



History Comes to Life on 'Leicester Trader'

An Educational Heritage Resource Pack



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Information Pages



A sailing barge towed by the steam tug 'Little John', which was built in Newark. The tug worked mainly between Fiskerton and Newark. This photograph was probably taken in the early 1920s.

25 Interesting Things About The River Trent

- 1.7 million years ago the River Trent rose in the Welsh hills and has changed course several times because of glaciers and ice lakes.
- The River Trent is 171 miles (274 kilometres) long and is the 3rd longest river in the UK (after the Severn and Thames).
- Its source is on Biddulph Moor, near Stoke-on Trent in north Staffordshire, just a small puddle, 250 metres (820 feet) above sea level.
- The Trent is an unusual English river as it flows north (for half of its route).
- It ends where it meets the River Ouse at Trent Falls, and flows into the Humber where the tide rises and falls for 5.2 metres (17 feet), this is called its tidal range.
- The Trent drains a catchment area in the Midlands of 4,031 square miles (10,440 square kilometres) of land, where 6 million people live.
- Average annual rainfall is 720mm (28 inches) across the Trent catchment area.
- The river is freshwater for 119 miles (191 km) and is not tidal west of Newark. Only the last 52 miles (83 km) is tidal, from Cromwell weir as far as the Humber estuary.
- 42 main tributaries feed into the Trent.
- 81 bridges cross it.
- The Trent is navigable today for 66 miles (107 kilometres) of its length, as far as Shardlow in Derbyshire. The highest point it was ever commercially navigable (between 1710 and 1805) was Burton upon Trent.
- There are 11 locks along the river, 6 of them over 49 metres (161 feet) long.
- In Roman times it was called 'Trisantonata' meaning 'great female thoroughfare'.
- The Danes and Anglo-Saxons sailed up the Trent when they invaded England.
- In the 8th century it was called the 'Treonte'. The name is Celtic and means 'trespasser' as it often floods the fields and villages.
- It's said that in 1101 and 1581 part of the River Trent completely dried up!
- Historically, the Trent was the administrative boundary between Northern and Southern England and laws were once different on the two sides.
- The river was severely polluted by industry, sewage and agricultural run-off in the 19th and 20th centuries and hardly any fish could live in it.
- The river is much cleaner now and salmon have been re-introduced to many of its tributaries. More than 30 other species of fish live in the river, including eels.
- There are 6 wetland Sites of Special Scientific Interest (SSSIs) on the Trent, such as Attenborough Nature Reserve near Nottingham.
- In the 20th century, otters were almost extinct in lowland England, but now they can now be found in the whole of the Trent river network.
- Cooling water is taken from the Trent for many coal and gas-fired power stations and there is a hydroelectric plant at Beeston Weir providing electricity for 2,000 homes.
- Gravel and sand are still quarried along the Trent and many former gravel pits are now nature reserves.
- A natural tidal wave, called the Aegir (pronounced 'E-ger') is often seen on the Trent near Gainsborough. It can be up to 1.5 metres (5 feet) high.
- Shakespeare mentioned the River Trent in Henry IV, part 1. "...And here the smug and silver Trent shall run, In a new channel, fair and evenly...". This refers to an area of land, (near the present W Burton power station) which was lost to its owner when two oxbow lakes formed and the river changed course.

The Story of Barges on the Trent

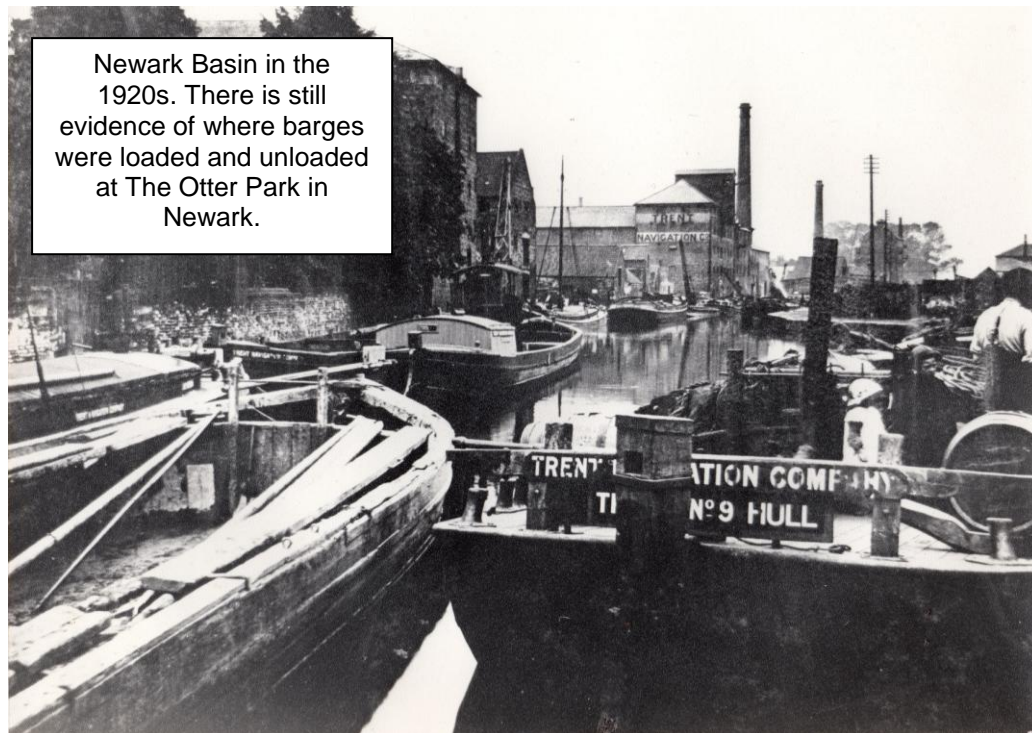
The story of how cargo was carried inland from the North Sea, past Hull, up the River Humber and into the River Trent is a long one. It probably started many centuries ago when small boats were paddled or sailed between settlements trading food, pottery, metals and other materials. It was the easiest and safest way to carry large loads, as the ground was either very boggy or thickly wooded with no roads. Moving loads on water is much easier than on land and needs less effort, so it's easy to see why the river became such an important trade route. Villages and towns developed along its banks and became busy with merchants, traders and crafts associated with boat building, rope making and sailing.

In the 12th century coal, pottery, beer and corn were traded up and down the river and later other cargoes from all round the world arrived in ports along the Trent. During the industrial revolution and Victorian times, many more materials were needed to keep the mills of the Midlands producing goods such as wool, cloth, and iron, which were exported around the world. The Trent became a busy place with barges and sailing boats jostling for work, loading and unloading their cargo at the many wharves and warehouses.

The Trent Navigation Company (founded in 1783) hired William Jessop, a famous canal engineer, to survey the river as they needed to carry larger cargoes. He suggested deepening the river by dredging and also built a towpath from Gainsborough to Shardlow in Derbyshire in 1787 so that barges could be hauled by horses. The River Trent was joined by a canal (the Trent & Mersey Canal) to the River Mersey in 1777. This meant that boats could carry goods right across the middle of England, saving time and money.

In some places along the river, horses were carried across on ferries, as the towpath changed from one side to the other. It's easier for a horse to pull a barge on the outside of a bend than on the inside, as the water is normally deeper, so the horses had to get used to jumping on and off the ferries! At one point in the river, there were so many bends that a post was fixed on the bank, with a roller for the rope. The horse walked round the roller and this

meant the boat wasn't being pulled into the bank, but the horse could stay on the same side of the river. This bend on the river is still known as 'Turnpost'.



Newark's wharves and basins were hives of activity. When a boat came up river from Hull, until 1920 the river wasn't deep enough for them to get all the way up to Nottingham with a full cargo. Cargoes were split at Newark, some unloaded into warehouses, from where horse carts or trains would take them further inland to many villages and towns in the Midlands. The remaining cargoes were loaded into other boats to go further up river. Often a number of '*dumb barges*' from different locations, carrying different cargoes and going to different places, were towed behind a steam powered barge or tug. They had to navigate the locks together and the ropes had to be moved around as each barge went through the lock. You really had to be handy with ropes when working on a barge! These dumb



An earlier steam tug, also called 'Little John' at Gainsborough around 1900

barges were the mainstay of the trade. In the late 19th century, the Trent Navigation Company had 3 wooden steam paddle tugs towing barges from Gainsborough to Newark and then they were horse-drawn up to Nottingham, as the tugs couldn't fit through the lock at Newark. By 1908 small steam tugs towed them all the way up to Nottingham.

The wooden barge 'Thames', built at Mill Lane in 1925.



The Trent Navigation Company built barges at Mill Lane in Newark. All the machinery in the boatyard was run by a waterwheel and it was important to check that nothing was running when the sluice was opened to start up the machinery again. That was a very easy way to

lose a finger or even a hand. Health and safety in those days was very poor and all factories were very dangerous places to work, especially for the young people who were often employed there. In 1908 they began buying steel barges from other shipyards, including J S Watson's at Beckingham.

Shipwrights were still building wooden barges until the 1920s and many different types of barge could still be seen working on the river together. Steel barges were made to the same design as the wooden ones and looked almost identical. Those built at Newark were launched sideways into the river because it isn't wide enough to launch them stern first.

The Trent Navigation Co. warehouse, Newark Basin around 1920



When the old sailing barges no longer needed their sails for power, the masts were used as derricks to unload their cargo. Some had steam-powered cranes fitted (Cargoes of wheat in 16 stone (102kg) bags are being loaded in this photograph by a steam crane) and were used either for dredging the river or loading other boats. In 1967-68 some steam cranes were still being used, but by 1970 they had all gone. Sand and gravel has always been carried on

the Trent and cargoes up to 300 tonnes (a car weighs about a tonne), continue to be moved on the tidal section below Cromwell even now. Coal from Nottinghamshire's pits was carried downriver by barges and could even be delivered directly to houses in Trentside villages such as Collingham when the river flooded.

