

**Ben Oakley, former Topper sailor, then RYA Windsurfing coach and now Professor of Sport Performance Education at the OU has been in touch about his long-time attachment to the Topper.**

In Ben's recently published paper, *Technology and Its Role in Making Dinghy Sailing More Accessible*, he includes a section on the development of the Topper in the 1970's, in which he explains how innovation in plastic material and production processes led to the creation of the injection moulded Polypropylene Topper.

### **A New Material and Increasing Globalisation: The Topper (1976)**

This 1970s dinghy from the UK had a very differently configured innovation network due to its new plastic material and production process. The literature supports this idea of a new material often creating innovation in production processes. Thirty years earlier, the inventive steps for the new polypropylene plastic occurred in the 1951-4 period by researchers in three separate laboratories in the USA, Germany and Italy, none knowing of each other's work. Even the well-regarded designer of the *Topper* dinghy, Ian Proctor RDI, originally knew nothing of the potential of the material for dinghies. His main interest was in reproducing the American beach boat idea (the *Sunfish*) for an English audience. It reflects diffusion processes in an increasingly interconnected globalised world in which ideas and people increasingly flow between continents. For example, in 1958 Proctor was reporting on the prestigious America's Cup races in the USA and it was here that he saw the *Sunfish* style of dinghy. Influenced by this, Proctor first created a *Minisail* dinghy in 1959 which was popular in the 1960s (UK) and was his prequel to the *Topper*. Similar to the way the *Sailfish* evolved into the far more popular *Sunfish*.

The innovation network for the *Topper* became a complex assembly of corporate actors since polypropylene injection moulding required huge investment. The original network consisted of Ian Proctor (Designer) and John Dunhill (promotor/boat maker). Dunhill had already started making the *Topper* in FRP but could only produce about 6-10 per week (1971-2), whereas he soon realised he could potentially sell some 600 a month, such was the boat's attractiveness to young people. The stakeholders who introduced the new injection moulding production process included Tony Willbourn (*Imperial Chemical Industries* (ICI, Plastics Development Director), Maurice Robin (*Rolinx*, company founder) and John Heasman (*Rolinx*, Technical Manager). In addition, post-launch, a class association that promoted racing activities was formed by Ian Proctor. The stimulus for the *Topper* using new technology was twofold. ICI wanted to sell more polypropylene plastic and the *Rolinx* company (which ICI had bought into) wanted to prove their enormous new moulding press. To promote 'this into the market we had to find a product we could sell to the public'. Robin and Heasman visited the London Boat Show (1973) in search of an item they could make. They both independently arrived at the same conclusion, the *Topper* being exhibited by Dunhill boats. It was a rational

decision to attend the Boat Show (Heasman was a sailor) but good fortune that Dunhill was exhibiting. When it became apparent that one *Topper* hull could be made every seven minutes with *Rolinx*'s new injection moulding technology Dunhill became interested. There was uncertainty if the sailing public would accept polypropylene since it was mostly associated with plastic washing up bowls. However, in its favour the impact resistance, durability and weight of this material was considerably better than FRP.

However, the innovation network had to overcome the considerable hurdle of raising £250,000 pounds to build a large new injection mould and new boat equipment (e.g. daggerboard and rudder). This was to be the largest polypropylene object ever made to date. It was pushing the boundaries of what was possible and fortunately the investment was underwritten by a public body - the National Research and Development Corporation (UK). With this safety net *Guinness Leisure* and ICI also invested. The threshold of economic return was estimated at 15,000 boats, a bold step with a new material. However, this was at a time when sailing was booming and junior dinghies were gaining recognition.

Adding to the multinational influences and considerations of the innovation network, part of the large injection press was made in Frankfurt, Germany. Further planning for international distribution was how easily the boats would stack together for export. 'We can get 48 boats in a container and that means shipping costs – even to the States – are low. It costs about £35 to ship a *Topper* in a container ... to New York'.

The dinghy was launched in 1976, and some 50,000 boats have been produced from a single mould. This leads to the claim that the polypropylene *Topper* is the most one-design boat in the world. Every boat is identical. Like the *International Optimist* the boat has a dual use: as a vehicle for engaging young people by instruction in sailing and through one-design racing across five continents. Ian Proctor, speaking seven years after the launch of the boat said: 'A designer isn't just creating an object to be sailed, but with ... a class organization which spreads worldwide, one is starting a sort of social movement ... I think it is doing a lot of good'. The impact of this innovation network was increased recognition that plastic polymers were well suited to dinghy production especially if a cheap, robust boat to withstand the bumps and scrapes of people learning to sail was a priority. Many other popular plastic dinghies have since appeared with one of the world largest plastic producers *BiC* (i.e. producer of pens, razors and lighters) creating a very successful junior *O'pen Bic* class in 2006.

Extract from *Technology and Its Role in Making Dinghy Sailing More Accessible*, by Prof Ben Oakley. 1<sup>st</sup> April 2025.