

## **Bloodymindedness and Biomechanics.**

“Hi”, read the e-mail, “I’d like to learn how to kayak.” So far, so normal. “I’ve only got one arm.” OK, so this is going to be interesting...

Having sought advice from John Handyside and Steve Train, I experimented with a bit of one-armed paddling using a canoe paddle with a strap attaching it to the shoulder of my buoyancy aid. It seemed to work well enough, so when Scott turned up for his first session at Banbury & District CC on a blustery November morning we decided that we would give it a go. Some things to sort before we got that far, though, not least of which was getting in the kayak.

I lay on the landing stage, holding the poly pippin steady. Before I could give any instructions, Scott stepped down into it and stood there in the boat, rock steady! Seeing my expression, he grinned. “I used to be a gymnast before my bike accident”. With a bit of probing, more back story emerged. Country standard gymnast and sprinter, motorcycle accident at age 18, right arm gone. Competed for GB as a para-sprinter; took up golf, but now wanted a new challenge. “Racing season starts in May,” I said. Tellingly, Scott didn’t say no. He didn’t say yes, but he didn’t say no. So, six months to get up to a competitive level over a four mile Division 9 marathon course. The challenge was on.

The paddle, strap and buoyancy aid arrangement that I’d bodged up worked reasonably well, but Scott found it constricting. Using the paddle without the strap gave more freedom of movement, but put a lot of strain on his shoulder.

We persevered with this for a couple of weeks. Meanwhile, the club’s technical gurus got their heads together and began to scribble diagrams and calculations on the back of envelopes. A design for a kayak paddle emerged. “I’ll see what I can do,” said Bill.

The next week, Bill arrived at the club with a pair of paddles to which he had attached the handle and arm splint from a pair of crutches. After a few adjustments, Scott was able to use them, though it soon became clear that a much shorter shaft would be needed. A pair of children’s gremlins were sacrificed to the cause, and these seemed to work better, though the feather was causing some issues. A much flatter angle was called for, and after a bit of work with a heat gun, this was achieved.

Meanwhile, Scott had been busy researching. A post on the Rivers Guidebook forums resulted in a flurry of useful information. Several people suggested the use of prosthetics, but the nature of Scott’s injury precluded this.

We found that a man called Steve Robinson up at White Rose Canoe Club had used a very similar paddle arrangement to the one that Bill had created, but with a much longer shaft and also learned of a remarkable guy in Otago, New Zealand who was paddling whitewater using a set of paddles with normal sized blades with zero feather and a shaft of about 30cm which he held in the middle and put in strokes on both sides.

We were pointed toward Suresh Paul, the Paul VanderMolen Foundation and to Geoff Smedley's excellent book "Canoeing for Disabled People"

Other than that, the most surprising thing was how few one-armed paddlers there seemed to be in the world, let alone in the UK, and no-one at all that we could find who was racing. Indeed, the Paralympic Federation didn't even have a code for arm amputees in kayaking. If ever there was a situation that needed to be challenged, this was it.

Scott ordered a forearm attachment from <http://www.creatingability.com/> in the USA. This was a splint which fixed to Scott's left wrist and then slotted into a bracket connected to the paddle. This gave good strength to Scott's weaker side, but proved too cumbersome to use for racing.

The winter weather now stepped in and the water in the canal became too stiff for paddling, so by way of diversion we took to the pool and discovered that Scott's non-functioning stump of a right arm did have a function after all. The tiny amount of movement it had made the difference between failure and a successful hand roll.

Back on the water. John Handyside came out to have a look and made some suggestions for modifications to the paddle, including having the splint and handle on top of Scott's arm rather than below to give a greater range of movement. Experiments with this are ongoing, but at the moment, Scott is still using the arrangement designed by Bill.

One of Scott's frustrations had been the difficulty of steering straight. As he was able to put much more power in on his good side, the inevitable result was that the boat was constantly slewing to the right. The introduction of a ruddered boat proved a revelation. We started this with Bill and Scott in a K2, and when Scott felt comfortable with this, he was introduced first to a racing K1 ... and then about 30 seconds later to the muddy bottom of the canal. Having fished himself out of the water, Scott mastered the boat pretty quickly and is now improving his technique and building up his distance. I get the feeling that the four mile Hasler race is not the limit of his ambitions. Twelve months to build up to the DW. Now that's a challenge.

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