Smaller barges, known as 'Upper Trent boats' were used to go up the 'top end' and had no watertight covers over the holds. Barges going down to Hull needed covers, as the river becomes wider and rougher nearer to the sea. They sometimes had to cope with the Aegir, a natural tidal wave that pushes huge amounts of water up the narrowing river channel during high spring tides and can even cause mooring ropes to snap, setting the barges adrift. The Aegir is named after the god of the seashore or ocean in Norse mythology.

Each barge towed a 'cog boat', a small wooden boat, which was 'sculled' with one oar at the stern through a slot called a 'crutch'. The cog boat was needed to take ropes to the jetty at the side of the river if the barge was drifting and couldn't be brought alongside. The barge would be anchored while the mate

sculled the rope to the jetty and tied up. He would then have to scull back to the barge, raise the anchor and pull the barge in to the jetty, using the rope. A lot of hard work for one man, especially if the skipper was watching to make sure he did it correctly! At times the barge had to be pulled manually, (often by wives and children) this was called 'bow-yanking' It was really hard work and the ropes often cut their hands, as they were made from hemp, sisal or sometimes 'bass' coconut fibre, which are all very rough and spiky to handle, and became heavy with mud, water or frost.

We've seen how the early sailing barges lead to horse-drawn barges and then to steam-towed dumb barges carrying heavier loads. During the First World War, working on a barge was a 'reserved occupation', as it was very important

Barge entering Cromwell Lock with its cogboat.
Henson & Co (c 1915) Reproduced with the kind
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Studies Collection



that cargoes got through to feed people and keep industry working. Wooden and steel barges were working alongside one another until the Second World War, when they fell into disrepair.

Later there were diesel-towed boats (like Leicester Trader) and finally diesel engines on much larger barges carrying oil and other cargo on the Trent until the 1980s. Some of these were made from older barges cut into two and extended, so they could carry heavier cargoes through the larger locks built in 1952. This is a photograph of a model of one of these longer barges.



Because the River Trent had so many outfalls from the many industries along its length, pollution in the river was very bad at this time. In this photograph you can see a lot of foam in the river. It used to cover the barges as they went through the locks. One barge lost a crewman overboard at Cromwell Lock when he walked off the side of the boat and drowned. He couldn't see where the edge of the barge was because of the foam. Some of the foam was from the glue factory below Nether Lock, Newark. This was almost impossible to get off the boatmen's clothes and was also very smelly!



When Les was a young lad, he used to help out at the locks. He saved the boatmen some time, as they would normally have walked all around the lock to open or close the gates.

Many of the skippers of these barges lived in Newark and worked with the tides, so they often only slept for a few hours at a time. They walked through the town to work in the early hours of the morning to meet the tide so they could get down to Hull to pick up a cargo. How long it took them to get there depended on the state of the river, whether the boat was loaded or



Les (aged about 15) helps to work the lock in 1960

empty and how many times they were grounded on the mudbanks. An empty barge from Newark, in good conditions, could reach Hull in about 7 hours, but in low water, there could be so many barges grounded that the whole river was blocked and no one could get by for days, a week or even two! Life on the barges was always very dependent on natural forces, water, wind and tides.



Steam tug 'Ferryman' towing 4 dumb barges around 1930

Leicester Trader and the Newark Heritage Barge Project

'Leicester Trader' was built in 1953 at the boatyard of Richard Dunston at Thorne, near Doncaster. The 82 foot (25m) 'dumb' barge (unpowered) was the last of what was once a familiar sight on the River Trent and Humber estuary, carrying cargoes serving the many towns and villages along its length. Although completely unglamorous, this type of barge was the real workhorse on the river, the design changed little from earlier horse-drawn barges. Not one of these Trent-size barges survives in its original form. The Leicester Trader is one of the few that has remained in near original condition. She has had a varied life since she stopped carrying cargoes to Nottingham and the many other wharves along the Trent.



In this photograph from the mid 1950s, a typical pair of motor barge and dumb barge, carrying about 100 tons are travelling upstream through Newark. A new lock was opened in 1952, which allowed longer boats to go all the way to Nottingham. Tanker firms then had larger boats, almost like sea-going craft, with watertight holds, electricity, much better cabins, proper toilets and heating. They were really luxurious compared with the older, open barges, where the crew had to stand out in all weathers to steer.

Barge owner and preservationist Les Reid always thought that the Trent Navigation and its rich history should be put on record for future generations before it is lost for ever. Les bought Leicester Trader and started out on his most ambitious project yet. He brought the barge from its long-time resting place at the former Harkers shipyard at Knottingley, back on to home waters at Newark where she will become a floating heritage centre and archive dedicated to the river Trent. It is intended to show how this important waterway played a vital role in the development of the villages, towns and cities which the waterway serves. A collection of photographs and other material is based on the barge which, it is hoped, will eventually be moored in the town centre at Newark while remaining capable of being moved on the river to shows and waterway festivals in other places.

The first stage of the project was completed in June and July 2008, when Leicester Trader was moved from Knottingley down to Goole on the Aire and Calder Navigation. The move was only made possible through the kind help of Humber Barges Ltd and their skipper Geoff Wheat who towed Leicester Trader to Goole behind the gravel barge Fusedale H . The next stage was from Goole to Cromwell, again by Fusedale, and then from Cromwell to Newark with the help of Paul Ainsworth who loaned the tug Ox (from Farndon Marina) which was skippered by Kevin Mason and crewed by Tom Mason.



Leicester Trader being towed under Town Bridge

The barge is now moored at The Weavers, Newark, where she is maintained and run by Les and other enthusiasts (the Friends of Newark Heritage Barge) and is available for group visits and public open days (more information can be found at www.newarkheritagebarge.com). Les and other members of the Friends are also available to deliver talks and workshops to schools and other groups who are unable to visit the barge, or as a pre-visit taster session.



Leicester Trader at her moorings at The Weavers, Newark.

Notes for Teachers & Group Leaders



The old lock at Newark in 1951. The New Lock is being built alongside and can be seen on the right hand side of the photograph.

Health and safety during visits to the Newark Heritage Barge

Pre-visit organisation

Rivers and boats are potentially dangerous places for visitors, especially children, and it's essential that visiting teachers make a pre-visit to the barge so they can adequately assess any hazards in discussion with the owner. The visit must be carried out according to the guidelines issued by the Local Authority, organised with the school's Headteacher and the Educational Visits Coordinator and a risk assessment completed. A first aider should accompany any visiting group.

Visits may be subject to cancellation due to adverse weather conditions (such as flooding) and this will need to be taken into consideration.

For further information or to make a booking to visit the Newark Heritage Barge go to www.newarkheritagebarge.com or contact Les Reid on 07971 589612 or e mail: les.nhbarge@googlemail.com

Briefing helpers and pupils

All adults present during the visit need to be made aware of the risk assessment and what their role is during the day. Close supervision of children is essential at all times and groups sizes should reflect the age and abilities of the visiting children.

At all times, visitors must obey instructions from the crew of the barge.

Learning about risks and how to deal with them is a vital life-skill for children. Involve your group with planning a visit to the Heritage Barge, ask them what they think will be the hazards of such a visit and how they will need to behave when on the barge. Make sure they know what the learning experiences will be and what to expect. This will make the 'rules' for the visit far more meaningful for them.

Visits to Leicester Trader and the National Curriculum

	National Curriculum subjects supported by the activities in this pack							
Activity Number	English/Literacy	Art and ICT	Talk for writing	Mathematics/ Numeracy	Science	History	Geography	Design and Technology
1 (S)	*		*			*	*	
2(S/B)				*	*			
3(B)	*							
4(S/B)	*		*			*		
5 (B)	*		*			*		*
6(S/B)	*		*	*	*			*
7 (B)				*	*			*
8(S/B)	*		*		*			*
9(S/B)	*	*	*		*		*	
10 (S)	*					*		

The practical activities in this pack have been written to allow teachers or other group leaders enough flexibility to adapt them to their needs. They are aimed at children aged between 7 and 11 years, although they will also be enjoyed by younger children or older students, depending on their ability.

Some of the activities (marked S) can be done in schools or by other groups, either as stand-alone activities or as part of pre-visit activities to support a visit to the Newark Heritage Barge. Some (marked B) are best done as workshops on board the barge itself, where the experience will help to bring history and heritage to life. Others are suitable to be done both in school and on the barge (S/B).

The activities have been written to inspire schools and other groups to interact with the archive and to enable children to recognise the importance of Newark in the story of the River Trent throughout recent history. The photographs can be used in a variety of ways, as display material, discussion points, inspiration for writing or artwork, to name but a few. This pack is copyright, ©The Newark Heritage Barge 2012, but teachers/group leaders may make photocopies for use with children.

Activities and Workshops on 'Leicester Trader'



Leicester Trader's stern, showing the rudder and draught marks

1. The River Trent and the Trent Navigation

(This activity supports the English, History and Geography National Curriculum, the Primary Literacy Framework and 'Talk for Writing')

Hello, I'm Flora May and I'm 10 years old. You can call me 'Flo', everyone else does! I live on our old wooden barge on the River Trent with my family. The boat's been in our family for a few generations now and Dad's the Skipper. Thomas Ebenezer (Tom) is my eldest brother, he's 12 years old. He was named Ebenezer after my Grandad, but he hates anyone calling him that, it's so old-fashioned. My Dad's favourite joke is that he called us 'Ebb' and 'Flo' because that's what the tides do on the river! It's so embarrassing when he tells his joke to strangers and we've heard it so often before. Still, it makes him smile and not much else does, these days.

Tom could tell you all about the river because he knows a lot more than I do, even though we were all born on the barge and have lived here all our lives. He works with Dad now he's left school (he hardly ever went anyway!) and says he's as strong as any other mate on the river. Tom talks to all the other barge mates and skippers about far away places like Liverpool. I know a bit about the potteries at Stoke, the brewhouses at Burton, lace-making factories at Nottingham, the maltings, breweries and boatyards at Newark-on-Trent, because we meet other barges carrying cargoes from there. But I'm sure you'll be able to find out a lot more yourselves.

What do we need?

