

BUILDINGS AT RISK

Salt sparked investment in a new industry in the island

Buildings at Risk covers buildings and structures in our island, domestic and industrial - those currently at risk, those lost, and those which have survived.

In the previous edition on March 30, Dave Martin of the Isle of Man Natural History and Antiquarian Society described how underground salt was inadvertently found beneath the Point of Ayre.

This week he continues by describing how salt was produced elsewhere historically, how it was imported into and used in the Isle of Man, and how the discovery of a local source sparked significant investment in a new industry for the island.

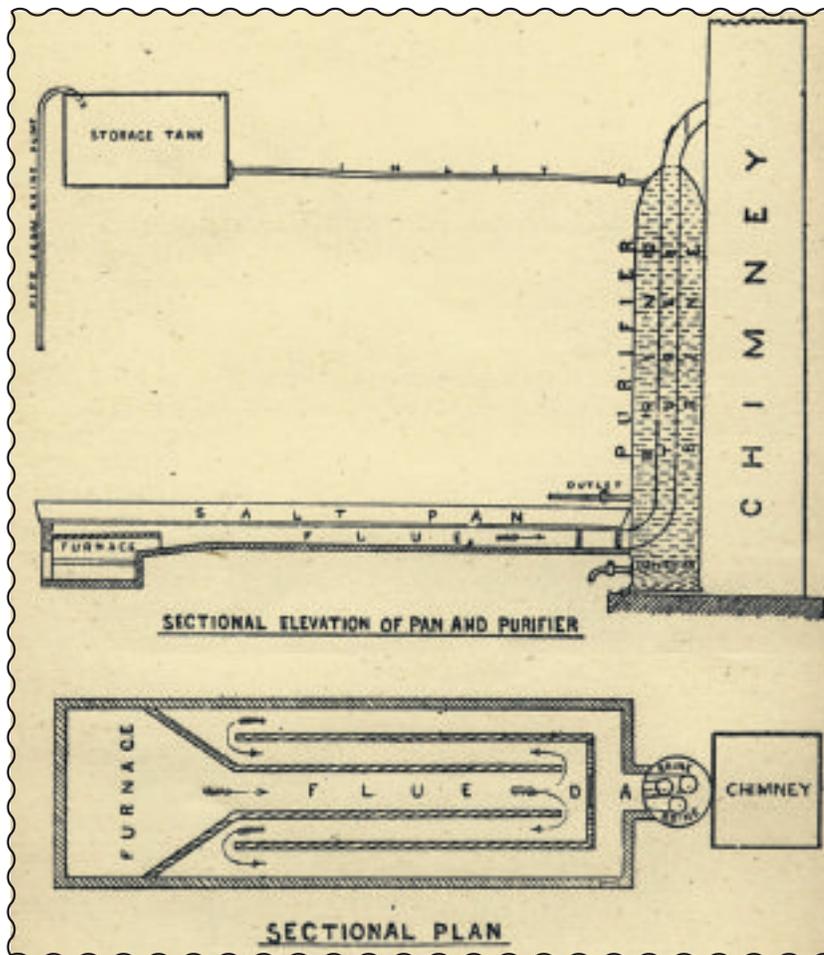
Salt has been valued, and traded, for millennia worldwide.

Whilst the extraction of salt is only well-documented in the Isle of Man from the late nineteenth century, salt has certainly been used and traded here for much longer, and possibly extracted in a small way before industrial-scale extraction in the Island in the twentieth century.

Salt has always been a necessity of life, from desert to jungle to tundra.

As well as that for immediate consumption, it was used to directly preserve meat and fish. As population increased, the growing demand for the commodity made its preparation on a large scale essential.

Salt allowed long-term preservation of a range of



A schematic by Mr John Todd, the chief engineer and manager of the Manx Salt & Alkali Company Ltd, of the type of coal-fired salt-pan he proposed for Ramsey
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foodstuffs, facilitating trade; and in the last few centuries became a valuable industrial raw material.

There are three main methods by which salt is obtained - mining ready crystallised salt, from already concentrated

brine, and from seawater.

EXTRACTING SALT

Almost all sources of crystalline salt or halite (from the Ancient Greek word 'hals' for salt) result from evaporation of enclosed bodies of seawater in geological history.

Many of these became trapped beneath the earth, hence known as 'rock salt'; there are a few places where nature and geology deliver ready-to-use salt on or near the surface, and extremely few where it is as obvious or accessible as the Bonneville Salt Flats.

At Hallstatt in Austria, near-surface beds of rock salt were mined as early as the 14th century BC.

We are all familiar with springs of fresh water which emerge on the earth's surface, but in few locations, saliferous

(salty) springs emerged on the surface.

