Editorial

Welcome to the 29th issue of *Science in School*

With the FIFA World Cup, football fever seems to be everywhere and it is amazing to think how much the game has changed since the first one in 1930.

Back then, European teams made the long trip to Uruguay by ship and trained and exercised on board for over two weeks. Supporters back home would have read of their country's progress in the newspapers but today we (and our less enthusiastic friends) can watch the game live almost anywhere in the world. This is made possible by the communication satellites that orbit our planet.

As powerful it can be, modern technology can still go wrong and it is often when things go wrong that we notice how easy modern technology has made our lives. Natural events, such as solar flares, could make you miss that all important penalty kick by disrupting satellite communication and we explore the phenomenon in this issue (p.23) as well as discussing how astronomy can help us understand solar weather and the life cycle of stars (p.49).

Elsewhere, we look at both low and high tech advances. For example, while electricity will light the world cup stadiums in Brazil, we demonstrate how Brazilian mechanic Alfredo Moser used the principle of refraction to create a low cost lighting solution without it (p.18). We also explore the important role of water analysts (p.35) and show how to investigate water transport in plants – how can trees in the Brazilian rain forest grow so tall, the answer is in their internal structure (p.41).

Going even higher up we fly into the clouds and atmosphere onboard airplane laboratories with scientists that analyse the air they fly through (p.9). Beyond that, we look at how virtual clouds and data stored online can help us explore our evolutionary heritage (p.30). We also look at how EFDA-JET took a problem and turned it into a benefit, triggering small incidents in their plasma that could be controlled rather than waiting for larger more destructive events (p.13).

2014, of course, marks 100 years since the beginning of the first world war. When thinking of destructive events, there are few that are so seared into the European consciousness. To open our issue this month, we explore the complicated ethical history of chemist Fritz Haber. A Nobel Prize winner, Haber helped feed the world, yet the Haber-Bosch process facilitated the current rapid population explosion and today it uses 1% of all the energy produced. However, it is Haber's war work that is most controversial and which we look at more closely (p.5).

Whether you flee the football this summer or follow it intently, we hope you also find something useful in this new issue.

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