staghorn started production in 1957 with the speedflight series that had three different models—the Falcon, the Magnum, and the Buffalo. The bows have a very slim profile with the Falcon (which was designed for target shooting) having a somewhat bulkier riser. The Buffalo was designed to be an all-purpose bow that could be used for both tournament shooting and hunting. The 64-inch Magnum was designed for the hunter who wanted the accuracy of a longer bow, but the impact and speed of a shorter bow. For the first time in the industry, Staghorn bows departed from vertical lines in the riser to an intricate varied pattern of tropical hardwoods. If you study the close-up photo of the Falcon and Magnum on the following page, you will see what this varied pattern looks like. Bill studied center lines, and would change centers and tiller to accommodate each person's shooting style.

Bill had a number of customers requesting a shorter hunting bow, and in 1958 he introduced the 58-inch Tempest. This model eventually developed into the Tempest Deluxe and was available in lengths of 58, 60, 62, 64, 67, and 69 inches. I have shot a number of Staghorn bows, and the Tempest Deluxe was without a doubt my pick of the litter. It has a beautiful zebra riser with rosewood stripe and a gorgeous rosewood overlay on the belly of the riser. The Tempest Deluxe that I have pictured only pulls twenty-five pounds, but you should see





For the first time in the industry, Staghorn bows departed from vertical lines in the riser to an intricate varied pattern of tropical hardwoods.

how it zings "1616" aluminum arrows. I took this picture on a cold snowy winter day, and I just had to add the stocking cap to keep it from getting too cold.

By 1960 the shorter hunting bow had become very popular and Bill was getting requests for a 60-inch bow that would have the stability of a tournament bow, and limbs that would not be prone to twisting while being strung. After four years of designing and testing, he introduced the XP-60 in 1964. It had rosewood riser, brown glass, and rosewood/maple overlays. The XP-60, which was also made in 64-inch, turned out to be Staghorn's most popular hunting bow.

In 1960 Staghorn introduced the "advanced design" Delta Series. This design had a forward handle with a very prominent point on the back. The features of this series can be seen in most of the other models throughout the 1960s and into the 1970s. One of the inherent properties of the recurve bow is limb stability. If the bow hand is torqued as the string is released, a lateral force acts on the limb causing it to come out of alignment. When this happens, the string does not travel in the central plane of the limb and the arrow misses its mark.

There are two quick remedies for this. You can widen the limb or shorten the recurve. Of course, both solutions sacrifice speed.

In late 1964, Staghorn introduced a process as their cure for this problem. The limb is stabilized by running a .010 layer of woven glass diagonally through the limb between dual wedges of maple. This concept might be a little hard to understand so I have pulled a line drawing out of an old catalog that clearly shows the process (see page 73). The woven glass resists both the stretching and compression forces that act on the bow, and make it harder to torque the bow. In the early 1960s Bill started testing positions of external weights as a way to add stability and dampen the motion of the bow on release. The Delta Series was eventually offered with a rigid weight that hung vertical on the front of the bow. Bill felt that this method was better than balanced weights because it lowered the center of gravity and had a better stabilizing effect.

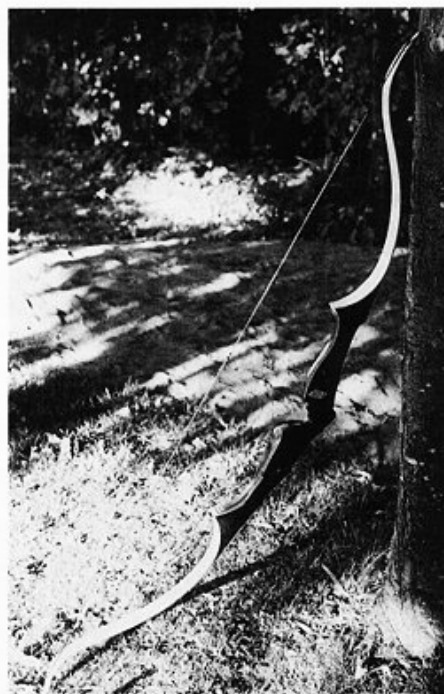
As most of you know by now, I love the old target bows! And if you want a bow that you can run your fingers over and caress, they don't come any finer than the Staghorn Triumph. It has a beautiful sculptured Brazilian rosewood riser with African rosewood overlays. And, if that's not enough, they are a joy to shoot.

