

**Billericay Archaeological  
and Historical Society**  
**newsletter** 

Spring 2024



Frederick Chancellor  
Architect and first Mayor of Chelmsford

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2024 promises to be an exciting year for the Billericay Archaeological and Historical Society (BA&HS) as it is the 60<sup>th</sup> anniversary of our founding. Extra events are being planned to celebrate this achievement.

There are several dates that you might like to note in your diary.

- April 8<sup>th</sup> BA&HS AGM 7.30pm at the Fold
- May 19<sup>th</sup> celebration afternoon tea 3 – 5.30pm at the Fold (Cost £20)
- May 11 – 24<sup>th</sup> display in Billericay Library. Volunteer stewards needed please.
- June 8<sup>th</sup> outing to Epping Ongar Railway by vintage bus with fish and chip lunch 11.30 from the Fold (Cost £40)
- Dec 9<sup>th</sup> meeting “15 minutes of fame” This is an invitation to members to share their knowledge about a topic of their interest by giving a talk, no longer than 15 minutes, to the meeting. Please see a committee member for more information

I must thank Alan Taylor and David Bremner for their contributions to this newsletter. If any members would like to share their reminiscences of 1964 for a commemorative newsletter, it would be much appreciated. Copy by the end of April please.

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Newsletter Editor

### **Membership renewals**

Just a gentle reminder to those that haven't yet renewed their membership for 2024. The fee is still just £10 for the year, £18 for a couple.

Lynne Beard

Membership Secretary

### **Catering**

Desperate times

As I write this I have absolutely no helpers on the refreshment rota for Apr/May and Sept meetings. My volunteers for June are currently in Australia, so let's hope they return in time!! It would be a shame if we had to reconsider offering tea and coffee at break times due to lack of support. Hopefully some kind souls are out there, so fingers crossed, just let me know.

On a much happier note, I know how much the home baking skills of Coryn are appreciated by all our members so would like to say a thank you to her from us all. Coryn you spoil us....

Chris Crane

Catering Officer

## **Programme 2024**

April 8 <sup>th</sup>	“Bright Sparks in the History of Electricity”	Leslie Smith
May 13 <sup>th</sup>	“The London of Samuel Pepys”	Richard Pusey
June 10 <sup>th</sup>	“The History of Mountnessing Windmill”	Karl Afteni
July 8 <sup>th</sup>	History of Purfleet Heritage and Military Centre	Paul Hounsell
August	NO MEETING	
Sept 9 <sup>th</sup>	“Britain’s Railways in Edwardian Times”	Adrian Wright
Oct 14 <sup>th</sup>	“1066”	Julian Whybra
Nov 11 <sup>th</sup>	“Edward VIII and Wallis, Duchess of Windsor”	Margret Mills
Dec 9 <sup>th</sup>	“15 Minutes of Fame”	BA&HS members

## **Meeting notes 2023 – 2024**

September 11<sup>th</sup>                      Margaret Mills                      Any Mother’s Son

The Grave of the Unknown Warrior in Westminster Abbey was the topic for this fascinating talk. Margaret spoke about the beginnings of the debate about this memorial, the procedures involved in the project, and the consequences of it. She told us about the controversies and speculations, both at the time and since. It was a very informative evening.

October 9<sup>th</sup>                      Philip McKinder                      Copped Hall

The story of Copped Hall goes way back to medieval times and has links to royalty and political intrigue and had three incarnations in that time. Philip gave a detailed talk on this and a full explanation about the fire that destroyed the last building. He also described the efforts and amazing progress that volunteers have made to restore the building and grounds.

November 13<sup>th</sup>                      Les Smith                      The Brentwood Imperial Youth Band

Due to the illness of the planned speaker, we were pleased to find a substitute from our own membership. Les delivered a well-illustrated presentation about the local marching band that was quite unknown to us. We came away surprised and very impressed with this group of 100+ young people who lead many local parades and compete, successfully, in international competitions.

December 11<sup>th</sup>                      Nick Dobson                      Christmas in the trenches

Nick covered many aspects of Christmas during the First World War, not just the impact at “The Front”. The families at home were affected, not just by the absence of their loved ones but by food shortages. He described how soldiers, and their relatives were able keep in

touch by sending cards and gifts. He also explained the "Christmas Truces" we hear so much about.

