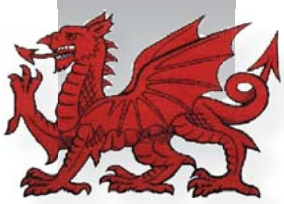
IT'S A LONG STORY

How much wood can a wood-chucker chuck? Andrew Smith finds out

Despite my allegiance to recurve target shooting, I am also interested in other disciplines. One discipline that has never really appealed, however, is the longbow. My indifference to longbow shooting stems from a previous dabble in the sport and the resultant pain in my arm as the string hit it. Furthermore, the concept of winning a tournament after merely hitting a target more times than someone with a higher score, coupled with picking arrows off the grass, is not my idea of a good day's shooting. However, following a recent conversation with a bowyer about long distance shooting (or flight shooting as it is more commonly known) I have begun to change my view of this sport.

Although referred to as the 'English Longbow' in military history, the longbow was in fact invented by the Welsh and adopted by Edward I during the Welsh campaign in 1280.



Living locally to me is a chap called Neil Harrington. Neil is well known and respected in the discipline of longbow flight archery. He holds a number of distance records, and his 50lb longbows have a reputation for being very fast, yet easy to shoot and even capable of point of aim at 100yd. Despite this, Neil is a relative newcomer to the sport. Prior to 2003, he had never shot a bow, let alone made a longbow. But after being introduced to archery by a friend, Neil quickly became hooked. The first bow he pulled and shot was 75lb, followed shortly by his first competition bow of 85lb – and his natural talent soon became clear.

An engineer by profession, what makes Neil stand out is his ability to think and question. On discovering his interest in flight archery he immediately got to work making his first bow. However, rather than just copying other bowyers' designs, Neil decided to devise his own. With a copy of the rules in one hand, his understanding of woods in the other and the help of friends, he designed his first bow from a purely engineering perspective. After considering the dimensions, stresses and loadings of his chosen materials, Neil ended up with an 85lb bow, which after making some arrows he entered into his first flight shoot.

Not really knowing what to expect, Neil stepped up to line and shot 271yd, astounding established archers and spectators (after all it was only an 85lb bow) and spurring accusations of cheating. Murmurs of how a new boy could arrive and shoot such distances followed him around for several months. The most common accusations were that his bow was laminated with glass fibre and/or his arrows were planted before the shoot. I am pleased to say that none of this was true and Neil is now a well-respected archer and an accepted authority on distance shooting within the British Longbow Society (BLBS).

Like many others in target archery, I spend a lot of time making sure my arrows are in tip-top condition. This is one of the reasons that I believe many archers disregard the longbow as a technical piece of

equipment. Surely it's nothing more than a shaped stick with arrows resembling bits of dowel with feathers and points? With nothing to adjust, how can it be technical? However, as mentioned earlier, when it comes to the world of longbow flight open class, within reason anything goes. Technologically speaking this discipline is on a par with recurve and compound shooting, and as the competitors make their own equipment perhaps even more so. You could say it's the Formula 1 of the longbow world. After talking to Neil it is clear that if you want to win, the know-how required is leading-edge stuff.

Perhaps surprisingly to many, the BLBS is not about a load of 'beards', pining for the old days. On the grounds of safety, many new materials are now considered legal. Although there are members who wish to adhere to original designs, there is also an F1 mentality where bowyers can explore new ideas yet still keep within the spirit of the bow.

To the causal observer, flight archery can often look and sound very simple. Archers walk up to the line and shoot three consecutive arrows as far as they will go. Rules are designed so that all interested parties can compete. FITA, GNAS and BLBS all have their own rules and regulations, but the BLBS and the Fraternity of St George run the majority UK shoots. Division and politics can get in the way. According to Neil he would like to do the GNAS/FITA shoots but being few and far between, he cannot justify the expense of their membership fees for a day's shooting. As a day's shooting constitutes shooting three arrows/chances in a particular class to record your furthest arrow, perhaps he has a point.

Above left: Bow staves start out life like this

Above right: Gluing staves in Neil's workshop

Left: Flight archery isn't just for old 'beards'

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To make the sport more accessible there are two main classes: the Standard Arrow or Military arrow and the Open Class. Entry dependent, these classes may be subdivided in to age groups, ability and poundage of the bow.

