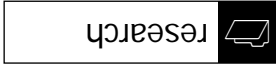


Find other examples of musical instruments being endorsed by performers.



Their initial ideas developed from their training in traditional violin making, using modern materials and moulding techniques to avoid the problems of delicate wood structures breaking. At the same time, they developed their own pick-up system to produce a high quality acoustic sound required of electrical bow played instruments.

From the beginning, Paul and Ceris established a close working relationship with musicians across a wide range of musical tastes to evaluate the use of their instruments. They attended numerous concerts and asked the musicians about the instruments to find out what was working well and what needed to be improved.

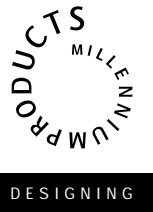
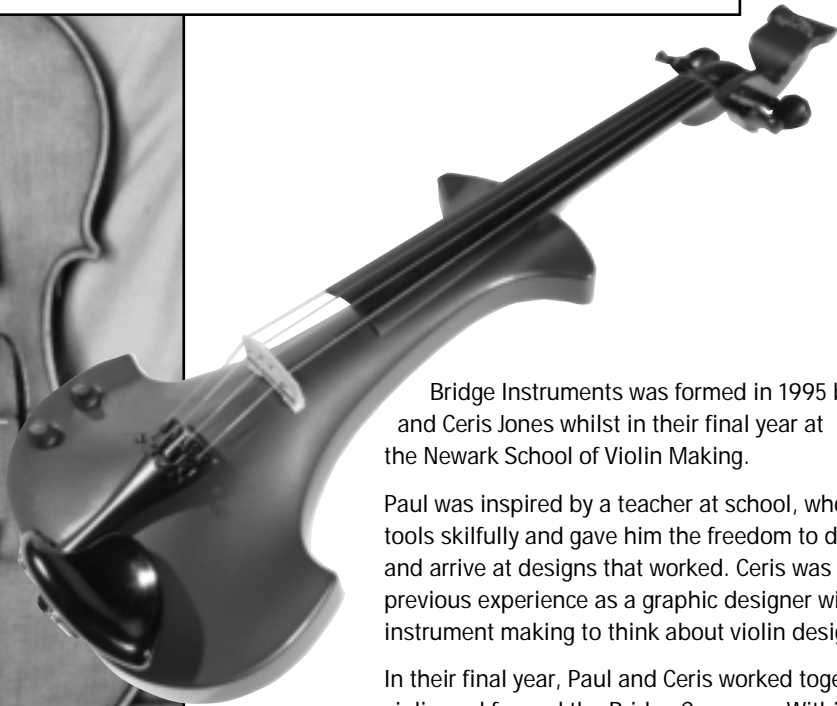
As Bridge products have become recognised as high quality professional instruments, the list of endorsees has begun to grow across the range of violins, cellos and basses. Recent users include Didier Lockwood, the well-known jazz violinist from France and Liz Prendergast of Blue Horses, a major Folk Rock band from Wales, pictured left. Liz provides her own evaluation of her Bridge violin: 'I love the feel and look of it - a really classy piece of design - it says 'common, have a try, y'know ya want to'.

The team at Bridge hope to expand, but making a high quality handmade instrument remains their priority. They do not want to grow so big that they cannot control the production process at a handmade level.

### 3 how was it evaluated?



## ds 11 bridge instruments designers



Bridge Instruments was formed in 1995 by Paul Bridgewater and Ceris Jones whilst in their final year at the Newark School of Violin Making.

Paul was inspired by a teacher at school, who taught him to use tools skillfully and gave him the freedom to design, make mistakes and arrive at designs that worked. Ceris was able to combine her previous experience as a graphic designer with her skills in instrument making to think about violin design.

In their final year, Paul and Ceris worked together on a prototype violin and formed the Bridge Company. Within 3 months, they launched their first production models of 4 and 5 string violins, cello and bass at the British Music Fair in London.

## 1 why develop a new electric violin

Paul and Ceris recognised a clear demand from the rock music industry and from folk and jazz bands for electric instruments. Other makers had designed and manufactured electric violins by using a traditional violin and amplifying the sound via an external pick-up. These were not considered successful as Paul and Ceris considered they produced a 'synthesised' sound of poor quality.

They set out to design and make a violin of high quality that would sound as close to an acoustic violin as possible, capable of delivering the performance required by today's amplified musicians



### research

Find out about other products which are made using: Kevlar, carbon-fibre, glass-fibre, maple and ebony.

Left: Joe Csibi from Riverdance

Below: Didier Lockwood



'I love the feel and look of it - a really classy piece of design - it says c'mon, have a try, y'know ya want to'.

Liz Prendergast - Blue Horses



## 2 how was it developed

To improve the sound, they had to experiment with the shape of the body of the instrument and develop a pick-up system that would work with the body to create the acoustic sound required.

For the body they experimented first with wood and pre-formed plastic. They found a ceramic glass material in America with an excellent strength to weight ratio, but this was rejected because of high costs. Further inquiries in this country led them to a firm of boat builders who made fast, light craft. This led to experiments with a composite of fibre materials which could be moulded to the desired shape and would cope with the compression and tension required in the instrument, and at a cost they could afford.

Kevlar fibre was eventually chosen for the front of the body because it is light and resists compression. The material is used in bullet-proof vests and sports cars because of its' lightness and impact resistance. Carbon fibre was chosen for the rear of the body, because it is light and resists tension. The two materials therefore complement each other and were made up as a composite with glass-fibre, providing the resistance to compression at the front and tension at the rear of the body, required to support the neck and strings.

For the pick-up system that Paul and Ceris developed in-house they formed a close working relationship with a small electronics firm which produced the circuitry for the system that would create the high quality acoustic sound needed.

### research

Look at the website of Derek Roberts Violins, at [www.violins.demon.co.uk](http://www.violins.demon.co.uk) to see how a traditional violin is made, from the choice of suitable wood to final varnishing. Present a flow chart to record the processes that are undertaken.