Sandberg: 150 not out

Few firms survive for 150 years. Even fewer remain family run for so long. *Impact* talks to Neil Sandberg about how his company bucks that trend and plans to last longer still.

Visiting Neil Sandberg, former chair of ACE, at his family firm's London office is a unique experience. The office is a monument to 150 years of Sandberg heritage. The furniture is ornate. Portraits of his predecessors hang on the walls. Ornaments include original oil paintings by Stanhope Forbes of engineers heating and cooling tramlines along London's Embankment and a century old scroll expressing the gratitude of the first Chinese Republic.

Yet despite the history, the company doesn't live in the past.

"History is fantastic but it doesn't find you the way forward", explains Neil Sandberg, the fourth generation of Sandberg to run the firm. "It might help. It does show you decisions made in the past must have been good ones to achieve our longevity. But that's no way to be sure decisions made now will be good for the next 150 years".

Behind the historic surroundings change is highly valued. Neil's father Alec Sandberg OBE served in Burma with the Royal Engineers during World War Two. He returned home and transformed Sandberg from a railway consulting firm

Neil Sandberg, managing director and former ACE chairman

"We are still very niche. If you are the size we are it is difficult to offer everyone everything. Instead we choose to be niche and be good at it."

to a full materials consultancy. That move was made despite huge successes in railways but amid concerns there was little future in what had become a mature market.

Neil stressed that some of the family were not sure that Alec should reshape the practice. There were valuable assets such as patents and properties that could be realised. If the transformation failed then the company might have failed with it, resulting in all the assets being lost.

Patently Correct?

In 1931 Messrs Sandberg were awarded a patent by the United States of America. The patent related to a process involving the controlled slow cooling of rails after rolling.

Prior to this process being implemented, over 11000 rails were being replaced each year across the States. The US Railways quickly saw the value of the Sandberg invention and America moved to require all new rails to adhere to Sandberg's new standard. The result was an enormous reduction in rail failures, down to fewer than 100 failures per annum.

Messrs Sandberg owned this patent worldwide and agreed an exclusive licensing deal across the USA. This became a very lucrative success for the firm. However, there was a problem.

One great aunt, concerned about her inheritance, warned Alec, "Proceed at your peril".

Proceeding led the firm into a valuable specialist field. Neil told *Impact*: "We are still very niche. If you are the size we are it is difficult to offer everyone everything. Instead we choose to be niche and mainly by having an excellent enthusiastic team, good at it. If we achieve that then there is

"Monitoring thermal performance is a big area, be it modelling or thermal imaging systems."

a business for firms like ours. So we have to stay very focused."

As building materials change, so does Sandberg's research and consulting work. As an example the company moved into glass twenty years ago, spotting the expanding market, with its associated problems. "That was a very good call then and still serves us well today. Glass fails and we have the glass expertise to help clients understand why and to help them avoid it in the future", Neil explains.

"In essence we offer problem avoidance, which is often hard to sell until one has helped a client by solving a particular problem. From there, with careful nurturing and excellent service, we should have a client for life!"

Materials consulting is currently taking another new direction. The fourth generation of Sandberg is happy to say his company is moving with it: "For example, areas we are looking at now include thermal performance of materials. Monitoring thermal performance is a big area, be it modelling or thermal imaging systems. We'll take our thermal performance expertise and instruments anywhere. Last year we were asked to demonstrate this technology in China which was tricky because the equipment was deemed to be spy technology."

Consulting and inspecting engineer Christer Peter Sandberg arrived in England from Sweden in the autumn of 1860. He quickly established his company to inspect the quality of rails for export to his homeland.

Of course, amid talk of the past and the future it is hard to avoid the present. A phone call from a client requesting longer payment terms bought us back to reality for a moment. There can be little escaping the problems that engineers across the sector face with regard to collecting fees.

Neil Sandberg strongly feels there is a moral duty on clients to pay quickly and fairly.

"Most businesses like ours have had to increase our working capital because people are paying later which is frustrating because we are their engineer, not their bank."

He is also keen to see strict fee competition give way to a better focus on quality and whole life costing. However, he knows that won't be easy to make happen.

"It is very very difficult to quantify quality in a meaningful way. And as with anyone making decisions, if you can't quantify your decision it is extremely hard to demonstrate how you made it."

