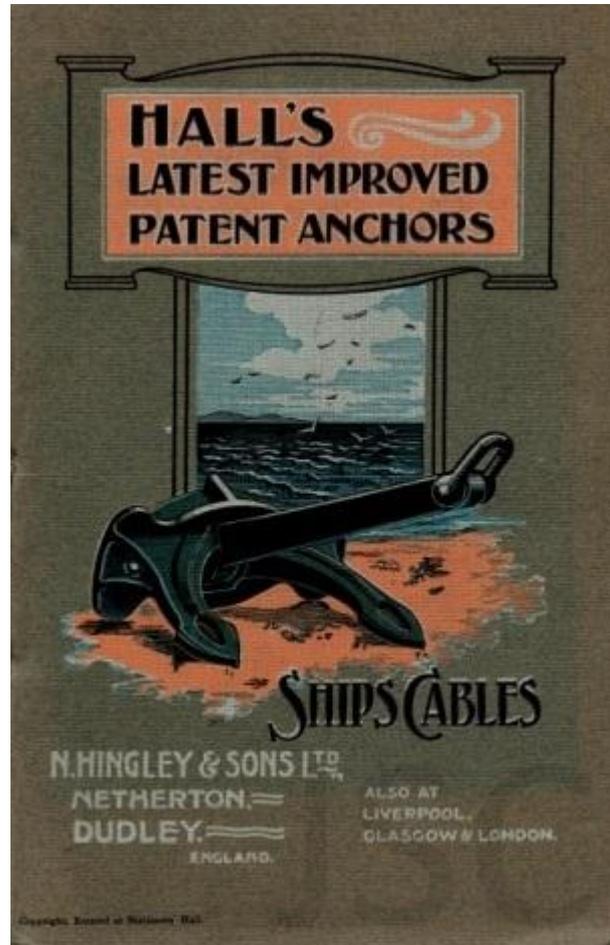


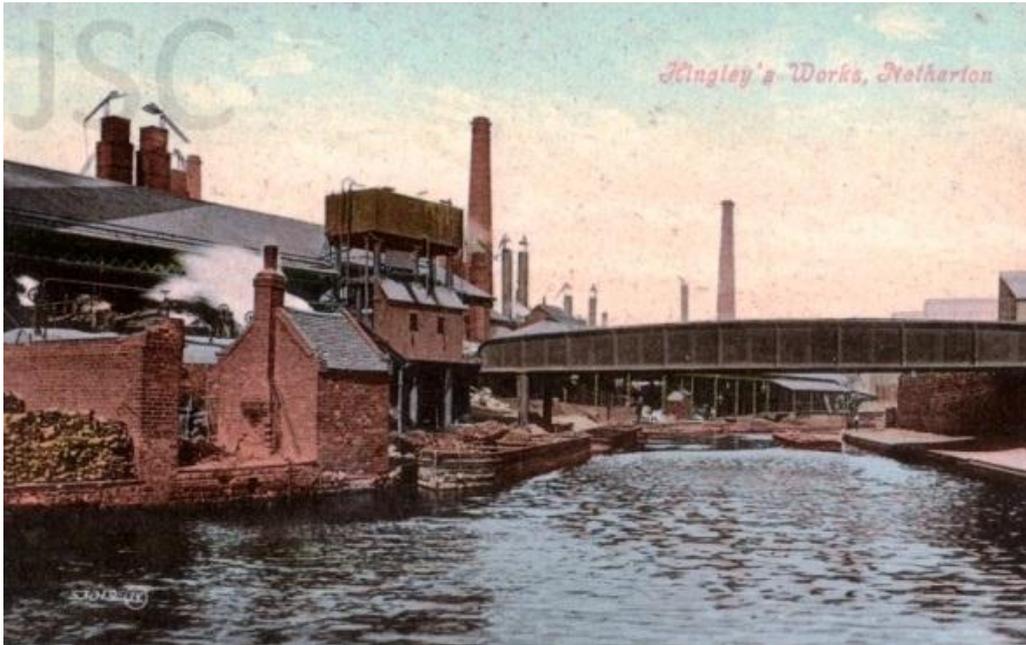
Titanic: The Hingley Anchors

By Jonathan Smith



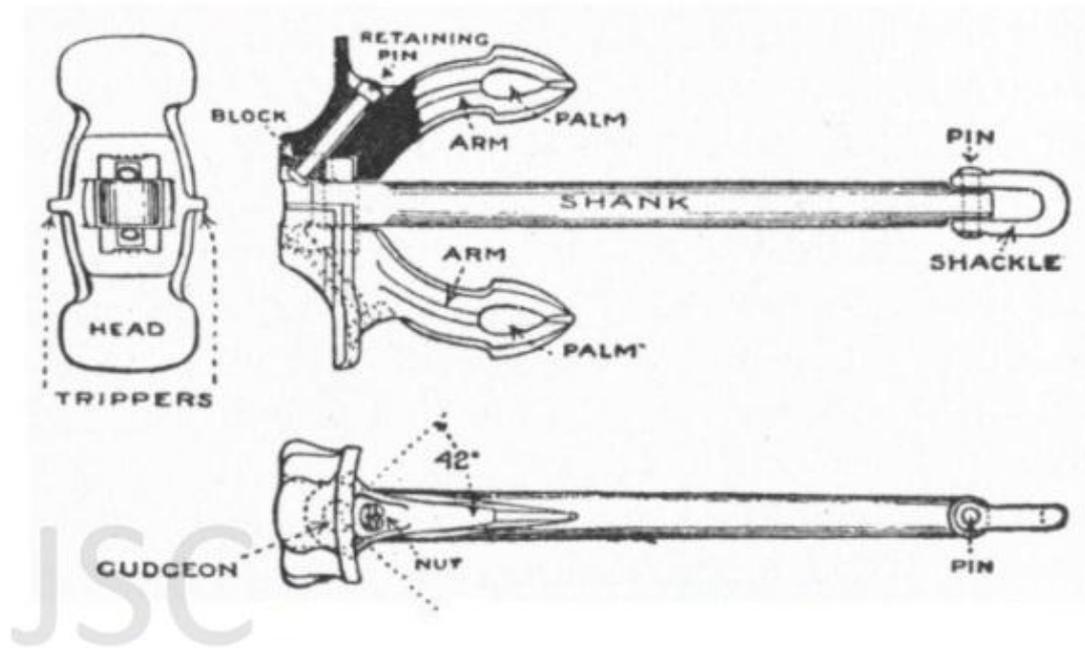
1910 Noah Hingley and Halls anchor book (Jonathan Smith Collection)

Titanic's centre anchor was at the time and for some time to follow, the world's largest anchor ever forged by hand. In its overall size the anchor measured an impressive 18ft 6in in length. The cast steel head of the