Staghorn has one of the most unique serial numbering systems that I have ever found. The first year that they were in Merrill, Wisconsin, was 1957. So that year was given the letter "A." 1958 was "B," 1959 was "C," etc. Each month was given a letter. January was "A," February was "B," etc. Now let's see what the serial number KD1234C means. The letter "K" is the tenth letter in the alphabet and "D" is the fourth. So this bow was made in April of 1967, and was number 1234 in that series. The letter "C" at the end stands for the classic model. This method makes it very easy to tell not only the model, but the year and month that it was made. Although Bill Pyle made bows for thirty years, there are not an over abundance of these bows in the traders' market. Staghorn only made 300 to 400 bows a year. If you take the twenty years between 1957 and 1977 as the prime years, multiply that by 400 each year: that's only 8,000 bows. In all

my years of collecting, I have seen less than twenty Staghorns, and five of those were on the wall at Fred Carty's house.

In 1982 Bill Pyle sold Staghorn Archery to two brothers, Roger and Dillon McMullen. Roger had a background in fiberglass and wood marine fabrication, and his brother Dillon had made his own bows for years. Although they had some great plans to continue the company, they never made a bow for sale. This is where the story of Staghorn archery ends, but Bill Pyle's craftsmanship lives on in another line of fine custom bows. Bill passed much of his bow making knowledge on to Mike Stelgia of Bruin bows. If you look at Mike's early bow designs, you can see an awful lot of the XP-60 looks in those bows.

Bill Pyle is a joy to talk with on the phone. This man has not made a bow since 1981, but the recall that he had for the various tapers on laminations to put into bows for speed or stability, and all those other little details that make a fine shooting bow amazed me. I am leaving March 20th to spend a few days with Mike Stelgia in his bow shop and we are going to spend a day with Bill talking about the good old days of archery.



Staghorn "Delta Series"

PRODUCT SPOTLIGHT



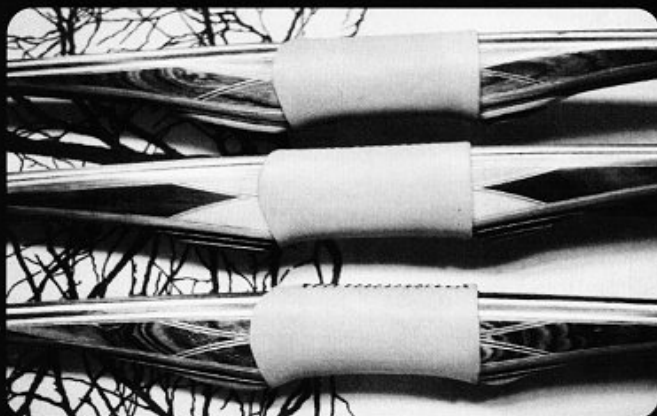
Rob Kennedy's Traditional Archery Supplies has just released its new, user-friendly 1997 catalog. The catalog includes some unique Australian supplies, however the main feature is his unique line of hand-bound traditional and primitive arrows.

The following photo shows a few of his arrows, including (1) the Hunter, (2) the Premium Hunter, (3) the Bamboo Stalker [note feathers burned down with sinew at

both ends], (4) The Supreme Hunter, (5) Desert [with deer hair between the feather and the extra large selfnock], (6) Sunset, (7) Forester, (8) Black Electric Weave, (9) Stone head and bleeder bound on with sinew, (10) Head and bleeder bound on with hemp [both heads are cemented in with Australian pine pitch].

