Edward explained that rope-walks were not limited to port locations and there were many in country districts and small towns. The locations of former rope works were often identifiable by road names.

Edward went on to explain he is a volunteer at Chatham Dockyard which now has the only mechanised rope-walk probably in Europe and possibly in the world, still producing rope.

Rope-making is an ancient industry. In 3,000 BC ancient Egyptians used papyrus to make ropes. A fragment of c500 B.C. has been found and looks exactly like a modern three-strand rope. Rope making was widespread in the Middle Ages, but he would be talking about post Medieval rope making.

Traditionally rope is made of 3 strands (hawser-laid) although sometimes it is 4 strands (shroud-laid). The strands are made by twisting yarns together. A cable consists of 3 hawser-laid ropes twisted together.

Edward then spoke of the different materials used to make rope and passed round examples. He said maritime rope in England was, until the middle of the nineteenth century, normally made from hemp from the Baltic, grown in Russia. During the Napoleonic Wars, the Navy was worried that this source might be cut off so encouraged the growing of the raw material in this country. One place that this happened was around Bridport which developed a major rope-making industry. Flax and hemp are soft fibres and their stems are used. During the nineteenth century Manilla fibres which were grown in the Philippines were introduced for rope-making. The plant looks like the banana palm. Sisal was also introduced. Both of these are hard fibres. Other fibres used include, jute, cotton and Ramie. Coir yarns tend to break frequently and have to be joined as they are drawn out.

The fibres had to be removed from the plant and cleaned and then they were beaten but later a breaker was used. Fibres were taken to the rope works for hatching which meant they were dragged through spikes to draw them out straight and remove seeds, roots and other matter. The fibres were then spun by hooking some on a wheel and the spinner walked backwards paying out the fibres as the hooks turned. The yarns were often tarred in a vat of hot tar. After this the yarns to form a strand were pulled out along a rope walk. They were then twisted in the opposite direction to the twist of the yarn to form the strands. Three strands were then connected to a hook on a sledge at one end and at the other to three hooks. The strands were then twisted while the single hook at the other end was twisted in the opposite direction to close the rope. The strands were kept apart until they came together to close the rope by a conical piece of wood with grooves in called a top.

Edward used Horwood’s maps of 1813 to show the locations of some of the many rope-works in Docklands at the time. These included those in Shadwell, Limehouse and Bermondsey.

There were technical advances at the end of the 18th century and beginning of the 19th century when machines were devised which could form strands and lay rope while winding them on although they did not improve the quality of the rope. The Reverend Cartwright devised one of these but did not seem to exploit his invention. Captain Huddart, a master mariner who later became involved in port engineering and sometimes worked with John Rennie, noted that, due to the way the yarns were pulled out along the rope-walk and were then twisted, at sea the outer yarns failed before the inner ones because they followed a longer path and were thus over-stressed while the inner ones were barely stressed at all. In 1793, he invented the register plate which has concentric circles of holes for the yarns to pass through and a forcing tube to compress them together as the strands were formed. Ropes made using this system were twice as strong as conventionally made ropes. Several inventors patented similar designs later in the decade. An 1800 drawing of equipment at Chatham Dockyard shows a sledge that matches the description of one in one of William Chapman’s patents of 1798 which used a register plate which he called a yarn guide in use there. Chapman, later in the same year, took out another patent which had a modified sledge that would pull itself along a ground rope as the whirls were turned. This provided a direct relationship between the speed of the whirls and that of the sledge but also gave a means of powering the process using horse or steam power. Daniel Belfour, a Danish merchant, patented a similar device and installed machinery in HM dockyards, including Chatham. In fact part of one of his register plate holders, which he called top miners, is still in use at Chatham.

Edward then went on to describe the development of “house machines” in which the strands would be formed and wound on in a single operation and often then laid into a rope. Early examples of these were introduced in the 1890s by John Grimshaw. Huddart introduced two stranding machines of this type into his Limehouse rope-works in c1800. In 1838 he installed one in the
new ropery at Deptford Dockyard. House machines are now universally used in the industry as they require far fewer people to operate than a rope-walk.

