

addition it can be seen that the blade is upswept with respect to the inboard part of the oar ⁽⁶⁾. So, in the example of these oars we can see the same directional properties in the design as are present in the Inuit kayak paddles.

Many paddlers will be familiar with the 'cranked' shafts of slalom paddles. An article in *Sea Kayaker* for June 1995 (8) describes the 'Torque' and 'Double Torque' designs of Lendal paddles intended for sea touring use. In these examples the bent part of the shaft moves the blade to a trailing edge. However, the trail is quite pronounced. This works in practice because the hand position is fixed. The slalom paddler does not normally change hand position but a required fixed grip may not be so advantageous for sea paddling. In contrast, the hand grip position on Greenland style narrow blades can change often. The hands can grip either the loom or the blade, as circumstances dictate. The grip position can and is changed frequently or with each stroke when sliding.

In sea paddling the most important aspect is to remain in control and, for that, the paddle must be predictable in an emergency. That means any 'cranking' has to be just enough to achieve the effect and no more. With Windslicer paddles the offset for both upsweep and forward set is of the order of 1cm in 1.1m. The result of the trailing edges of forward set and upsweep is that the blade self orientates in the water and does not need to be precisely controlled by the paddler's grip. This means a loose grip is adequate most of the time. This relaxed grip is obviously an advantage in a cold climate, enabling a better blood supply to the fingers. In addition, with the Windslicer design the leading edge of each blade (ie facing the paddler) has a small radius (sharp edge) to induce vortex formation on the edge of the blade and thereby delay vortex development on the reverse of the blade (other side from the paddler). The reverse edges of the Windslicer blades are more rounded. This difference in the driving and following edges of the Windslicer blades also provides an immediate tactile feedback on the orientation of the paddle.

The Museon paddles, characterized by these four attributes of forward set, upsweep, central massing and loom rotation are all quite short but not as short as a 'storm' paddle can be where the length is equal to height of the paddler and my conclusion was that their mode of use, when travelling normally, was with a short sliding stroke of 10 to 20cm. When used with a static hand grip the stroke rate with the Museon paddles would be quite high but that would favour sprinting and thus be appropriate in a hunting situation when chasing a wounded seal for example. Thus, such a design can be thought of as dual purpose. In contrast, a 'storm' paddle has a loom of two hand widths only and is intended to be used continuously in full sliding stroke mode. Such a paddle has an advantage where prevailing winds tend to be offshore.

Today, in strong winds, my paddle is no longer the limiting factor.

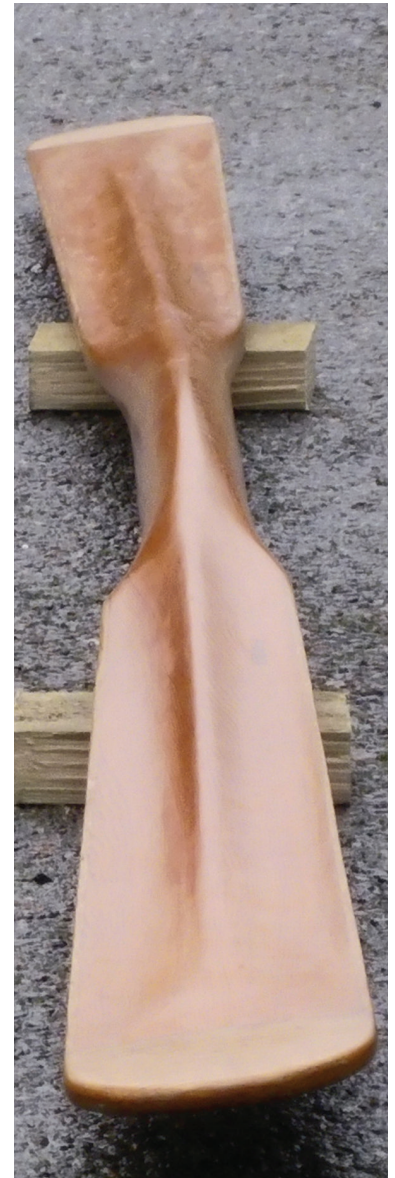
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 (2) Lamont, Peter 2001 *Sea Blades: Fashion or function? Power or energy?* In *Canoeist* ed Stuart Fisher, June 2001 pp26-28
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 Details of a number of paddle designs can be found at www.nkhorizons.com.
 (6) Heath, John 1986 *The Narrow Blade – theory and practice*. In *Sea Kayaker* ed Christopher Cunningham, Vol 3, No 1.
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Windslicer forward set.



Upsweep in the Windslicer.



Windslicer loom rotation.

Peter Lamont photographs



Windslicer showing the central massing.