- photocopies of the pages '25 Interesting Things About the River Trent', 'Barges on the Trent' and the 'Glossary'
- atlas or map showing the river from its source to mouth
- pencils, felt tips, crayons or paints
- long roll of paper (lining wallpaper would do)
- scissors; glue; paint brushes

Here's what to do

- Read the information pages (3-10) together. This could form part of a whole class or group reading session. Highlight and look up in the Glossary any of the words you don't know.
- Find the River Trent in your atlas or on the map and follow it from its source to its mouth. How many cities, towns and villages can you find along its route? (Clue - many of them are called '....-on-Trent')
- Using all the information you have, draw a large sketch map of the River Trent on the long roll of paper and colour it in. Make sure you show how it gets wider as it flows towards the Humber estuary and mark on it any cities, towns and villages that lie along its route.
- Draw, cut out and stick on to the map, your pictures of any interesting things you know or have discovered about the river, what industries or nature reserves are on its banks, what lives in it or who works on it.
- Use your map to tell a story about the River Trent. It could be a story told by the river itself, or someone travelling along its route, or a creature which lives by it. Your story could be one from long ago, the present day or any time in between. It could even be a sound story, sung or played on musical instruments.
- Make a time-line of the River Trent showing how it has been used by people and how it has changed over the centuries.

2. Floating and Sinking

(This activity supports the Mathematics and Science National Curriculum – Scientific Enquiry)

Hello, it's Flo here again. My Dad says these old wooden barges have had their day and the future is with modern steel ones. We've seen one or two on the river since they started building them a few years ago. There's such a horrible clanking noise in the boatyard at Beckingham where they're built. I don't know how people round there can hear themselves think! Dad says the metal plates are held together with something called rivets that have to be heated up and hammered into place, sometimes with a pneumatic riveting machine that makes even more noise.

Now metal boats don't make much sense to me, so I thought I'd see what you think. It's obvious that wood floats, we often see trees and driftwood floating downriver, especially after floods but metal doesn't float, does it? Look at the Titanic that sunk in April this year, when all those poor souls died. They said that was unsinkable, but it wasn't, was it? Stands to reason it would sink, metal's heavy. Tom says I'm only a girl so I can't be expected to understand - the cheek of it! Maybe you could help me to find out how metal boats can float?

What do we need?

- a plastic bowl with 0.5 litre of water and a little washing-up liquid (this is needed to break the surface tension, which would hold the boat up too much and spoil the test)
- an empty boat-shaped can (sardines, anchovies etc) washed in hot, soapy water
- waterproof tape
- plenty of 1p coins
- paper, pencils, ruler
- bag of table salt
- a tablespoon (18ml) kitchen measure
- digital kitchen scales

Here's what to do:

- Stick waterproof tape round any sharp edges of the can.
- Skim any bubbles off the surface of the water with a spoon.
- Put the boat into the water and push it under, does it sink or float back up?
There, I told you metal sinks in water!
- Now dry the boat off and make it float on the water in the bowl. Why does it float now? What happens to the water in the bowl if you push down gently on the boat? Why do you think this happens?
- Load the boat with 1p coins (very gently and evenly) counting as you add each one, until the boat sinks.
- How many coins could you load into the boat? What was the total weight of coins loaded? Record all your results.
- Take the boat and coins out of the bowl, wash and dry everything well. Why is this important?
- Try again, to make sure you get the same answer. You could even try it a few times and average out the number of coins loaded.

Well, maybe I was wrong, and metal boats will be better than wooden ones. Tom says that boats float even better on salty seawater, but I think he's just trying to make me feel stupid again. What do you think? Try this experiment and see if he's right.

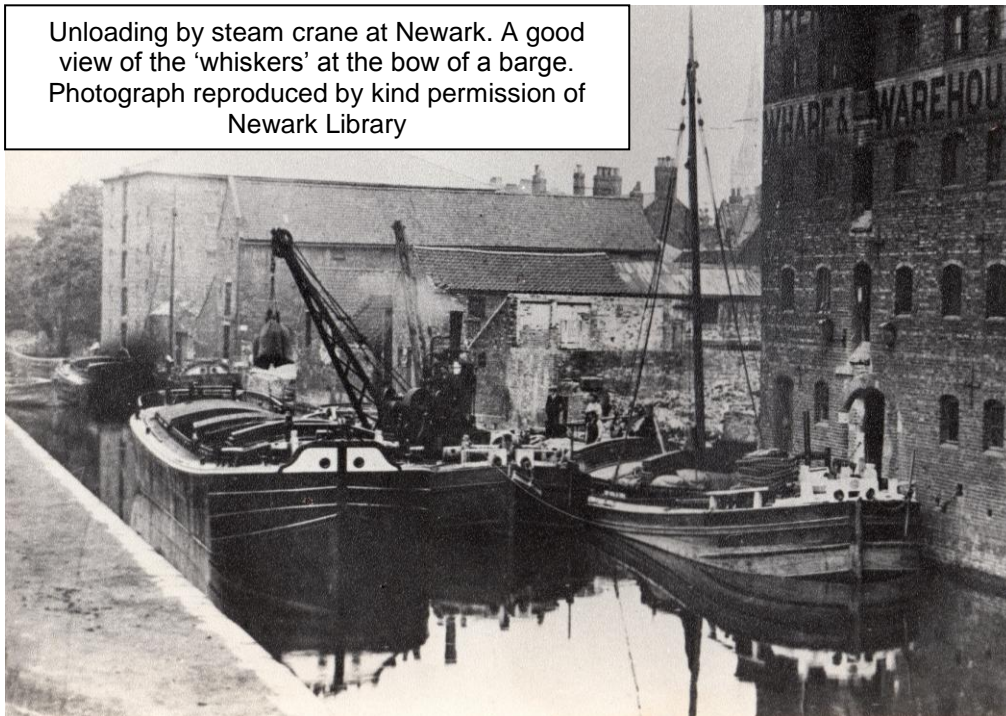
- Add 100g salt to half a litre of water in the bowl and stir well to dissolve the salt. This will make the fresh water into briny 'seawater' (of course the sea's not really this salty, but we need more salt for this scale of test.)
- Do the test as you did with the freshwater.
- Can you load a different number of coins into the boat on the 'seawater'?
- Can you think of a reason for what happens?
- You may want to try floating the boat on different liquids to see if there are any differences – have fun!
- Don't forget to record your results in a chart.

3. What's What?

(This activity supports the English National Curriculum and the Primary Literacy Framework)

Tom says you'll need to know what's what on the barge if you're coming aboard, so here's a list of things you'll find. You probably wouldn't understand Dad and Tom if you heard them talking about parts of the barge, because they're really known by local names round here. For example, the hawsers (thick ropes and anchor chains) go through 'ossoles' (hawsholes) in the 'osstimers (hawstimbers). On the new steel barges, they're in the hawsplates (not hawstimbers) but are still known as 'ossoles'! We call the rubbing fenders at the bow the 'whiskers', because they look like a huge cat's face!

Unloading by steam crane at Newark. A good view of the 'whiskers' at the bow of a barge. Photograph reproduced by kind permission of Newark Library



Try putting these names in the right box on the drawing of the barge on the next page. I don't think you'll get them all right without looking at the answers in the Glossary!

Gunwale (pronounced 'gunnel'), forecastle (pronounced 'folk-sul')cabin, aft cabin, mooring ring, windlass, bollard, timberheads, hatchway, hold, stove pipe, tiller, rudder, stern, bow, midship, footrail.

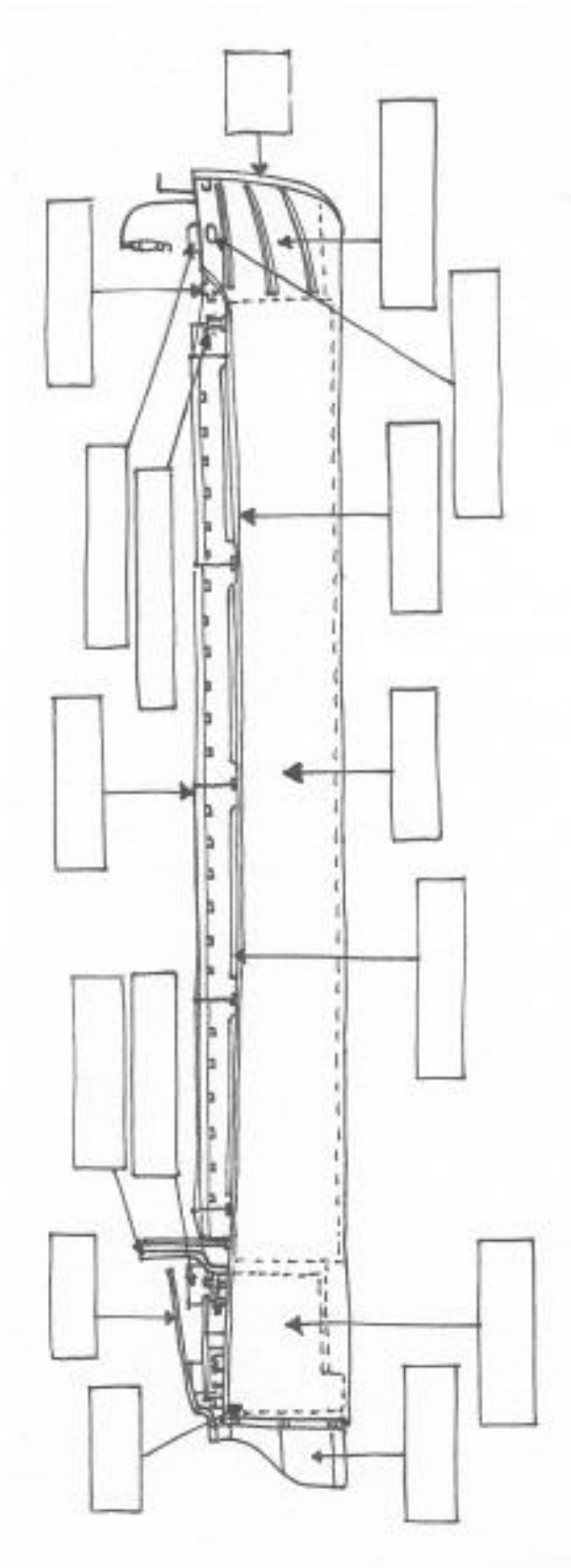


Diagram of the dumb barge 'Leicester Trader'

Label all these parts of
the barge in the boxes
provided.

