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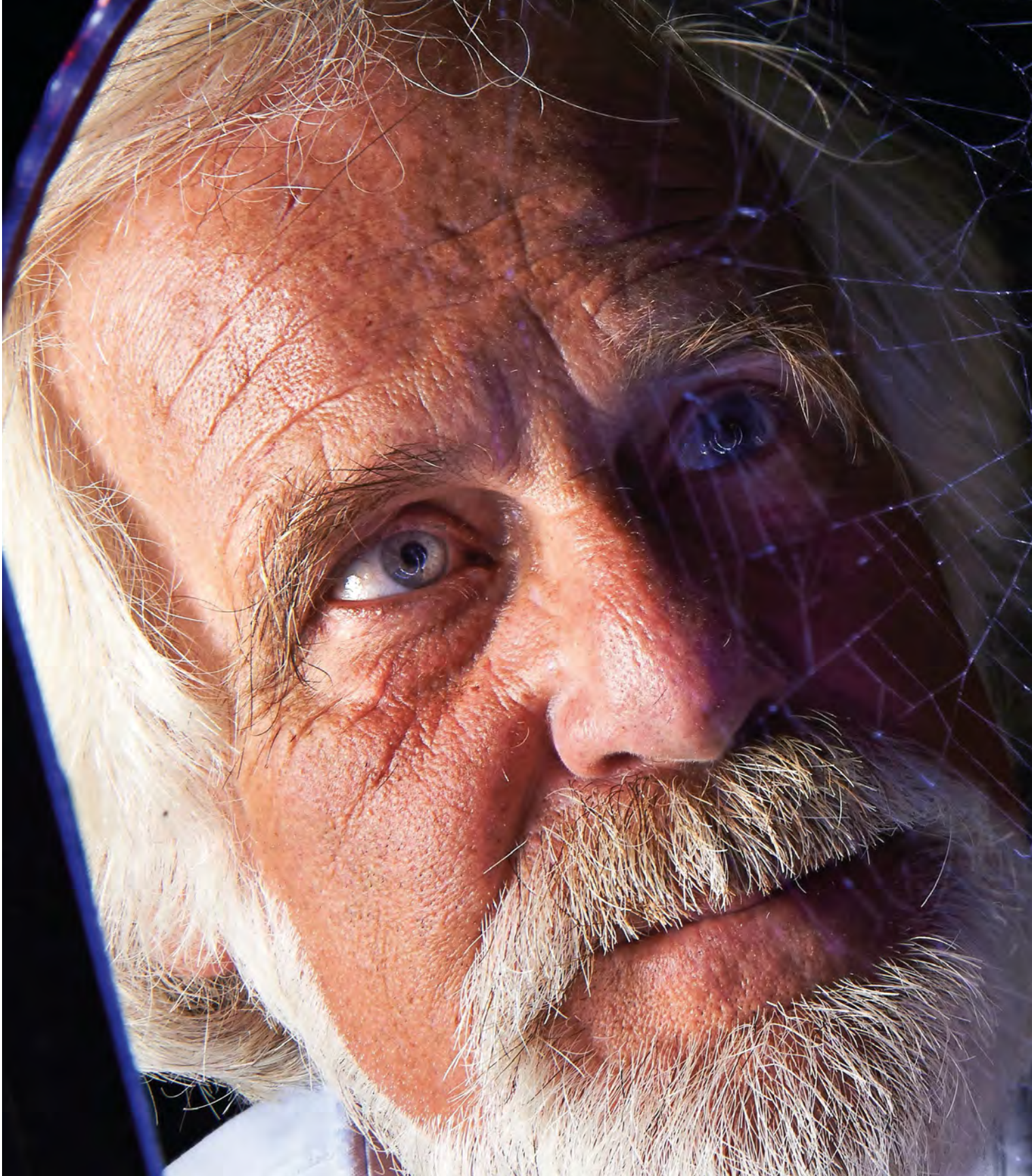
Setting the Scene

Before I come to the trenches, let me tell you the village is a ruin and the church spire a stump; every single house has been devastated by shell bursts and machine gun fire.

I saw a hare advance down the main street a moment ago, then pause with the sun shining bright red through his ears.

Sir Andrew Motion

The Big Picture



Nature's homespun super material

Scientists often study nature to imitate it, but a team at the Department of Zoology, led by Professor Fritz Vollrath, are directly harvesting nature's product. That's why his team are developing fascinating new ways to use silk in modern manufacturing.

The silk produced by spiders and silkworms is already wonderful – light, strong and highly elastic – but it has untapped potential. Vollrath's team has discovered that it can be cleaned, treated and remoulded to tune its material properties, so it can be made super-strong, say, or highly biodegradable.

The result is a material with many possible applications. Its low density and high elasticity means that it can be used to create a new breed of lightweight protection, such as cycling helmets or car body panels, that keep us safe without weighing us down.

And, because the material is biocompatible, it can be used to create hard-wearing replacement joints or lightweight scaffolds to promote the regrowth of nerves that are readily accepted by the body.

It's also highly sustainable: natural, environmentally friendly, and potentially straightforward to mass-produce. Forget your tie; the whole future could be woven with silk.



Fritz Vollrath and *Nephila edulis*, the golden web spider. Professor Vollrath's team at the Oxford Silk Project explore the biological, chemical and mechanical properties of spider silk.