The first ropery in Chatham Dockyard was constructed in 1620. By 1786 the rope-works was outdated and the two sheds for spinning and forming strands were replaced by one new one which was brought into use in 1791. It was a double rope house with the ground and first floors used for laying ropes and the second and attic floors used for spinning. 415 people were employed, including 174 spinners. Drawings of 1800 showing some of the equipment there survive. In 1808, when the viability of driving the Ropery-equipment by steam power was being investigated, the Navy’s mechanist, Simon Goodrich, carried out a detailed inspection and made copious notes in his notebook. This still survives and shows that the machinery in use then was state-of-the-art.

Edward then went into some detail about the machines used on the laying floor at Chatham. In 1811 Maudslay had supplied forming machines with cast iron frames which were driven by the existing large windlasses at the end of the laying floor. The first steam engine to drive the Ropery-machinery was installed in 1836. Large machines to lay the ropes were installed in the 1850s.

The development of machinery for spinning yarns progressed at a much slower pace and it was not until 1831 that a successful gill spinner was introduced. At Chatham it was as late as 1865 when the spinning process was mechanised. By then, John Good of America had introduced his gill spinning machine. The introduction of mechanised spinning and hackling to the industry caused most of the small rope walks, which could not afford to introduce expensive new equipment, to go out of business. The industry was then became dominated by large, highly mechanised spinning mills. However, some small local rope-works continued in use in rural districts well into the 20th century one of which was illustrated with drawings in an article by William Hennell of c1939. In 1926 James Mackie and Sons of Belfast introduced a high speed gill-spinning machine which was very widely used in the industry. This became the main spinning machine at Chatham and remained in use until spinning was discontinued there.

The yarns were often tarred especially for maritime use. They were pulled through a tar-kettle by capstan driven by horse power, then dried prior to use. At Chatham, two of the windlasses in the attic that were used to pull the yarn to the tarring kettle still survive.

Hackling and drawing machines to draw out and prepare the fibres for spinning were introduced during the 19th Century. A large vertical sheet vertical hackling machine was invented by George Horner of Belfast for flax and hemp about 1850. Around 1860, John Good invented a combined hackling and drawing machine, that used two sets of chain-gills moving at different speeds, for sisl and manila. As sisl and manila became the principal materials for rope-making this machine became widely used and is still called a Goods machine.

Carding was good for short fibres and for breaking up old rope. Rope for mines was sewn together. Braided rope is used a lot these days.

In the 20th century the story became one of consolidation and decline. In the 1960s the Gourock Ropework Co., which was one of the last to use a mechanised rope-walk, closed down. In the 20th Century, two main companies became dominant. One of these, Hawkins and Tipson, operated the Globe Rope Works in Millwall, which had another late-surviving mechanised rope-walk. This was closed in the late 1960s. The concrete floor and tracks of the ropewalk still survive in the park now on the site. A successor company under the name Marlow Ropes, a brand that Hawkins and Tipson set up, is still in trading and has a modern rope-works at Hailsham. The largest of the amalgamated rope-companies was Bridon. This again is still in existence although on a much reduced scale and recently opened a new rope-works in Newcastle. One of the companies that became part of this group was Messrs. Frost Brothers which had a large mechanised rope-works adjacent to Shadwell station that had originally been established in the eighteenth century as a traditional hand-operated ropewalk. The machinery was continually improved and latterly the works was able to produced 120 tons of rope a week. Edward showed a 1906 illustration of the Shadwell works of 1906. This closed in 1936 and production was moved to Charlton.

The Trust at Chatham still operates the rope-walk at the Dockyard which is now the last working mechanised rope-walk probably in the world. However, it is not spinning yarns any more and buys these in. There are demonstrations of laying ropes every day usually at 12:30 and the Ropery is well worth a visit.