anchor measured 10ft 9in in width and the anchor weighed an incredible 15ton 16cwts. The order for the anchors, both side and centre, were received from Harland & Wolff in late 1910 by the Black Country's historic forging company, Noah Hingley & Sons Ltd in Netherton, near Dudley, United Kingdom. But not every part of the anchors was to be produced by Hingley's.



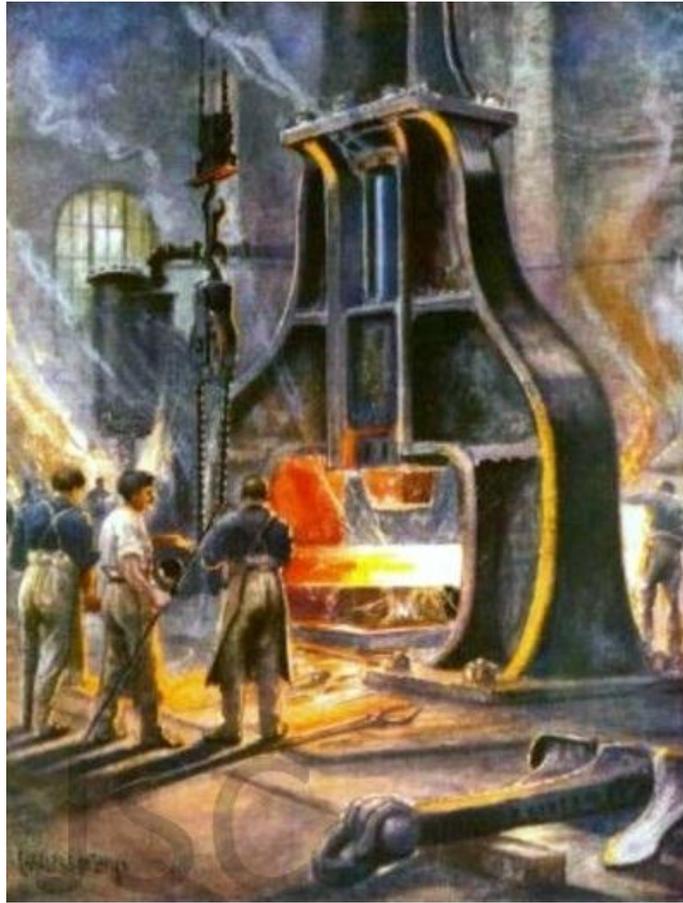
Noah Hingley & Sons Ltd (Jonathan Smith Collection)