At locations such as the Seille valley in eastern Lorraine, France, the Roman author Pliny the Elder described how the salty water, called 'brine', was heated in big ceramic pans, known as 'briquetage', over wood fires to evaporate the water and then dry the resulting crystalline salt.

It is known that even from the Bronze Age, salt was prepared in the eastern Mediterranean by the evaporation of seawater. Seawater was trapped in large shallow basins and over time sun and wind evaporated the water, leaving pure dried sea salt.

Unless you have free solar energy, extracting salt from seawater is incredibly energy-hungry, indeed wasteful, and it is both climate-dependent and seasonal.

Gozo, Malta's smaller sister island, still has open-air rock-cut salt pans, but they can only operate typically for five or six months each year.

The Romans were already aware that the salinity (saltiness) of sea water varied, citing saltworks on the Adriatic coast - building not only salt pans but a whole distribution infrastructure.

The Romans were also aware that nature and coastal geology could help concentrate brine. Salt marshes are valued now as wildlife habitats, but for much of at least the last two millennia, they have been exploited by man.

In suitable coastal conditions - muddy marshes in

gently-shelving tidal estuaries - seawater is naturally trapped, especially at high spring tides, and then pools evaporate and concentrate the brine, much as man would go on to do with man-made salt pans or 'salterns' as any salt-by-evaporation plant became known.

SALT IN BRITAIN

Extraction of salt in historical times focused mainly on seawater, but occasional inland brine-springs were exploited where known.

No doubt man has long harvested salt that had crystallised on coasts and rocks; but the first known fuel-fired saltern to date was found at Loftus, near Saltburn in North Yorkshire, and has been dated to circa 3700 BC.

Even allowing for climatic change over the last couple of millennia, it is unlikely that significant quantities of salt could be extracted purely by solar/wind evaporation. Equally, the energy demands made mass extraction by fuel-fired evaporation impractical or uneconomical.

Instead, the Romans collected pre-concentrated brine from pools on salt marshes along, for example, the banks of the River Blackwater in Essex and completed the process by heating the brine in vessels made of the local red clay.

There was a high failure rate in these crude clay vessels, and the resulting fragmented 'briquetage', discarded nearby, formed part of



Some of the ancient open-air salt pans on Gozo which are still in use each summer

Emmanuel Cini



A salt house in Peel during its demolition in 1952

iMuseum



St Monans on Scotland's northeastern coast, with the former salt-pan to the left and wind-powered pump to the right
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the Essex 'Red Hills'.

In Cheshire, the Romans knew of and exploited brine springs and (near) surface salt in the Northwich/Nantwich area; Middlewich's Roman name was in fact 'Salinae'.

Final drying of the crystalline salt was carried out over a low heat on lead trays; archaeologists found a Roman lead-sheet salt tray one metre square at Shavington. When fuel switched to hotter coal, despite corrosion problems, salterns switched to using iron pans.

A significant number of salterns were recorded in the Domesday book, including those started or used by the Romans in Essex.

Salterns on the warmer south coast, such as those at Lynton on the Solent, had open-air pans in which raw seawater was reduced to brine by sun and wind, and then salt was extracted from the brine over fires.

St Monans, in the East Neuk of Fife on Scotland's northeastern coast, would climatically appear an unlikely location for a saltern.

But, in the same way as

aluminium smelters are found in some strange locations nowadays, it was the availability of fuel - discovery of coal locally - that eventually led to a sizeable saltern, with nine pan-houses and a 'windmill' to pump water up from the sea.

Salt had been extracted on the banks of the Mersey from the salt marshes upriver from Speke, which are sometimes seen just before landing at Liverpool airport. But this was eclipsed in 1670 when, whilst prospecting for coal, rock salt was discovered in Cheshire.

This eventually became a major source of salt, and in no small part contributed to the growth of the port of Liverpool; indeed the dock between the Albert Dock and the Dock Road is Salthouse Dock.

Exports were initially salt itself to, for example, the Americas and also salt-preserved foodstuff to Europe and the Empire.

Later exports included soda (made from salt) which was used as a bleaching agent in the booming cotton business and as a raw material in the manufacture of glass and soap.

SALT AND THE ISLAND

Until the chance discovery of brine under the Point of Ayre at the end of the 19th century, the Isle of Man was particularly ill-served for salt locally.

There are no surface-accessible salt beds, nor are any brine springs known to have reached the surface. The Manx coast also lacks any real salt-marshes that could have collected tidal brine-pools.

Although climatic cycles have come and gone, there is no evidence that man has ever constructed pans to collect and evaporate seawater in the Island.