Send \$2.00 for the new 1997 catalog to:

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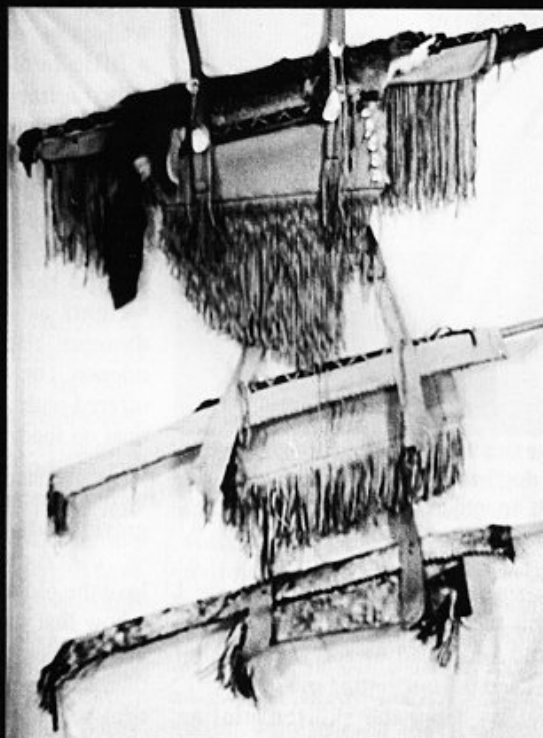
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The White Mountain Apache is a beautiful buckskin bow and arrow quiver with extra support for strength and durability. This quiver also comes with a hood to cover the exposed end of a bow up to 60 inches.

The Shawnee has the appearance that it just left a museum, aged to 100 years old, this quiver will provide many years of enjoyment.

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Traditional Events

JUNE 21 & 22: 6TH ANNUAL TRADITIONAL FUNFEST, Hosted by the Iroquois Archery Club of Rensselaer, Indiana. Free camping. For information call (219) 866-4269 or (219) 866-8693.

5TH ANNUAL MEMORIAL DAY SHOOT, hosted by the Kansas Traditional Archers. 2.25 miles east of Highway 177 at mile marker 90, then follow the signs. For more information, call Kip Hoffman at (913) 499-6328 (FAX: 499-6378), or send e-mail to dbpn@aol.com.

THE PIEDMONT TRADITIONAL ARCHERY CLUB has recently formed, and is welcoming young and old alike to join. Meetings are held in the Scout Hut at the Saxapahaw Methodist Church (near Exit 147 on I-85/I-40) on the first Sunday of every month at 2:00 p.m. Some of the interests that we will pursue are the history of archery; traditional archery tournaments; interclub tournament league; stump shooting; primitive bow building; leather crafts and flint knapping; and hunting and hunter education. For more information call Don Ward at (919) 563-2682, Tommy Riley at (910) 227-9193, or Bud Dowler at (919) 383-6307.

THE SENECA TRI-STATE TRADITIONAL ARCHERS will be hosting several traditional archery events this summer but did not have the dates finalized as of press time. You can get more information on these events at 314 Hainer Road, Amity, PA 15311 or by calling Jeff Armstrong, President, at (412) 884-4760.

THE SEVENTH ANNUAL TRADITIONAL BOWHUNTER SHOOT, sponsored by the Rapids Archery Club, will be held at the Rapids Archery Club range, located at Bunker Hills County Park in Coon Rapids, Minnesota, on June 14 and 15, 1997. There will be divisions for longbows and recurves. Highlights include 56 3-D targets at realistic ranges, seminars, exhibitors, aerial and novelty targets, and concessions. Call Ray Kukowski at (612) 571-7029 for more information. Exhibitors call Howard Bork at (612) 522-4903 about booth space.