The head of the anchor was cast by John Rogerson and Co. in Newcastle-upon-Tyne upon the request of Hingley's and manufactured to the 1910 Hall's Patent. The steel drop forged anchor shank went to the neighbouring West Midlands company Walter Somers Ltd in Halesowen, who were based just a few miles from the Hingley works. The job was given to Somers by Hingley's due largely to Somers having the techniques to produce large scale ingots and housing much more powerful steam powered drop forge hammers compared to the one in use at the Hingley's works at the time. The Noah Hingley works, however, did go on to manufacture themselves the anchor shackle and pin, anchor head locking pins and retaining blocks, anchor attachment links, anchor chains (for the side anchors), mooring swivel chains and anchor chains deck stoppers for the "unsinkable" liner. The head of the anchor was to be cast in a bed of fine grey casting sand. The process was typical of late Victorian and early Edwardian casting, but on a much larger scale. The bed had the shape of the anchor pressed into the sand from large wooden moulds made of the anchor head. The bed, which sat close to the furnaces, had molten steel poured into the mould. Once cooled down the whole cast head was lifted from the mould and cleaned off. If the head of the anchor was incorrect in weight during proving house testing, pig-iron was added to the head to balance and correct the structure.



The 1910 Halls Olympic Class anchor (Jonathan Smith Collection)

The fabrication of the anchor shank was a much more daunting process. The shank would start life as a huge solid steel ingot formed from smaller blocks of iron bars and compacted into one large structure that would be more workable depending on size. Heated to over 5000 degree's in the furnaces, a 20 ton steam operated drop forge hammer was used to form the anchor shank's principal shape. A team of workers known more commonly as Hammermen would in groups turn the shank using chain pulley system attached to the workshops roofing structure, sliding the heavy shank back and forth into the drop forged. Each time the steel began to cool, the section would be reheated in the furnace and the process repeated until the shank met to requirements in ordered size. The end result for Titanic's centre anchor was an object over fifteen feet in length and weighing almost 8 tons. For the eyelets at both ends of the shank, for the securing pins to be passed through to secure both head and shackle, the eyes were machine lathed and cleaned up.

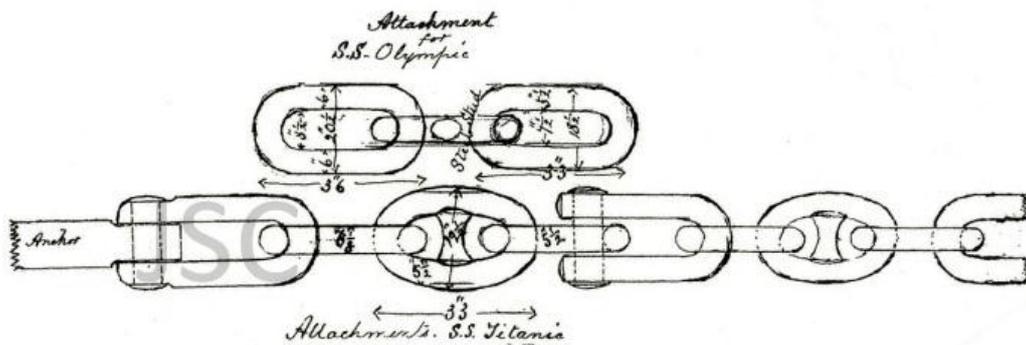


Steam powered drop hammer forge at work on a ships anchor shank (Jonathan Smith Collection)

Following rough assembly at the Hingley works, the anchor parts were then passed onto the Lloyds Proving House which was situated alongside the Noah Hingley works on the opposite side of the Cradley Road. The anchor was put through a series of tests, as set by Lloyds Register of Shipping. Some of the tests included the drop test which would see the assembled anchor lifted to a height of 12ft to 15ft and dropped onto a solid concrete and steel topped base. This process was to establish the drop load of the anchor when at sea. Next came the hammer test in which the anchor was lifted and a Lloyds worker would hit the head and shank of the anchor. If the steel had a “ring” sound, the anchor had no imperfections and was passed. Failure would see the shank sent back to the drop forge shops. Following testing and approval from the proving house, the anchor shank and head were then stamp-marked with proving house registration, date, proving house Superintendents initials, weight, drop test and materials used.