Gunwale
(pronounced
'gunnel'), forecastle
(pronounced 'folk-
sul') cabin, aft cabin,
mooring ring,
windlass, bollard,
timberheads,
hatchway, hold,
stove pipe, tiller,
rudder, stern, bow,
midship, footrail.

Look in the Glossary
on page 39 for help, or
listen carefully as you
are shown round the
barge.

4. Life on Board

(This activity supports the History and English National Curriculum, Literacy Framework and 'Talk for Writing')

I'm going to tell you all about our life on board the barge now. The barge is called 'Humber'. It's named after the much bigger river that our River Trent flows into before it ends up in the North Sea, a few miles the other side of Hull, but we've never sailed down that far. Our barge sails between Newark and Hull, carrying all sorts of cargo from one wharf to another.

Living on a barge is just natural to us, we've never known anything else, but it may seem strange to people like you who live ashore. 'Humber' is an old wooden sailing barge, but we don't use the sailing rig anymore, apart from when we use it as a derrick for loading and unloading. It's what's called a dumb barge, it doesn't have an engine and we are towed by a steam tug in a line with other barges.

I'll introduce you to the rest of my family. You already know Tom, my eldest brother who is 12 years old. My middle sister's called Frances, she's 7, and my little brother Ernest is 4. Baby Violet's just one year old and I look after her a lot of the time, to help Mam. Mam is called Bessie, that's short for Elizabeth. Dad's name is Alfred, but he's known as Alf. He's the Skipper of our barge. That means he's in charge and we all have to do as he says. It can be a dangerous life for the little ones and I have to keep an eye on them all the time.

Mam doesn't want any more babies, she says there's no room for them. We all live in the aft cabin, with 'bedholes' to sleep in. These are like cupboards with doors. Mam and Dad have a bedhole on the starboard side and we all have smaller ones on the port side. I share a bedhole with Fran, It's not really fair, as Ernest has his own and he's younger than us. Violet often sleeps with us too, it's warmer for her. We have straw mattresses - a bit scratchy sometimes, but at least they're warm and dry. Tom sleeps in the mate's forecastle cabin now, and feels really grown up. There's not much room for the younger ones to play unless the hold's empty. Then they can run around

all day and still be safe. Ernest loves playing marbles and Fran's quite an expert now with the whip and top.

Mam wants a house 'ashore' so we can go to school like we're supposed to. Fran and I can't go every day, because the barge is moving most of the time and we don't learn much. I can write my name and know my numbers, but I would like to go to school more. Some of the other girls are mean to us because our skin is tanned brown. They look too pale and unhealthy to me, at least we're out in the fresh air all day. Mam says she wants a better life for her children, but all Tom wants to do is work on the river like Dad. He doesn't go to school any more now and is working on the barge. He's been helping Dad ever since he could walk. Dad says there's no point in sending girls to school anyway, they only have to look after their husbands and babies and can learn all that from their mothers. He never went to school himself and says he can teach Tom everything he needs to know about working the barge and the river. Besides, he needs Mum to look after him and Tom as well as working the barge with Dad too. She was born on a barge too, so she's used to it.

When the weather's really bad Dad ties us to the mast so we don't get washed off into the river. Fran and Ernest get really scared then. There was a terrible accident not long ago when a boy was locked in the fore cabin during a really bad storm and the barge sank before he could be rescued.

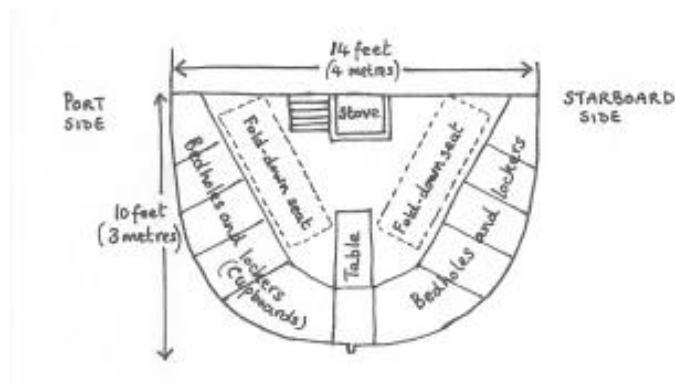
The cabin's really cosy in the winter when the coal stove's burning brightly. It keeps us warm, cooks our food and dries our sodden clothes. We have a barrel of fresh water for drinking and cooking, up on deck. In wintertime we have to break the ice to fill the kettle. Mam works miracles with the 'everlasting stewpot'. We find something new in there every day. It could be potatoes, vegetables, wildfowl and their eggs from the river, pigeons or small birds. If Tom and Dad have managed to dodge the gamekeepers, there might even be a rabbit in there. Once they even snared a huge hare. Dad brings bits of fish back from the big fish market in Hull and Tom sometimes catches fish or eels in the river, but we're often still hungry. A real treat is collecting wild fruit from the hedges or scrumping apples in autumn, if we don't get caught!

Mam says we should be grateful, because we eat well compared with some folk in the towns.

It can be quite smelly on the barge sometimes. There's not much air in the cabin when the hatch is closed and we're all inside. The new paraffin oil navigation lights and lamps are brighter than the old lamps and candles, but still very smelly. When it's hot or there's not much rain, the river can reek a bit and the fish wharves at Hull really stink. We have a bucket downstairs for the necessities in the night, or sit on the aft rail to go to the toilet. That all goes into the river when we've done. Still, we're used to it, so it doesn't bother us. Would you like to live on a barge? Try it out first before you decide!

What do we need?

- Costumes for a boy and a girl like Tom and me
Tom - dark trousers with button fly, collarless shirt, flat cap, waistcoat, woollen socks, lace-up boots
Flo - white cotton pinafore, dark dress with button fastenings, straw hat, woollen socks and lace-up boots, baby doll and cotton baby clothes, crochet blanket
- A space measured and marked out for the aft cabin. The cabin space in the hull is about 10ft X14ft (let's say 3 metres by 4 metres). If you are visiting Leicester Trader you could use the real aft cabin.



- large cardboard boxes to represent:
 1. bedholes and storage lockers (with doors cut into them) all round the curved part of the cabin,
 2. a stove (with cardboard tube stovepipe)

3. a small table

- 'Starboard' and 'Port' labels
- Extra props as available, a kettle, oil lamp, bucket, cooking pot, marbles, whip and top, etc

Here's what to do.

1. Set up the cabin as it would have when Flo's family lived there. Try to fit all the family into the small space that's left. This is all the space they had to live, eat, sleep, play and work in. It's no wonder they spent most of the daytime up on deck!
2. Choose two people to act as Tom and Flo, dress them in their costumes and ask them how they feel. Talk about how different these clothes are to the ones they wear for school, or at home, what they are made of and how they fasten.
3. Choose a narrator (or narrators) to read out Flo's story of 'Life on Board'.
4. Mime actions to fit the details and events in her story, taking turns to take the roles of the other characters. Think about how to show their feelings and characters through your mime.
5. As a follow-up activity you could:
 - write character cards for each of Flo's family, include their name, age, clothes, personality, their relationship to the others, the job they do, their place in the story, what their feelings are at the time etc.
 - write a play about a dramatic event on the River Trent
 - interview Flo or Tom for a 1912 newspaper article about life on the barges
 - write list of things for (pros) and against (cons) living on the barges as they did in 1912
 - imagine you have time-travelled to 1912, what questions would you ask Flo or Tom? What do you think their answers would be? What would you tell them about your life in the 21st century? What would they think about the way things have changed in 100 years?
 - Find out if any of your ancestors worked on the barges. What did they do and what were their lives like? Ask older people in your family for help.

5. Know the Ropes

(This activity support the Design and Technology National Curriculum, the Primary Literacy Framework and 'Talk for Writing')

When you're on a barge, you need to 'know the ropes' and how to tie knots to moor up or join ropes together. The ropes are very heavy, rough and spiky to handle and swell up when they're wet and muddy. In wintertime they often freeze solid and we have to put them by the stove in the cabin to thaw them out. They are made from fibres like hemp, sisal and some are made from 'bass' (coconut fibre). I think coconuts come from a long way away and I saw some on the 'coconut shy' at the fair in Newark. We had 3 throws for a penny but the sticks didn't knock them off. Dad said they must have been stuck down!

Here are a few knots we use all the time, you can learn how to tie them too.

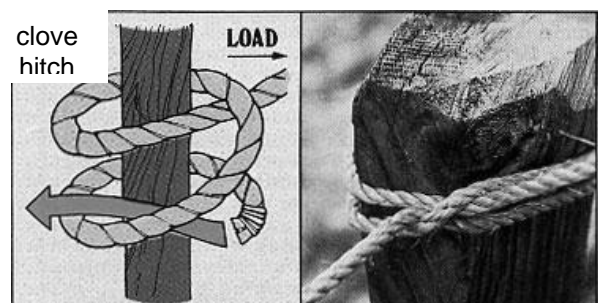
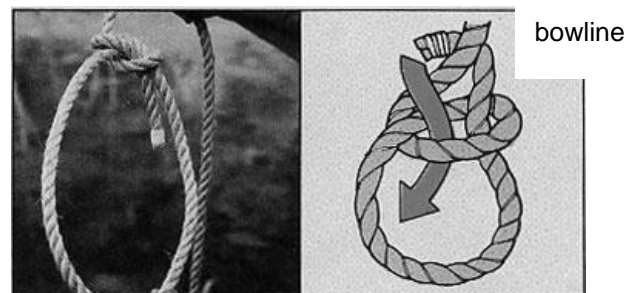
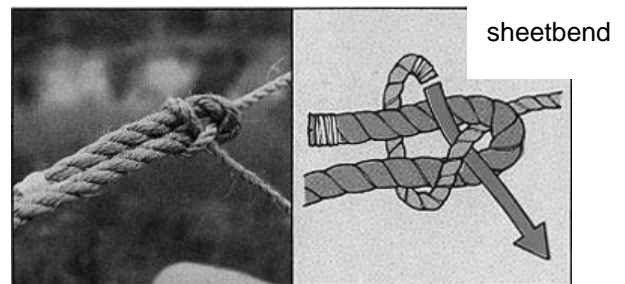
What do we need? ropes of different thicknesses and lengths, and patience!

