

# The MUNDLING STICK



LION  
Salt Works  
TRUST

Newsletter of the Lion Salt Works Trust Summer 2016

Volume 2: 2016

## Best in the UK!

The long-awaited result of the National Lottery Best Heritage project was finally announced on the 10<sup>th</sup> August. The Lion Salt Works triumphed, with over 6,000 votes.

The award was presented by celebrity chef Ainsley Harriott – a National Lottery trophy, and £3,000 in cash. LSW was featured on North West Tonight, and will be represented at a star-studded awards ceremony to be broadcast on BBC1 on 12<sup>th</sup> September.



Ainsley praised the team of staff and volunteers at the “fantastic attraction.”

The morning after the announcement, LSW welcomed over 150 visitors! It is hoped that this success will raise our profile both regionally and nationally, and perhaps begin a new phase in the life of the Salt Works.

Credit must be given to the LSW team for their campaign to raise support.

## We will remember them

When Cheshire Museums organised a World War I Roadshow in January 2016, they were amazed by the number of participants and the range and quality of items produced.

The result is the exhibition *From Salt to the Somme*, designed and developed by Nigel Meyrick, researcher and West Cheshire Museums volunteer. The displays show a stunning collection of documents and artefacts, many of which were found on the Somme battlefields.

Highlights include weapons such as Mauser and Enfield rifles, a Vickers machine gun and various grenades. There are pieces of shrapnel, jagged shards of metal which bring alive the

horror of battle. Tellingly, there is the rum jar, passed around before the infantry went over the top, and the nurse's apron for its consequences.

There are many human stories, of Cheshire lads "straight of limb, true of eye, steady and aglow," whose lives were lost at La Boisselle and Beaumont Hamel: Private John Hulme, Private George W. Shore, among others.

Many were employed in the salt mines and works of Northwich. Brunner Mond records in its Roll of Honour that 1,481 of its Winnington employees served in H.M. Forces, of whom 169 "paid the supreme sacrifice."

And special thanks are owed to the friends and members of the public who have loaned treasured mementos, to help create a moving and memorable exhibition which is not to be missed.

## Welcome Home!

From this....



To this....



On Monday 4<sup>th</sup>  
Salt Works  
its newly  
wagon, thanks  
£20,000 from

July, the Lion  
welcomed back  
restored salt  
to a grant of  
the Institution of

Industrial Archaeology. The restoration took place at the Llangollen Railway and Carriage Works in Denbighshire, North Wales.

Salt wagons, now a rarity, were once a common sight on the Salt lines around Northwich. The distinctive pitched roof was designed to drain water away from the salt bags inside.

Nick Hunt, Chairman of the Lion Salt Works Trustees, commented that the restoration had posed considerable problems: “The salt wagon had been out in all weathers for decades. Added to this was the damage done by the salt to both the wood inside the wagon and its corrosive effect on the supporting metalwork.”

The salt wagon now stands on the original track which curves past the entrance to the Works, and makes a splendid sight for visitors as they arrive.

### **Salt-making: Blood, ale and egg-white and other additives**

The Lion Salt Works produced white salt, i.e. precipitated directly from brine. When the brine was pumped to the surface, workers would examine its “twaddle”\* – or saline content. A new-laid egg would be dropped into the brine; if it floated with most of its volume above the surface, it was strong brine, about 40 on the scale.

But as well as the typical 25% of sodium chloride (NaCl), other salts could be present in the liquid: traces of sodium bromide, sodium sulphate, sodium carbonate, sodium iodide, magnesium carbonate, potassium sulphate, manganese carbonate..... Natural saturated brine was 27% NaCl, but Northwich brine contained about 1.5% of “earthy salts.” These would give the end-product a sour or bitter taste and had to be removed.

Early salt-makers had their own methods of clearing impurities as they heated the brine, by the addition of organic compounds, as John Ray described in 1674:

*“When the liquor is more than lukewarm, they take strong ale, bullock’s blood, and whites of eggs mixed together with the brine..... The whites of the eggs, and the blood, serve to clarify the brine by raising the scum, which they take off just upon the boiling of the pans..... the older the blood, the better it is.....the ale serves to harden the corn of the salt...”*

This was known as “doping the pan,” or today, “froth flotation.”