One of Noah Hingley's chain shops in 1910 as the "chain gang" work on a segment of Olympic's links
(Jonathan Smith Collection)



Olympic & Titanic's anchor attachment links schematic (Jonathan Smith Collection)

Each link for the anchor chains of the Titanic were of an impressive scale and made from forged steel which Hingley's proudly claimed "Hingley's Best". The largest link was situated within the anchor attachment and measured 36in while the others were forged at 33in. Each link were forged from pig-iron bars, heated up and run through a machine known as a mandrel. The mandrel gave the link its distinctive shape, but both ends of the link did not meet. The link would then be heated while a centre stud was hammered into place. The link, still open, was then hooped into its neighbouring closed-up link. The "chain gang" would then close the link and fuse the ends together. During this process, sections of chain were made for testing purposes at the Hingley works. Lengths of the chain were tested in hydraulic pulling beds. One end of the chain length was secured to a stationary clamp. The other was fitted into the jaws of the anchor and chain testing machine. The machine would then apply pulling pressure upon the chains to a set tonnage recommended by Lloyds. If they

exceed the limit, the chains were passed. Like the anchors, the section of chains forged had to be proved and both Hingley and Lloyds Proving House workmen had the lengthy task of checking all the links and 1,200 feet of chain were forged for Titanic. All three of the Olympic-Class liners had their centre anchors painted matt white while at the Proving House. But Titanic was the only one of the three that had the name "Hingley.Netherton" painted upon the shank. This followed concerns by Hingley's that White Star Line was not advertising Hingley products in a manner that suited Hingley's. In 1910 both side anchors of Olympic were painted matt white and sent that way to Belfast. Her centre anchor was then put on display by Hingley's at the summer London Olympia Engineering Exhibition. For Titanic, her side anchors were painted matt black and the younger Britannic's centre anchor was painted matt white without signage.

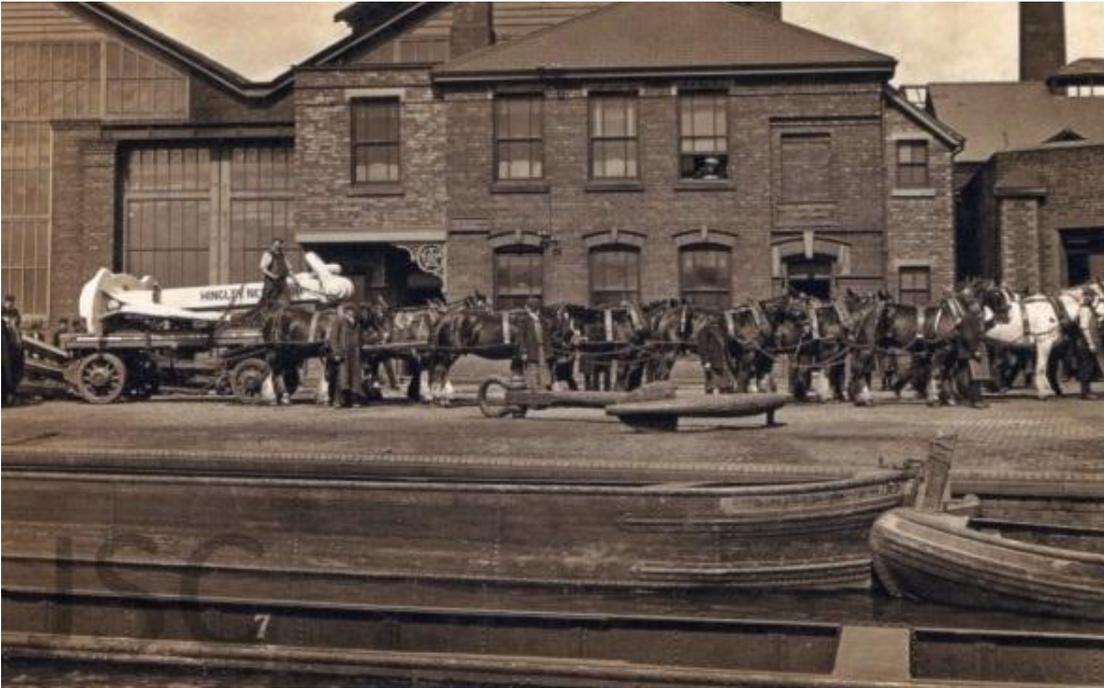


Noah Hingley's "chain gang" lead by Benjamin Hodgetts (right) at work on a section of Titanic's chains (Jonathan Smith Collection)