Here's what to do.

Sheetbend – A knot that's used to join two ropes together if you're in a hurry or when you're joining a thin line to a thicker rope so you can throw it to someone. Thick ropes are too heavy to throw far, especially when they're wet and muddy. A sheetbend stays tight while it's being pulled.

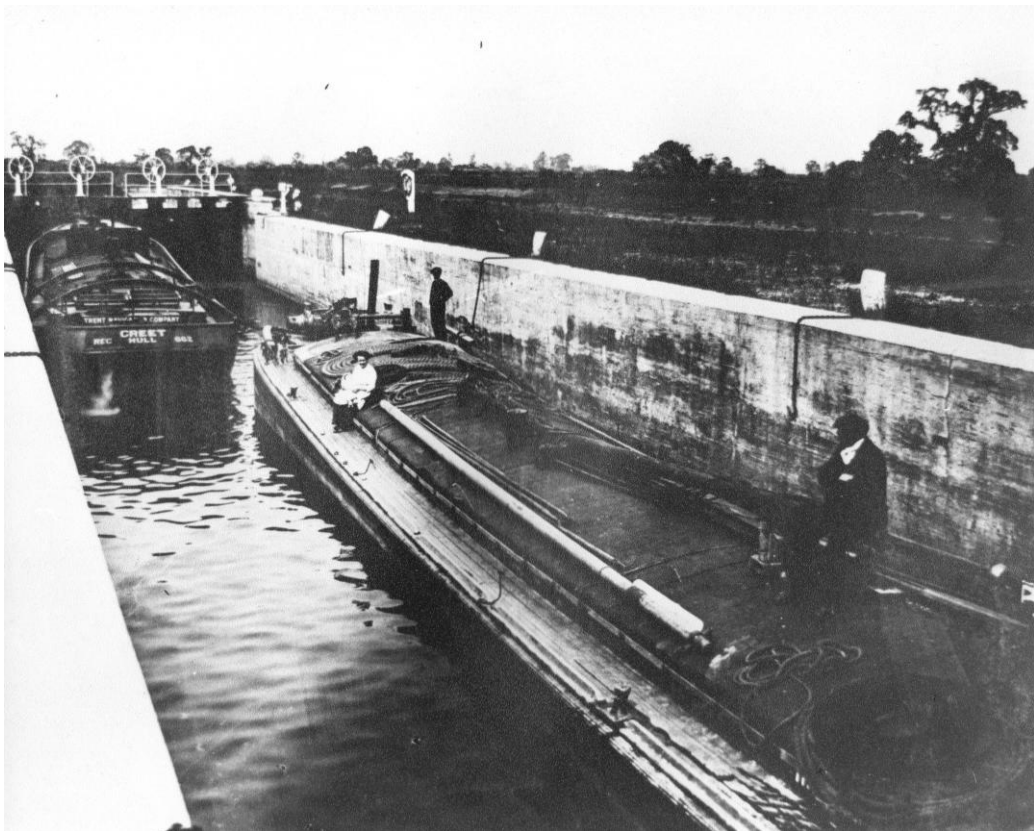
Bowline – This is one of the most useful knots because it makes an 'eye' (loop) on the end of the rope and won't slip. If someone fell overboard you could use this knot to drag them out of the water and it wouldn't tighten round their body.

Clove hitch - A knot that's handy for a temporary hitch, but it can be difficult to



undo if it's left for a while. It could be used to tie up the cog boat or even a horse.

Coiling The hawsers used for tying up the barge have to be coiled carefully on the deck, so they don't get tangled and are always ready to be used. Try coiling the thick rope as neatly as you can on the floor starting in the middle and spiralling outwards. When you uncoil it again, start from the middle again, or it will get kinked and tangled. In this photograph taken in a lock, you can see coiled ropes at the bow of our barge next to where Tom's standing. Mam's sitting on the hatchway with Vi and Dad is sitting nearest the stern.



Barges in a lock on the Trent. Photograph by Henson & Co (c 1915) Reproduced with the kind permission of Nottingham Central Library Local Studies Collection

I think photographs are like magic, don't you? It's as if you last for ever, just as you are now. That day there was a photographer at the lock and our barge was just going through. I wish I'd been on the photograph too! I was in the cabin looking after Fran and Ernest and we missed all the fun.

6. Loading the Barge

(This activity supports the Mathematics, Science, Design and Technology National Curriculum, the Primary Literacy Framework and 'Talk for Writing')

Barges carry all kinds of cargo on the River Trent. Sometimes it's in sacks or crates and that's loaded by using the old masts or the steam cranes.

If the cargo is loose, (it could be coal, gravel or sand) it has to be loaded into the hold by a chute from the wharf. It's really important to load the barge evenly, or it could sink if it lists too far one way, or the bow is heavier than the stern. Dad makes sure it's done properly by moving the boat alongside gently, so the hold fills in even layers. He keeps a careful eye on the 6 inch draught marks at the bow and stern all the time to see how level the boat is in the water. (See photo of Leicester Trader's draught marks on page 17) Could you be as clever as my Dad and load a barge without sinking it?

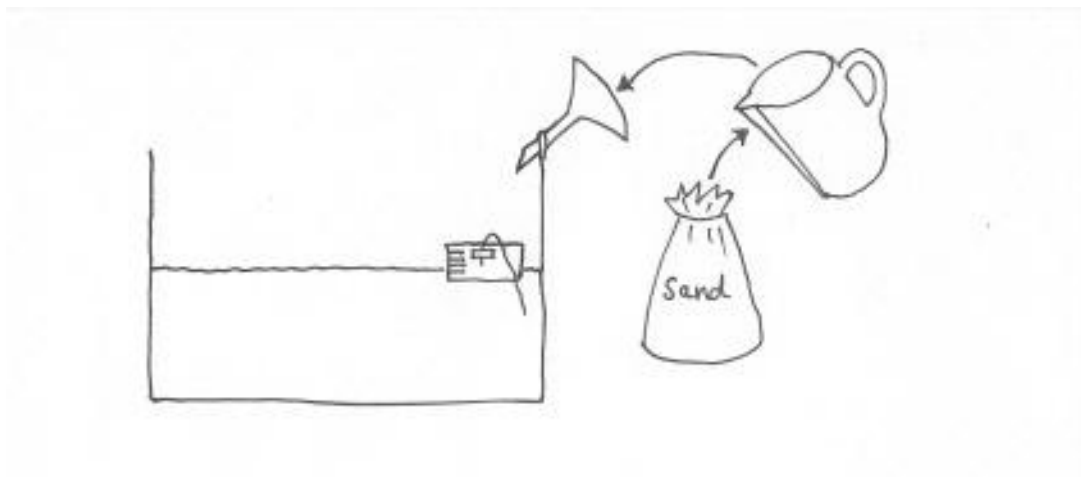
What do we need?

- an empty boat-shaped can (sardines, anchovies etc), cleaned in hot, soapy water
- waterproof tape
- fine nib permanent pen
- ruler
- string
- plastic aquarium tank, (or new cat litter tray or square washing up bowl)
- plastic jug and a funnel
- bag of play sand (or rice, lentils etc)

Here's what to do.

- Stick some waterproof tape round the sides of the tin (barge) and along any sharp edges. Stick a length of string to the bow and the stern.
- Measure and draw a scale (for the draught marks) on the sides of the barge (at the bow and stern) at 5mm intervals with the permanent pen.
- Stick the funnel to the side of the tank, (or tray or washing up bowl) with waterproof tape to make the loading chute.

- Fill the barge with sand, rice or lentils etc (as much as you can) and measure the weight of the 'cargo' you used. Put this amount in the jug.
- Float the barge on the water underneath the chute.
- Now start loading the cargo carefully on to the barge, from the jug through the chute. You'll need to work together and move it gently with the strings so it loads evenly without listing to one side. Load it to the point where it's just above the water, without sinking it.
- Measure the weight of the cargo left in the jug and you'll be able to work out how much you managed to load on to the barge.
- Let everyone have a turn. Which group managed to load most cargo on to the barge?



If you do this workshop on Leicester Trader, there may be a wooden model of a barge to load.

7. Pull Your Weight

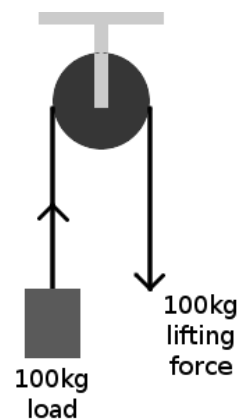
You have to be fit when you live and work on a barge. Dad and Tom load and unload tons of cargo every trip. They're both very strong, but they still need help to lift the heavier loads and that's when they need the block and tackle. It has ropes, pulley blocks, and a hook and takes some of the strain out of lifting cargo, but it's still very hard work, takes hours and hours and often has to be done in the dark so we can catch the tide early in the morning. Imagine filling the hold of our barge with 16 stone (102kg) sacks of wheat, flour or hundreds of iron pipes from Stanton Ironworks. I can tell you they're worn out by the time they've finished and sometimes even Mam and I have to help.

Have a go yourself and see how much you can lift using the block and tackle on the barge. This weight's only 56lb (about 25.5 kg), a quarter of one sack of wheat that Dad and Tom lift.