THE IDAHO TRADITIONAL BOWHUNTERS will be hosting the annual **Quad-State Traditional Rendezvous** at Cedar Creek May 24th and 25th. Two ranges, novelties, a blanket shoot, and live entertainment. For more information, contact Ron Parish at (208) 346-4274.

THE 6TH ANNUAL MID-ATLANTIC TRADITIONAL CLASSIC will be held on May 16th, 17th, and 18th. The event is hosted by the Traditional Bowhunters of Maryland and the Baltimore Bowmen (500 archers participated last year). Camping is free and motels are nearby. There will be 40 targets, a coon shoot (on Friday night), traditional dealers and daily seminars. This event is located East of Baltimore (take I-95 to I-695 Exit 31B Hartford Road) or call Butch Kane at (410) 444-7993. Dealers call Bill Skinner at (410) 795-4761.

ANNOUNCING... THE FIRST ANNUAL NAA NATIONAL TRADITIONAL TARGET ARCHERY CHAMPIONSHIP to be held in conjunction with the NAA National Target Championships in 1997 (in Canton, Michigan). This event recalls and celebrates the past traditions of the NAA and provides a venue for the increasing numbers of archers interested in competition using longbows. The Traditional Target Archery Championship will be held on the weekend prior to the beginning of the main NAA Outdoor Nationals. On Saturday (August 2nd), competition will consist of a York Round (men) or a Hereford Round (women). There will also be a Clout Round (36 arrows at 180 yd.) and an American Round (30 arrows at 60 yd., 30 arrows at 50 yd., and 30 arrows at 40 yd. (at a 122 cm / 48 in. multicolor face) on Sunday (August 3rd). For more information, contact Norm Graham, Northern Regional member of the NAA Board of Governors (517) 655-4755 or Eric Zehner, Chair of the NAA Traditional Target Archery Committee (610) 777-9203.



4TH ANNUAL TEXAS HILL COUNTRY SHOOTOUT JUNE 21 & 22, 1997



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... and the list is growing each week.

These prizes will be given to shooters, there will be score card drawings as well as other prizes. Lodging, camping, hog and exotic hunting will be available. Garner State Park, Lost Maples State Park, the Frio and Sabinal Rivers are just minutes away. Bring the whole family and tube down one of the rivers, hike the nature trails, or just kick back and relax with your family for the weekend.

For more information on the hunting or on prizes and donations contact Wyatt Birkner (210) 278-4845. For information on the shoot or family activities in the area contact Bobby Buff (210) 988-2237 or Wyatt Birkner (210) 278-4845.



The Stockbridge Sportsmen's Club 1st Annual Buckhorn Rendezvous

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by
Robert V. Martin

*When I was a lad in the spring of my youth
Just a wide-eyed innocent boy.
My bow was a twig of green willow wood
A simple bent stick of a toy.
The lessons it taught, the adventures it brought
On those long summer days filled with cheer.
The laughter and fun, the joy in the sun,
The string's sweet note rang so clear.
Now those days are gone, but my memories fond,
How I miss my old hunting ground.
Where pebbles were gold and marbles were pearls
And Tom cats like tigers were found.
Though so long ago, my heart calls me back
To that happy and innocent time.
Where cares were few and pleasures simple
And arrows cost only a dime.
Now my heart still leaps at the sound of the string
When I take to the field, bow in hand.
And inside the heart of the man with a bow
A boy stalks a wondrous land.*

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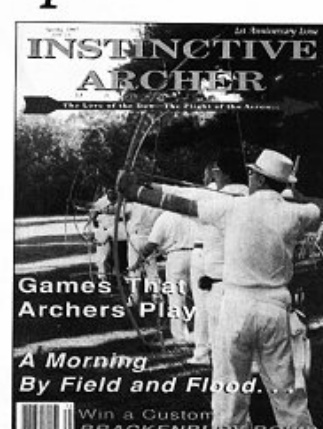
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