Each class has its own rules relating to the size of the bow, minimum sizes for arrows and fletchings. For example the Standard Arrow must have a minimum weight of 52gr; a minimum shaft diameter of 3/8" and a minimum length of 31.5". The rules also include specifications for the point size and length of the fletchings. Flight arrows have few rules other than they must be made of wood and have brass piles and feather fletchings. Everything else is left to the inventiveness of the archer. Longbows also have to conform to BLBS rules and regulations, with no glass laminates or recurves being the obvious ones.

In theory it seems pretty simple: pop off to my local bowyer, order a bow that you can draw back, pick up some feathers, POC shafts, points, nocks, join the BLBS and book in to the next shoot. If you want to win, however, start reading here. Those of you who thought target recurve and compound was technical and longbows were just for twig chucking, prepare to eat humble pie.

Complete with piles of wood staves, the odd tree trunk, dust, big workbench tools primed and ready and a tiller checker on the wall, Neil's workshop is no different to any other bowyer's premises I have visited. But the corner of this workshop holds the secret to Neil's success. As a result of his continuing questioning of design and customs Neil has a filing cabinet full of folders containing data on every bow and arrow he has made and how it performed, cataloguing even the minutest change in the pursuit of that extra yard or two. Furthermore, over the past five years he has also built up a vast amount of data on suitable woods for bows, going in to extraordinary detail in testing their stresses, deflection, density, moisture and load. All tests are carried out to

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standards that would not be foreign in a laboratory. Alongside this information are the more recognisable draw force curves and bow efficiency calculations. I say recognisable DFC's but they are different to any longbow curve I have seen elsewhere, with the loading right from the start to get as much stored energy as possible resulting in ballistic velocity results of around 291fps out of a bow just over of 100lb. Neil often creates miniature cross-sections of laminates, testing them so that mathematical models can be drawn up to help with the design. Although labour intensive, Neil maintains that potentially the models can save a lot of time and materials, as the alternative is to make a full size bow. A benefit of this testing and analysis is that all Neil's competition longbows and those that he sells are fitted with 14-strand Fast Flight Plus strings with end loops, as the extensive testing proves that there is no need to compromise with Dacron or Fast Flight with Flemish twists to offer some sort of energy dampening. For those more knowledgeable about longbows you might also be surprised to learn that the design of his competition bows means that even with over 100lb draw weight he is able to safely use ¼" plastic nocks, which in terms of weight when you are looking to gain a few yards can make all the difference. It is difficult to capture the amount of work and effort invested by Neil when designing a bow capable of launching an arrow well over 340yd. However, upon looking at the draw force curve and stored energy, I would suggest that his bows are close to being as efficient as many recurve bows on the line today. When it comes to his arrows, Neil is no different to most target archers, taking as much, if not more care in their manufacture. Open flight or standard, these all start out as a 36" square stave, which is carefully shaped to make the final arrow shaft. Again all the same considerations are calculated from the best-barrelled shape to the front of centre (FOC) balance. However, with flight shooting the arrow needs to glide through the air unlike a target arrow so the FOC is not so far forwards. Each standard arrow takes around eight hours to make. Beginning as a 36" square stave, it is shaped and barrelled to the correct dimensions. The feathers are cut and attached, the reenforced self nock carefully made and the points manufactured to exacting standards. His flight arrows only take around five hours each to make, as the nocks are plastic and the points brass, and bought locally.

Neil checks the speed of his arrows

Every medieval longbow was made to measure and could vary in length from around 6-7ft

As with target archery, everything in flight archery has to be adapted to suit conditions on the day. The weather, surroundings and even the contours of the land all play a part and this data is recorded and

analysed. Neil uses specific arrows for different weather conditions and wind directions – after all, the rules state you only have three attempts to record your furthest distance. Despite holding a number of records, Neil is constantly looking to improve and push the boundaries of his competition bow designs and arrows. Everything he has learned to date has been summarised into a book, *Ideas on Longbow Distance Shooting* – a must-read for anyone looking to make a longbow and flight arrows.

Like all archery disciplines we must not forget that flight shooting is not just about technology and equipment. Form, ability and knowledge of your environment constitute the difference between Neil shooting 300 or 340yd. The Fraternity of St George (www.longbow-archers.com) and BLBS (www.askarts.co.uk) hold around seven meetings a year and FITA and GNAS hold one or two meetings. Further information can be found on their websites. If you are interested in Neil's longbows then stock bows or custom-built bows can be bought from Perris Archery (www.perrisarchery.co.uk).

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Neil has several different types of arrow to suit different shooting conditions