No doubt prehistoric man would have harvested salt that had crystallised on coasts and rocks - indeed there has been a suggestion that some of the soup plate-sized depressions on the top of the Burroo Ned could have been used for this!

Instead, salt was imported to the island. On the Isle of Man, as elsewhere, salt was often taxed and related records can shed light.

One of the earliest is a case

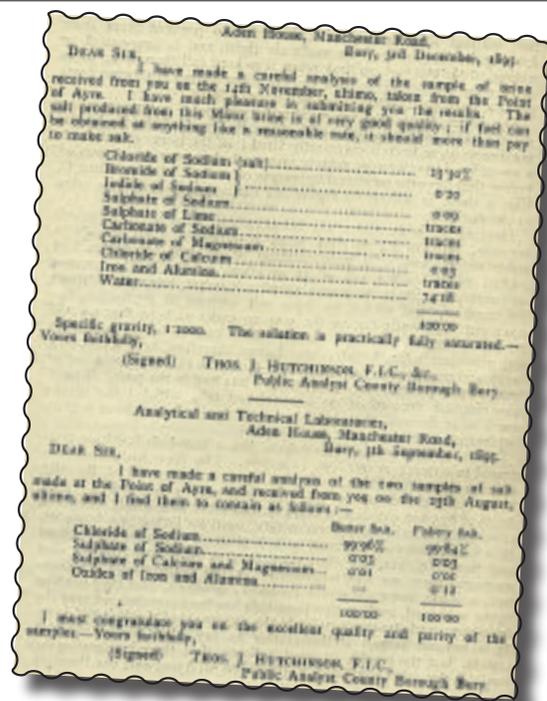
in the Garrison Roll for 1428 on the investigation when taxes should have, but weren't, collected on two vessels' cargoes which had arrived from western Brittany.

The cargo isn't named, but the only cargo at that time which is likely to have come from Brittany and have been taxable was salt, so this hints at two cargoes which included French salt coming into the island in 1428.

While some monasteries in southern Scotland had developed their own salterns, there is no evidence this happened at Rushen Abbey. But fragments of ceramic pots from northern Portugal have been discovered at Rushen Abbey, and it is possible that these came north with Portuguese salt cargoes.

Salt was used to preserve meat and fish locally, but also increasingly to preserve fish - salt herrings, red herrings and kippers - for export, including at one time by ships on the triangular trade.

Evidence of the use of salt was seen in red herring houses, and in salt houses where this valuable commodity was



Analysis and assay of the Manx salt. Upper is the 'raw' brine, lower is analysis of two samples at either end of the crystal size that they hoped to make. Butter salt is the finest grain size made by fast, hot and agitated boiling; salt for fish curing is made by slow, not-so-hot heating which allows larger crystals to grow

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stored - but it was all imported salt.

MANX SALT AND ALKALI COMPANY

The accidental discovery in 1892 of brine and salt beneath the Point of Ayre sparked hope that the island could finally have its own salt. But it was realised that, even if there were beds of halite (rock salt), the situation here was different to Cheshire.

In Cheshire, mineshafts could be sunk relatively easily through stable geology; but below the Point of Ayre the intervening geology - which was effectively glacial debris and seabed deposits - was not conducive sinking deep mineshafts economically. The brine though, if it kept running, had great promise.

The first 1891 boring (No.1) had found brine and three lay-

ers of salt at 615 feet below the surface. To assess the brine reservoir, another deeper bore (No. 6) was made 335 yards southeast of No.1 bore. This time they went down to 920 feet, recording 21 strata of salt totalling 84 feet depth of salt ranging in thickness from 10 inches to 16 feet, separated by bands of saliferous marl.

The independent assay results of both raw brine and resultant salt of all grades was exceptional, it was estimated there might be as much as eight million tons of salt in the deposits/reservoir under the Point of Ayre. The saltworks would need a location to which fuel (coal) could easily be imported and from which salt could easily be exported, and Ramsey harbour was the favoured location.

We are now more familiar with tourists going to float in the Dead Sea, but at the end of the 1800s there was there was also the tantalising prospect that maybe the brine could also be used to create a spa to attract those who otherwise went to locations such as Droitwich for health-giving brine baths.

Negotiations were opened to secure a lease on land alongside the Old Harbour in Ramsey and a wayleave to lay pipe to carry the brine in from the Point of Ayre, and a new company the Manx Salt and Alkali Company Limited was created.

The 'Alkali' part of the name was because they thought they might go on to make and sell industrial soda as well as raw salt.

Next time we will look at the rise, and fall, of Ramsey Salt-works (and its chimneys!)



Red Herring House in Derbyhaven, 1981

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A salt house in Port St Mary

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