So after 150 years of business and four generations of family ownership Neil Sandberg knows what is at stake when promoting his business. Currently activity levels are very high and the firm is slowly expanding. Although the horizon in this market is short and difficult to predict, he is cautiously optimistic.

Amid the challenges of the present he expressed his determination to overcome them saying, "During our first 150 years we have worked extremely hard to build an international global brand and reputation for materials expertise and quality of which we are very proud. We have every intention of building on that and still have a mission to be around for the next 150 years".

Sandberg and the lost treasure overleaf

In order to be granted the patent, Sandberg had to explain how and why the method worked . However, this was pioneering research, and the difficulty was that, whilst they knew it worked, they were not exactly sure why. With that in mind they put together an explanation that they believed to be correct.

Seven years later a rival firm discovered the reasons Sandberg had given were incorrect. In fact the slow cooling allowed hydrogen to diffuse out from the material matrix, significantly increasing the material's toughness, and avoiding what is now known as hydrogen embrittlement.

The patent was challenged in a US court, but the judge dismissed the case declaring that since Sandberg's work had been of such benefit to the USA, the patent would be upheld for its duration.

Left: The original patent awarded to Messrs Sandberg

Alec Sandberg OBE. 1923 to 2008

Sandberg and the lost treasure of the Egypt

Rarely does engineering history evoke images of sunken treasure and golden riches. But every now and then…

In May 1922 a passenger liner named SS Egypt sank of Ushant, France when it collided with another vessel. That incident, in thick Atlantic fog, would start one of the most remarkable salvage operations in history.

The Egypt was carrying gold sovereigns and bullion estimated to be worth over £1 million. Those riches were lost to the seabed; an estimated 60 fathoms deep. The exact location of the vessel was unknown and no salvage had ever taken place at that depth.

Lloyds of London paid out on the disaster within a fortnight. However, the Sandberg family saw this as a chance to do something extraordinary.

Neil Sandberg explained to *Impact*: "I don't know how the negotiations went but my grandfather, who was a neighbour to the Chairman of Lloyds, reached an agreement that if we could recover the gold, we could keep it."

"Lloyds agreed that if we could recover the gold then we could keep it."

In 1926 the laborious search for the wreckage began.

"They formed a salvage crew and the first challenge was to find it. At the beginning of each season they would set up four buoys at the corners of their search area and they would steam up and down on straight lines towing an anchor behind them. When the anchor hit something they would send down a diver to see what it was."

This task was not one that offered a quick win. Searches could not take place in the winter months because of bad weather. After three years it came to that time of the year again and the crew prepared to pack up and go home.

"At the end of the third year they went out to collect their buoys and they couldn't find one. The look-out knew where it should have been and couldn't find it. Eventually he spotted something in the distance. The buoy had drifted because it had snagged on something. So they tugged it up with an almighty bang and up came a derrick attached to the anchor. Immediate excitement spread through the salvage team as they wondered whether they had found the Egypt. However when compared to the ship's drawings, the derrick did not match Egypt's main derricks. Fortunately, someone remembered that there was one unique derrick for the captain's launch, which when compared, was an exact match. They had at last found the Egypt."

> "A family business, almost by design, will have a longer outlook than a business owned by its current shareholders." Neil Sandberg.

After three years searching, the team started work to salvage the gold. To do that they placed explosives and blasted through the ship.

No one had ever carried out a successful salvage at this depth

"We were designing articulated suits for the divers to wear which it turned out leaked like sieves – hardly ideal at a depth of 420 feet! In the end we moved to non-articulated suits where they would hang the diver beside the wreck where he would direct instructions for the positioning of explosive via a grab.

Having blasted through to the Bullion Room to which ironically we had the key", the team salvaged bars of gold and returned them to their ship above. Then the next challenge arose. There were gold sovereigns everywhere which we felt would be remiss to leave behind.

"We designed our own early age Hoover. We designed a very large hollow

"We had a key to the bullion room but that was no use."

cylinder with a glass bottom. We would place the tube over the sovereigns by precise instructions from the diver. Then there was a mechanism to break the glass at which point everything rushed into the tube. At that point there was another mechanism to seal the bottom of the tube again."

Space age legacy

Decades later the space shuttle was commissioned by Lloyds of London to repair a satellite that had failed to activate. That became the highest ever salvage operation. To mark the space-age feat Lloyds presented President Ronald Regan with a gold sovereign from the Egypt (at its time the deepest ever salvage operation), to highlight the heritage of remarkable salvage operations.