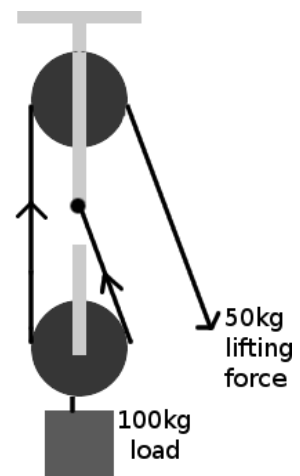
How pulleys work

A pulley is a simple machine. If you have a single wheel and a single rope, a pulley helps you reverse the direction of your lifting force. So, as in the picture below, you pull the rope down to lift the weight up. If you want to lift something that weighs 100 kg, you have to pull down with a force equivalent to 100 kg. If you want to raise the weight 1 metre into the air, you have to pull the rope a total distance of 1



metre at the other end. With one wheel, a pulley simply reverses the direction of the force you apply.

If you add more ropes and wheels, you can reduce the effort you need to lift the weight. Now there are two wheels and two ropes. The 100 kg weight is supported by two ropes instead of one (ignoring the loose end of the rope you're pulling with), so you can lift it by pulling with a force of just 50 kg - half as much. The weight rises 1m, but now we have to pull the rope twice as far (2metres). Why is that?



To make the weight rise 1metre, you have to make the two ropes supporting it rise up by 1metre each. To do that, you have to pull the end of the rope 2 metres.

With two wheels and two ropes, a pulley halves the lifting force you need. It's like lifting the weight with two ropes instead of one. But you now have to pull the end of the rope twice as far to lift the weight the same distance.



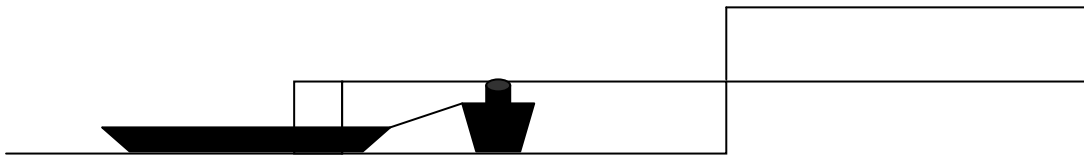
The pulleys on Leicester Trader have 5 wheels, so can you work out how far you will have to pull the rope to lift the weight up 1 metre? Be careful you don't drop it on your toe!

8. How Locks Work

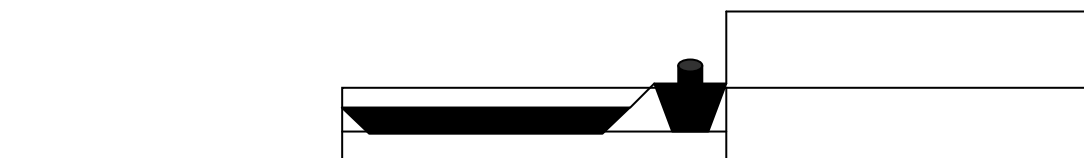
(This activity supports the Science, Design and Technology National Curriculum, Primary Literacy Framework and 'Talk for Writing')

Hello, it's Flo here again. Everyone knows that water flows downhill, so even though it looks really flat around here, the River Trent is about 25 feet nearer to sea level at Hull than it is at Newark. So that bigger boats and barges could use the river up to Newark, some of the shallower places were dredged to make it deep enough. To even out the differences in depth and to lift barges from one level to another on the river, locks were built. This is how it works.

1. When a barge is going upriver, the bottom gates open and the tug and barge go into the lock.



2. The lower gates are closed and water is let into the lock from the river above. The boats rise as the lock fills with water.



3. When the water is level with the river, the upper gates can be opened and the boats continue on their journey.



4. To go downriver, just do it all the opposite way.

It's sometimes very busy at the locks and we have to queue for ages to get through. That wastes time and Dad gets annoyed, after all, time's money.

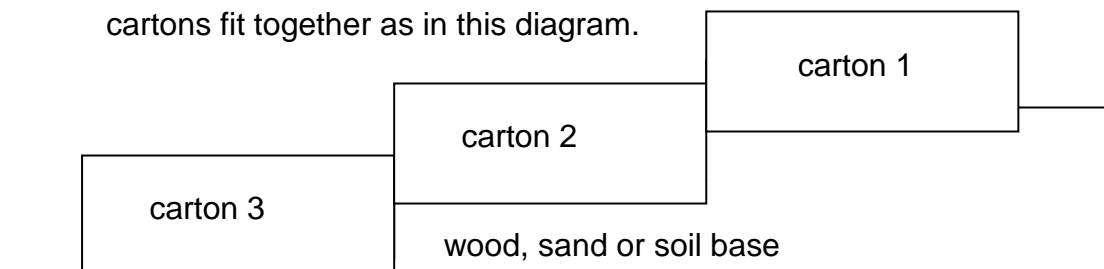
We go through 3 locks on the way from Newark to Hull: Town Lock, near the old castle drops 6 feet (1.8 m); Nether Lock near the railway line drops 8 feet (2.4 m) and Cromwell Lock, where the river is much wider, drops 10 feet (3 m). After Cromwell Lock the River Trent is tidal and there are no locks. Of course, I know all about how locks work but do you? Maybe you could visit a lock or make a simple model and find out for yourselves.

What do we need?

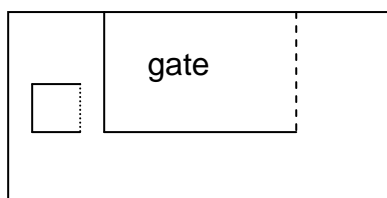
- 3 square, plastic, ice-cream cartons with lids
- scissors
- a watering can full of water
- model barge - you could make one from a fish (sardines, anchovies) can!
- waterproof tape
- something to stand the cartons on (wood, sand, soil for example)
- somewhere outside to work, you'll probably get wet!

Here's what to do:

- Build a series of steps with the wood, sand or soil, so the ice-cream cartons fit together as in this diagram.



- You may need to cut the edge rim off the cartons where they meet, so they sit snugly together. Fix them together with waterproof tape.
- Cut a lock gate out of one side of cartons 1 and 2, carefully, as shown here. You'll need to ask an adult to help you do this. Leave a hinge on one side (dashed).



- Cut a hole at one side of the lock gate, leaving a small hinge at one side, shown as a dotted line in the diagram. This is to allow water to move from

one lock to another. The bottom of this hole must be level with the bottom of the gate, or it will let too much water out of the 'lock'.

- Fill the top carton with water and put water in the other two as far as the bottom of the gate. You might find your gates leak a bit, (most lock gates leak in real life too), so you may need to top up now and again.
- Float your barge in carton 1 and push gently on the small hinged hole in carton 1, so the water runs into carton 2.
- When the water has filled carton 2, open the gate on carton 1 and sail your barge through into carton 2. Close the gate on carton 1.
- Push gently on the hinged hole in carton 2, to allow the water to fill carton 3. When it is full, open the gate on carton 2 and float your barge into carton 3.
- You've now used a simple lock system to sail your barge downriver – well done!

During your visit to Leicester Trader, you may be able to use a model lock to discover how locks work.

9. Wildlife on the River

(This activity supports the Science, Geography, ICT and Art National Curriculum, Primary Literacy Framework and 'Talk for Writing')

One thing I love about living on the barge is the plants, birds and animals all around us. We see a lot more than we would if we lived ashore in a town. Some of them are useful and good to eat, but I enjoy also watching them and doing little sketches when I've a spare minute or two. Mam says I'm a good little artist and she saved a penny to buy me some paper and a lead pencil when we were in Newark last week. I have to hide these precious things from the little kids, or they'd ruin them in no time. Dad says it's a waste of time and money and I should be helping Mam in the cabin instead of day-dreaming.

There are all types of gulls downriver nearer to Hull, wildfowl (that means different types of ducks and geese), curlew, snipe and partridges in the fields and plenty of little birds nesting in the reeds every Spring. We sometimes find ducks' nests full of eggs on the banks. They're really delicious and a treat for our supper. Seals and dolphins sometimes swim in the tidal river below Gainsborough and there was even a small whale once but that was unusual.

The dragonflies skimming over the water are like bright jewels in the summer. They'll even land on your finger if you sit very still. Sometimes, when everything's quiet, you'll hear a 'plop' in the water and if you're sharp, you might see a water vole swimming by a hole near the bank. Some town folk think they're rats, but rats have longer tails and sharper snouts. Rats are horrible, they climb all over the barge, up the mooring ropes, into the hold, we're always chasing them off but you have to be careful because they can give you a nasty bite and spread diseases.

Mam and I make remedies from many of the herbs we collect by the river. Meadowsweet is a great cure-all and helps ease Dad's bad stomach and his aches and pains. There are plenty of spring greens to be had on the riverbank, such as dandelions, nettles, chickweed, lady's smock, plantain, sorrel, scurvy-grass and water-mint. Samphire is lovely, crunchy with a salty

taste. It grows on the estuary marshes, down river. We don't have a lot of time to forage, but Mam says it's important because the plants keep us all healthy. You'll see lots of animals, insects and plants by the river if you look carefully.

What do we need?

- sketch book
- map showing the River Trent
- pencils/crayons/watercolours
- identification guides (the Field Studies Council produce excellent ones)
- binoculars if you have them
- camera
- computer with internet connection

Here's what to do:

Discover online how we use common plants like meadowsweet for our medicines and how many of the everyday drugs we use are derived from plants. (For example, aspirin comes from the willow tree.) Try www.complete-herbal.com , an educational site. Remember though, that you should never eat plants from the wild, unless you are told by an expert that they are safe, as many of them can make you ill, are poisonous and look very similar to one another.

See how many species of wildlife you can find by the river. Sit quietly and you'll see much more. Walk down a stretch of towpath and record all you see. Take a map, sketchbook and a camera to record what you've seen, and where. Identification guides can help you discover things you've never noticed before. Make your record into a report about wildlife on that part of the Trent.

Send your findings to the Nottinghamshire Wildlife Trust at info@nottswt.co.uk and visit their website www.nottinghamshirewildlife.org.uk for details of riverside nature reserves you can visit, such as Besthorpe, Attenborough or Farndon Willow Holt.

Visit the Trent Vale website www.trentvale.co.uk to find out about wildlife and heritage events taking place near you.