Titanic's centre anchor on the W.A.Ree haulage dray following testing at the Lloyds Proving House, April 30th 1911 (Jonathan Smith Collection)

Transportation for Titanic anchors came from the Great Bridge (West Midlands) haulage company W.A.Ree, who were sub-contracted to LNWR (London and North Western Railways). The company sent a large heavy duty haulage cart, more commonly known as a dray, and eight of their Clydesdale horses to help pull the cart. These huge horses had the pulling strength of up to two tonnes each and were a common sight on inland waterways, canals and roads of the Midlands. The horses were then connected to the dray after the huge anchor had been lowered upon it while at the Lloyds Proving House. With hills challenging the two-mile journey from the Hingley works to Dudley Railway Station, the Hingley works decided to attach six of their own horses to the group of W.A.Ree horses to help take the extra strain as the horses and dray made their way up hills and cobbled streets. From the LNWR terminal at Dudley Railway Station, another six horses were sent down to assist, if required at short notice. Placed at the head of the team and now being returned to where they came from was that of a horse procession of twenty beasts.



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The original line up of 8 horses supplied by W.A.Ree with the dray and Titanic's centre anchor outside the Proving House, April 30th 1911 (Jonathan Smith Collection)

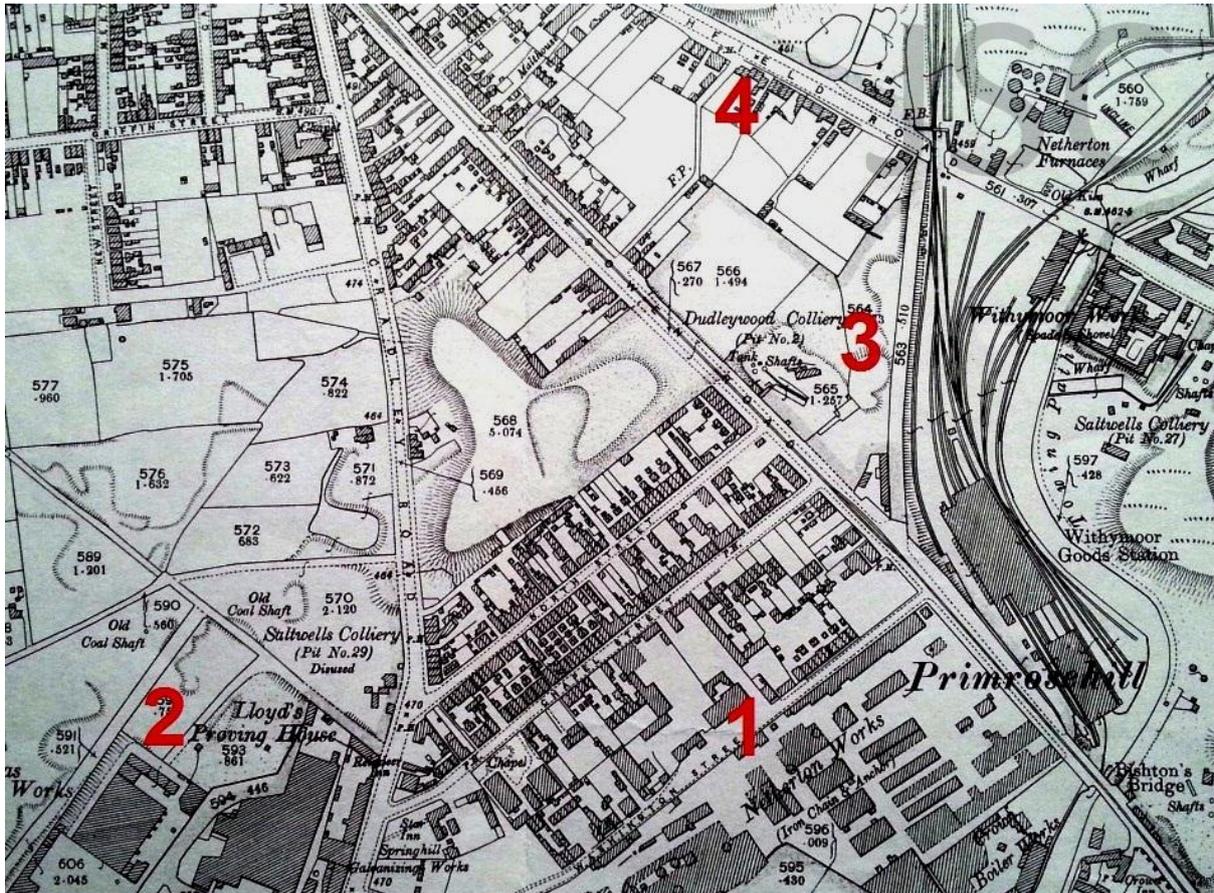
It is commonly thought the anchor procession left on Monday May 1st 1911, but that date is wrongly given. The approval of dispatch for the anchors came on Saturday 29th. The following day, Sunday 30th April was the day used to transport the anchors and out-fittings to the railway station. With trams stopped and no market on the Sunday, the route would be uninterrupted. Just after midday on April 30th and following Sunday services, with hundreds of townsfolk lining dirt track and cobbled streets, the procession left the Hingley works and started its two-mile (3.2km) journey to Dudley. Heading from the Hingley works, onto the Northfield Road, then through Netherton High Street, then Cinder Bank and on to Blowers Green and up its steep incline towards Dudley Town Centre, coming out at the top of Dudley High Street, and through the Market Place and onto Castle Hill, the huge anchor finally arrived at the LNWR goods yard next to the Guest Hospital on the Tipton Road.