Thomas Lowndes, a Cheshire gentleman, endorsed this process in a long submission to The Admiralty in 1746, recommending the use of English salt in preference to French bay-salt, then commonly used by the Royal Navy. He also proposed the addition of “a nutmeg of butter” to the pan, although this did not seem to work with Cheshire brine. The open-pan method produced salt which was “clean, sweet, and strong.” Lowndes compared this with the French salt, made by evaporating sea-water, which was *“always mixed with dirt and nastiness, which make up a seventh part. The filth arises from putrefied human bodies, dead fish and the carcasses of animals, and from most immense quantities of rotten weeds.”*

Later additives included alum, soft soap – depending on the type of salt crystals preferred, dolly blue, etc. Some impurities precipitated out through boiling, particularly calcium carbonate, magnesium and potassium salts, which had to be scraped from the pans once a week. At the Lion Salt Works, soft soap or glue would be tossed into the pan if the salt formed in “soft or hard shoots.”

These formed a useful by-product in the form of salt-licks for livestock.

Later salt production, especially in vacuum processing, uses soda ash ( $\text{Na}_2\text{CO}_3$ ) and hydrated lime ( $\text{Ca}(\text{OH})_2$ ) or caustic soda ( $\text{NaOH}$ ). The magnesium and calcium salts are precipitated as magnesium hydroxide ( $\text{Mg}(\text{OH})_2$ ) and calcium carbonate ( $\text{CaCO}_3$ ) and fall to the bottom of a settling tank. The latest processes claim 99.9% purity of the white salt produced.



Ironically, today’s salt producers may add chemicals to the finished product. Potassium iodide may be added as a source of iodine in countries where deficiency of iodine may cause thyroid problems such as goitre. And America’s largest salt producer, Morton, has since 1914 based its top advertising campaign on the Morton Salt Girl – a little girl cheerfully walking through the rain under her umbrella, carrying a package of salt which leaks onto the pavement. And the caption? “When it rains, it pours.” Morton’s salt contains an additive to prevent it caking in a damp atmosphere. In early days, magnesium carbonate was used, but since 1970 the anti-caking agent is calcium silicate.

\* *twaddle* – Named after a 19<sup>th</sup> century Glasgow engineer, Mr W Twaddell, who invented a hydrometer to measure the SG of a solution. The Twaddell scale is a simplified scale based on specific gravity, where SG 1.000= 0, and 2.000 reports as 200.

## VISIT US

### Opening hours - Salt Works

#### Opening times February to October:

Museum open Tuesday to Sunday 10:30am—5pm, last admission 4pm.

#### Opening times November to January:

Museum open Tuesday to Sunday 10:30am—4pm, last admission 3pm.

Closed all Mondays except bank holiday Mondays.

#### Play Area and Butterfly Garden

Gates, play area and gardens open Monday to Sunday 9am and will close at dusk.

## **Admission charges**

**Adult** £6.25 **Concession** £5.50 **Child** £4 **Family 2 adults + 2 children** £16.40 **Family 1 adult + 3 children** £14.60 **Concession Family 2 adults + 2 children** £15.20 **Concession Family 1 adult + 3 children** £14

**Adult Annual Pass** £18 valid for 12 months from date of issue

**Family Annual Pass** (2 + 2 or 1 + 3) £50 valid for 12 months from date of issue.

Concessions are OAPs, Jobseekers, or Students. Children are aged 5 – 16

There is free admission to the :

Café Gift Shop Butterfly Garden Play Area Canal Towpath Car Park

**To find out more about the Trust and how to get involved please contact Nick Hunt:  
ngkhunt@yahoo.co.uk**

## **THE LION SALT WORKS TRUST**

The Trust is a key partner in the running and future development of the site. Current trustees have a range of backgrounds including local industry, banking, and local government. It meets formally four times a year, but works through sub groups on particular topics. There is a group of volunteers who support the Trust, and they attend the Trust's meetings.

Nick Hunt Chairman

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Martin Boyett Vice Chairman

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Fiona Crane Company Secretary

Elsie Barber Treasurer