10. Glossary

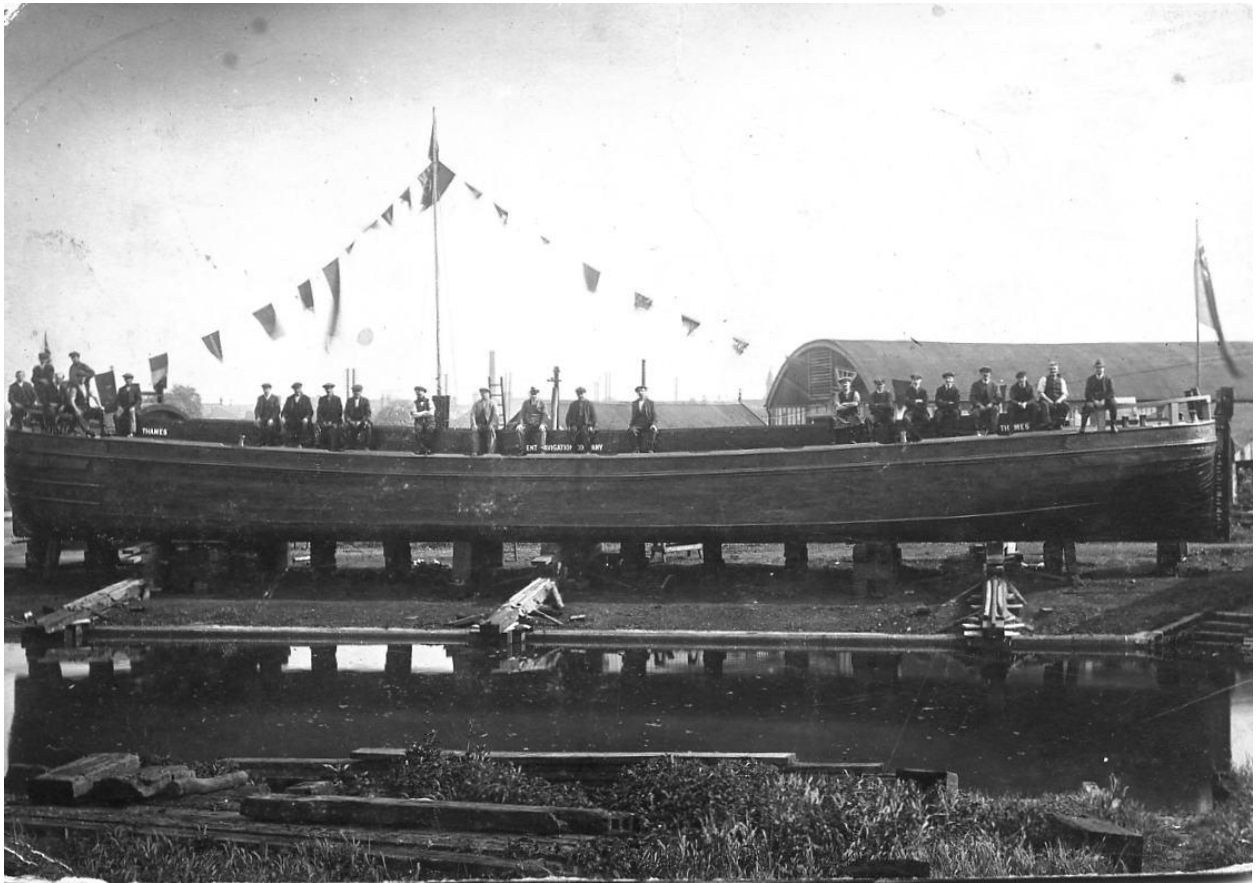
Word	Definition
Aegir	(A Norse word pronounced 'E-ger') a natural tidal wave, (like the Severn bore) on the River Trent
aft	at the back of a barge, near the stern
anchor	large metal hook, dropped to the river bed to hold a boat in one place where it can't be moored to the bank
barge	large, flat-bottomed boat for carrying cargo
barrel	wooden container for wine, beer, water etc
basin	large pool created in a river or canal
bedhole	cupboard with doors, for sleeping
bollard	short, thick post for mooring
bow	the front of the barge
bowline	a useful knot that makes a loop
brewhouses	factory where beer is made
cabin	living space inside a barge or boat
cargo	goods carried on barges from one place to another
canal	waterway built for barges/boats
catchment area	area of land drained by all the streams and rivers leading to one river and out to sea
channel	navigable part of a river or sea
chute	gravity-fed funnel to move materials around
clove hitch	a knot used to tie-up a boat or horse temporarily
cog boat	small wooden dingy pulled behind a barge
crew	workers on a barge/boat
crutch	a slot for the oar in the stern of a cog boat
derrick	small crane for lifting goods
draught marks	marks on the side of a barge/boat to show how much more of the hull is underwater after loading cargo
dredge	dig out the bed of a river to make it deeper
dumb barge	barge with no engine power of its own
ebb	when the tide is going out
estuary	tidal part of a river
fender	something put between a barge/boat and a wall to stop it rubbing and damaging either
ferry	boat used to cross a river
flood	when the tide is coming in or the river overflows its banks
foot rail	rail along the edge of the deck to prevent slipping
forecastle	(pronounced 'folk-sul') cabin at front (bow) of boat
force	the amount of energy needed to move something
gamekeeper	employed to prevent poachers stealing animals for food
gangway	the ramp leading on to a barge/boat
gunwhale	(pronounced 'gunnel') the waterline plank on the side of the barge
hatchway	where the ladder goes down into the barge/boat
hawsers	thick ropes (or steel) for tying up the barge/boat
hawsttimbers	wooden planks with holes for the hawsers to go through
hemp	plant with very long, strong fibres, used for ropes etc
hold	where the cargo is stored on board
hydroelectric	machinery used to make electricity with waterpower
jetty	place where barges/boats can be tied up to load/unload

list	leaning to one side or the other
lock	gravity-fed lift using water to lift or lower barges/boats
maltings	where grain was dampened and heated to sprout it, part of the brewing process
mast	tall pole in a barge/sailing boat with sails attached
mate	crew on a barge/boat, second-in-command
meander	a large loop formed in a river as the banks are eroded
midship	the middle section of a barge/boat
moor (a barge)	to tie up a barge/boat to a jetty or wharf
mouth (of a river)	where the river flows into the sea
nature reserve	place protected for wildlife
outfall	place where a sewer, drain, or stream discharges into a river
oxbow lake	a U-shaped lake formed when a meander in the river is cut off as the river changes course
paraffin	fuel distilled from oil to make it cleaner and brighter indoors
pneumatic	machine using the power of compressed air
port	left hand side of the barge when facing the bow
pulley	machine with ropes/wheels used to lift weights easily
reek	stink or smell strongly
reserved occupation	a job which was so important that the worker was exempt from military service during war time
rig	the equipment used on a sailing barge/boat
rivet	plug of metal heated and hammered into a hole to join plates of metal together
rudder	large, flat board at the stern of a boat used for steering
scrumping	stealing apples from someone else's land
scull	move a boat by using one oar from the stern
sheetbend	a knot used for joining ropes of different size together
shipwright	a boat builder
sisal	strong fibre from the agave plant
skipper	the person in charge of a barge/boat
sluice	a water channel controlled by a gate
source	where a river begins, furthest place from the sea
starboard	right hand side of a barge/boat when facing the bow
stern	the back of the barge/boat
stew	a simple meal cooked all together in one pot
stone	an Imperial measure of weight equal to 6.35 kg
stove	enclosed metal box used to burn fuel for heating
tidal	part of river where the water level rises/ falls with the tide
tiller	long bar fixed to the rudder, used to steer the boat
timberhead	end of large wooden post sticking up above the deck
ton	a little less than a tonne, 1 ton = 907 kg
towpath	path alongside river or canal where horses or people pulled barges/boats along with ropes
tributary	smaller stream or river flowing into main river
tug	small, strong boat used to pull or push other, larger ones
warehouse	where goods were stored after unloading
wetland	boggy area near a river, often in the floodplain
wharf/wharves	where barges/boats moored to load and unload goods
wildfowl	birds living on rivers and in wetland areas
windlass	hand-powered winch with a handle, used to lift heavy weights or anchors on barges/boats

More Photographs



A paraffin-fuelled anchor light,
used on the dumb barges until the
1960s



The Trent Navigation Company's barge 'Thames' ready for launch at Newark dockyard, May 1924



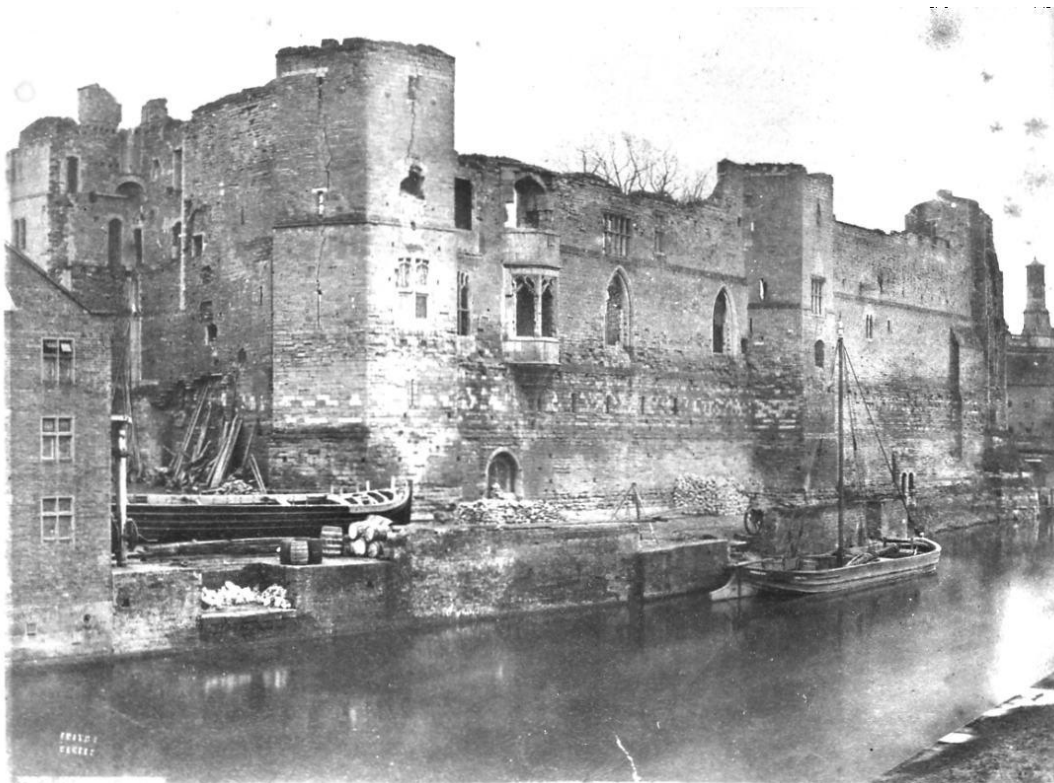
Pneumatic rivetting



Leicester Trader moored at Newark Basin in 2010 outside the former Trent Navigation Company warehouse



The Aegir, tidal bore passing J S Watson's shipyard at Beckingham near Gainsborough. This photograph was probably taken around 1930



A sailing barge moored by Newark Castle before 1880. On the left you can see a new sailing barge being built at one of the three Newark shipyards building them at that time.

