

Seismograph

Shortly after midnight on September 23 2002 the town of Dudley was rocked by an earthquake, initially measured at 4.8 on the Richter Scale, and later upgraded to 5.0.

The lighthearted journalism that followed made me aware, for the first time, that people could be funny on the internet, as well reminding me of the Black Country's priceless ability to make fun of itself. It included a spoof charity appeal. "22p buys a biro for filling in a spurious compensation claim; £10 can take a family to Stourport for the day, where the children can play on an unspoilt canal bank among the national collection of stinging nettles."

And there was that classic piece of dry Black Country humour: "Apparently looting continued as normal."

One man would have taken a particular interest in the events in Dudley that morning, that is, had he not passed away 54 years before it happened. His name was John Johnson Shaw.

Shaw was born not far away in Church Street, Lower Gornal, in 1873, the son of a pawnbroker. John took up that same profession himself in later life, and ran a chain of pawnbroker's shops in and around West Bromwich. But he had another, entirely unexpected, string to his bow.

The family owned another pawn-shop in Spring Hill, Birmingham, and this gave John the residency qualification he needed to attend King Edward's, Five Ways, where he excelled in the sciences. After leaving school, John Shaw worked for seven years at Tangye's, designing steam pumps and attending evening classes at the Birmingham & Midland Institute and Municipal Technical School.

That promising career in engineering was eventually abandoned for pawnbroking, and engineering became something John Shaw did in his spare time, and in his shed.

The shed is close to a Blackcountryman's heart; he spends a great deal of time there, "mekkin summat", sometimes useful, sometimes not. But whereas his neighbours might have been knocking up a set of shelves, or repairing the bike, John Johnson Shaw was making a seismograph.

This might have been a lonely enterprise, except that in 1896 a very unusual friendship was forged. Whilst holidaying on the Isle of Wight Shaw learnt about a new resident on the island. Professor John Milne had recently retired from the Chair of Geology at Tokyo University, and moved to Shide Hill House, near Newport, with his Japanese wife. As it happened, Professor Milne was also interested in earth tremours and their detection. Indeed, "Earthquake Milne", as he came to be called, was the world's leading expert.

The Black Country engineer and the geology professor got on like a collapsing house on fire, and, fortified by Milne's encouragement, Shaw returned to his house at Hill Top, intent on perfecting his machine. It operated like a horizontal pendulum,

but, like all the wonderful creations of a Black Country shed, the world's first seismograph was made from whatever was lying around. An old treacle tin formed the drum, a knitting needle the axle, and the power was provided by an alarm clock. The whole thing sat in a Hudson's soap box.

(Technically speaking, an earlier form of earthquake warning machine was actually created by one Zhang Heng in China as early as AD 132, but that device - using dragons' heads and bronze balls - had long since been forgotten.)

Scratchy though it was, Shaw's machine successfully recorded an earthquake as far away as Mexico in October 1908, and another - even more severe - in the Sicilian town of Messina in December in the same year. Shaw was able to pass on word of the Mexican quake to the press before any reports had got out of the country.

What became known as the Milne-Shaw seismograph was publicly demonstrated at White City in 1911, and at the Anglo-American Exhibition at Shepherd's Bush in the following year. Not only was the device successful, it was marketable. Using mostly components made by local Black Country firms, Shaw began to assemble seismographs in his greenhouse at Hill Top, before shipping them out to observation centres across the globe. Sadly Professor Milne himself did not live long enough to see the global success of their collaboration.

Milne-Shaw seismographs can still be found today, and form the template for their modern successors. Most notably there is one at the Lapworth Museum of Geology at Birmingham University, where Shaw's personal archive is held.

John Shaw's reputation as a leading seismologist was now secure. He lectured widely, and could always be called upon to hazard a guess as to the epicentre of some new quake. A seismology detection centre was based at his West Bromwich home.

In later life John Johnson Shaw received the CBE for his contribution to science, was awarded an honorary Master of Science degree, and became a Fellow of the Royal Astronomical Society. Yet he remained, steadfastly, an amateur in the field, combining his scientific studies with his pawnbroking business.

John Johnson Shaw died in May 1948 at the age of 74 years, and obituaries appeared in many of the scientific journals. It only goes to show what miracles can be achieved in a Black Country shed.