With 20 Clydesdale horses ahead of the dray, Titanic's anchor makes its way towards Dudley Railway Station, April 30th 1911 passing down the dirt track towards Northfield Road

(Jonathan Smith Collection)

The next leg of the journey would see the anchors and chains sent via rail to Fleetwood in Lancashire. Having arrived at the yards late afternoon on April 30th 1911, the anchors and chains could be sent via the Sunday service to Fleetwood. The night goods train journey could see other engines, if needed, to be sent onto neighbouring lines as the train with its extra wide load could pass easily and without mishap to Fleetwood, something that would have proved difficult during weekday times. Once at Fleetwood, the anchor was put aboard the passenger/cargo steamer Duke of Albany and sent across the Irish Sea to Donegal Quay in Belfast, arriving at the dockside on the 5th May. From there it went on to the Belfast shipyards of Harland and Wolff via one of Belfast's heavy haulage companies John Harkness & Co and their dray and six horses. After testing installation within the anchor well on the ship while Titanic sat under the Arrol gantry, and tested with the Bullivants of London steel cable, the centre anchor was painted black then fitted aboard. When Titanic was finished and out on her sea trials in Belfast Lough on April 2nd, her anchors were tested by the Board of Trade. The procedure would result in having the centre anchor equipment set up, anchor unseated, lifted, connected to cable and swung overboard and dropped. Her side anchors were also tested such as being dropped and the ship undergoing a simple manoeuvre while the side anchors were deployed. Titanic's anchors were the only items tested and certificated for the vessel.



(1) Noah Hingley's "Netherton Works" (2) Lloyds Proving House (3) The dirt track leading to Northfield Road (4) Northfield Road

(Jonathan Smith Collection)

One of the spectators that day in Dudley 1911 was the Dudley freelance photographer Edwin Bech. His many photographs of the making of the anchor chains, mooring links and assembled anchor had captured many locals imagination. Little did Bech know how iconic his photographs would be? The sinking of the Titanic became a night to remember. The journey of the anchors from the Hingley works to Dudley Railway Station was, for the people of Dudley and Netherton, a day to remember. Not bad for a landlocked town almost 100 miles (160.9km) from the nearest coast.



Jonathan Smith with the replica 16 ton steel anchor he assisted with for the 2010 television series "Titanic: The Mission" which is on permanent display in Netherton, Dudley and positioned just a few hundred yards from the old works of Noah Hingley & Sons

(Jonathan Smith Collection)

(Jonathan Smith comes from the West Midlands and has studied the Titanic and its West Midlands connections since the age of seven. Over the years he has supplied images and information to a number of Titanic books, magazines, researchers, historians, websites, media, radio, television and DVDs. For the Channel 4 series "Titanic: The Mission" he supplied technical information, photographs, plans, drawings and the information on not only anchors for the Titanic, but also the company of Noah Hingley and Sons, the methods of how they manufactured such large-scale anchors, and the historic journey they undertook in April/May 1911)