LEICESTER TRADER - RISK ASSESSMENT

On the instructions of the Friends of the Newark Heritage Barge a Risk Assessment was carried out on the steel lighter *LEICESTER TRADER*. The Risk Assessment was carried out on board the vessel on Friday 28 May 2010 in accordance with the recommendations of the Maritime and Coastguard Agency by a team of two assessors led by Rodney Clapson, Surveyor Member of the Yacht Designers and Surveyors Association (retired) & shipwright, with Leslie Reid, master of the vessel.

We draw specific attention to the hazards which have a risk factor of 6, which means preventive measures must be in place. action must be taken, and preventive measures must be in place before the vessel is put to use. These are as follows:

- Evacuation of the vessel
- Man Over Board

At the time of the Assessment, the vessel was laid alongside at her berth in the River Trent at 24 The Weavers, Newark NG24 4RY where the vessel is being fitted out as a visitor centre to display historical artefacts connected with life on the River Trent. The weather was fine, light wind, temperature 12C. We noted that *LEICESTER TRADER* is 81'6" overall length, 14'6" beam with official number 185149. She is a lighter, that is a vessel with no engine fitted, and with no sailing rig.

EMBARKATION / DISEMBARKATION OF VISITORS

Hazard: Man rope.

Consequence: Trips during embarkation and disembarkation.

Harm: Bumps / bruises with possible fractures by frail visitors H = 1/2

Likelihood: Unlikely / likely L = 2/3

Risk factor (L x H) = 3/4

Control Measure:

- Man rope to be fitted so as to allow free access for visitors boarding or moving between ships moored alongside each other.
- Crew member to be stationed at each crossing point to help visitors.
- Visitors always to be warned before they start boarding only to enter or cross between ships where crew member is standing by, and only to board by the vessel's gangway.
- Visitors always to be reminded of this before they start disembarking.

VISITOR SAFETY ON DECK

Hazard: Wet or windy weather.

Consequence: Decks become hazardous.

Harm: Slips and trips leading to harm ranging from bumps, through to fractures and to possible man overboard H = 2/3

Likelihood: slips likely, Man Overboard very unlikely; L = 2

Risk factor (L x H) = 5

Control Measure:

- Visitors should not to be carried on board the vessel while it is moving to and from berths or under tow unless seated in a special passenger area to be constructed within the coamings, or in the hold.

Hazard: Tarpaulins / decks slippery when wet and exacerbated by bare feet.

Consequence: Slips

Harm: bumps to fractures H = 2

Likelihood: Unlikely L = 2

Risk factor (L x H) 4

Control measure

- Footwear to be worn at all times
- Visitors should be briefed about this hazard as part of an introductory briefing.

GALLEY SAFETY

No cooking facilities were fitted on the vessel at the time of the assessment. This assessment should be updated in the event of galley facilities being fitted at a later date, in conjunction with a British Waterways Boat Safety Inspection.

OTHER SAFETY BELOW

Hazard: Keelson

Consequence: Trip.

Harm: Bumps / bruises, to tripping H = 1/2

Likelihood: Unlikely L = 2

Risk factor (L x H) 3

Control Measure:

- The keelson should be painted white or other high-visibility colour.
- Visitors should be briefed about this hazard.

Hazard: Using companion way for access to hold.

Consequence: Slip/Fall

Harm: Bumps to fractures H = 2/3

Likelihood: L = 1

Risk factor (L x H) 2/3

Control Measure:

- Annual inspection of handrails and stairways.

Hazard: Uneven flooring while conversion work is in progress

Consequence: Tripping hazard.

Harm: Bruising, possible fractures or sprains. H = 1/2

Likelihood: L = 2

Risk factor (L x H) 2

Control Measure:

- Ensure loose floor panels are securely in place before allowing visitors into the hold, cabin and focsle. The hazard to be pointed out to visitors on arrival.

Hazard: Evacuation of visitors from the hold in an emergency

Consequence: Delay in moving visitors to safety on deck or ashore. Tripping or falls.

Harm: Bruising, possible fractures or sprains. H = 1/2

Likelihood: L = 2

Risk factor (L x H) 3/4

Control Measure:

- Crew to have appropriate training in guiding visitors to exits via the companionway, and the cabin and focsle ladders. This training also to cover the use of a chair lift for disabled visitors if one is eventually fitted.
- Visitor numbers to in the hold to be restricted to a figure approved by the vessel's insurers.

CREW SAFETY

Hazard: Wet weather.

Consequence: Crew loose footing on deck.

Harm: Slips and falls, through to man overboard 2/3.

Likelihood: Fairly unlikely 1/2

Risk factor (L x H) 4.

Control Measure:

- Crew to wear life jackets at all times with safety lines carried when moving the vessel from berth to berth.
- Rig jacks for safety lines when moving the vessel from berth to berth.
- Annual crew refresher training for all crew.
- Safe Working Practice manual to be available.

OTHER

Hazard: Evacuation of vessel in the Trent or other tidal waters.

Consequence: Man overboard possible.

Harm: Drowning or hyperthermia H = 3

Likelihood: L = 2

Risk factor (L x H) 6

Control Measure:

Preventative measures

- Man Overboard Ladder meeting SOLAS (Safety of Life At Sea) requirements on board with easy access.
- Crew familiar with helicopter rescue practices.
- If hazard occurs
- One crew member whose sole responsibility is for visitors.
- VTS (Vessel Traffic Service), Coastguard, or BW (British Waterways) notified.
- Shore contact notified if practicable.

Hazard: Man Overboard.

Consequence: Need to retrieve victim.

Harm: Hypothermia to drowning H = 3.

Likelihood: Unlikely L = 2.

Risk factor (L x H) 6.

Control Measure:

Preventative measure

- A tender to be available on every voyage.
- Man overboard ladder available meeting SOLAS requirements.
- Crew members assigned roles on every voyage.
- Crew familiar with helicopter rescue practices.
- Rescue simulation carried out annually as part of refresher training for all crew.
- Safe Working Practice manual available.

If hazard occurs

- Safe deck practices in place and observed, including crew wearing life jackets at all times.
- Two crew members in cog boat to retrieve person in the water.
- Crew member assigned to lookout.
- Crew member assigned to radio.
- VTS, Coastguard or BW notified.
- Shore contact notified if practicable.

Hazard: Grounding in tidal waters

Consequence: Damage to ship and possible need to evacuate crew.

Harm: Ranges from minor to loss of life through to drowning. H = 1/3 averaging 2.

Likelihood: Unlikely. L = 2/3.

Risk factor (L x H) 5.

Control Measure:

Preventative measures.

- Carry up to date charts and simple current passage plan.
- Bower anchor rigged ready for use on every tidal voyage.
- Evacuation procedures understood and followed.

If hazard occurs.

- Bower anchor or kedge deployed on grounding.
- Day mark or appropriate light displayed.
- VTS or Coastguard informed.
- Shore contact informed.

Hazard: Fire

Consequence: Need to douse the fire and handle passengers.

Harm: Burns, fractures, man overboard. H = 1-3 average 2

Likelihood: L = 2

Risk factor (L x H) 4

Control Measure:

Preventative measures

- SOLAS requirements re accommodation and engine room fire extinguishers met.
- Crew familiar with use of fire extinguishers.
- No smoking down below.
- Forward hatch always unlocked during voyage.

If hazard occurs

- VTS and Coastguard or BW informed, together with shore contact if practicable.
- Crew members responsibilities clearly identified with each crew member having a designated role. These responsibilities to be clearly allocated for each voyage to cover changing combinations of crew.
- Annual crew refresher training for all crew.
- Safe Working Practice manual provided for all crew.

Hazard: Tiller breakage or loss.

Consequence; Loss of steering.

Harm: Danger to ship H = 2

Likelihood: Unlikely L = 2

Risk factor (L x H) 4

Control Measure:

- Ensure spare tiller is always aboard.

MEDICAL EMERGENCIES

Hazard: Visitor or crew accident or illness.

Consequence; medical attention required.

Harm: Inappropriate action H = 1/2

Likelihood: Unlikely L = 2

Risk factor (L x H) 3

Control Measure:

- Crew must always include a qualified first aider with in-date certificate.
- Full first aid box complying with HSE(Health and Safety Executive) requirements, and burn dressings to be carried.
- Emergency food suitable for diabetics to be available on board in case of delay in reaching berth.

Rodney H.R.E. Clapson

Leslie G. Reid



Date 28 May 2010

Note to teachers/group leaders

This risk assessment is included for your information only. A separate risk assessment should be completed for all school visits according to Local Authority guidelines. Other groups should discuss safety issues when booking a visit and carry out risk assessments as required.