January 8<sup>th</sup>                      Janet Brewer                      Death in Ancient Egypt

Janet began her illustrated presentation by stressing that Ancient Egyptians employed death rituals as a way of appearing to extend their short lives; only one third survived beyond the age of 5, the main enemy being Bilharzia. Accidents and overwork, added to lung diseases caused by sandstorms, meant attaining the age of 40 was unusual.

Initially, salts in hot, dry sand where burial took place caused natural mummification and by 3400 BC belief in the afterlife meant burial included food and drink. Later, the embalmer's art developed, and research has revealed often gruesome processes which, for the wealthiest, occupied up to 70 days from death to the application of bandages followed by burial accompanied by professional mourners, then a ceremonial banquet.

Janet's clear, lively, and occasionally humorous approach transformed what could have been a macabre study into a fascinating account holding the interest of those present.

February 12<sup>th</sup>                      Viv Newman                      Poor Cogs in the Machinery of War

Viv told the sad story of the women that worked in the munitions factories during the First World War. Nearly one million women and girls, some underage, took up the call to make the millions of tons of armaments needed by our forces. Viv gave a well illustrated talk explaining the working conditions and describing some of the tragic accidents that occurred and the illnesses that resulted from this work.

### **The Chancellor Project at the Essex Record Office**

For some years now I have been a volunteer at the Essex Record Office (ERO) specifically on the Chancellor Project.

Frederick Chancellor RA, FRIBA, JP was an architect based in Chelmsford but working throughout Essex and into London. He designed private dwellings, churches, banks, schools, and civic buildings. He began working in 1846 and set up his own practice in 1860. The business was carried on by his son Frederick Wykeham Chancellor after Frederick Senior's retirement. More than 10,000 plans were produced by this practice, and they have now been passed to the ERO for the archive.

The plans, which had all been kept rolled in bundles for each project, are being prepared for storage in the ERO under the management of Diane Taylor, Senior Conservator. A team of volunteers, including myself, have been recruited and trained to undertake this task which will take several years.



Firstly, the individual bundles are given a catalogue number and then passed over to Diane for processing. Once in the Conservation Workshop the volunteers open each bundle in turn, The individual plans and drawings that are part of a bundle are then entered onto the ERO database noting the project to which it belongs, size of the plan, the material it is drawn on and whether it is in need of repair.



Each plan is then cleaned, front and back, using foam erasers and/or smoke sponges. These sponges are very effective in cleaning these hand-coloured drawings without any deterioration of the inks or pencil markings. Bearing in mind these plans have been stored for over 100 years in premises which had coal fires and tobacco smoking staff as well as the usual dust hazards of Victorian premises, this is a labour intensive part of the process.



The next part of the process is flattening, vital as these plan will now be stored in plan chests. This involves lightly spraying each item with distilled water, packing into layers with thick blotting paper, and weighted down for at least a week.

After flattening, those plans that need repair are passed to the skilled volunteers to patch and stick. Obviously not using sticky tape but specialist materials such as Japanese tissue.

Finally, the plans are enveloped into acid free acetate folders for protection, labelled and then sent to store.

This project is fascinating to work on. Apart from the pleasure you get when you see a previously grubby and damaged plan being made almost as good as new and ready for public access, it gives a lovely insight into historic buildings and a different way of life. The magnificent detail of decorations in churches and civic buildings alongside the practical matters in dwelling houses such as servants' quarters, sculleries and stables are all lovely to see.

The project should be completed in another couple of years but already some plans are available for public viewing.

Photos courtesy of ERO

Jacky Hathaway

## **The Normans**

As most school children will know, the Normans arrived in England in 1066. The leader of the Normans was William the Conqueror. In 1086 he decided upon a General Survey being made. The purpose of this census was to list all assets, including people, land and cattle. It was most thorough, particularly across the Eastern Counties of England. (You can peruse the copy of the Domesday Book at the Essex County Record Office.)

At this time, great changes took place. Both lands and manorial estates were seized from the Saxon thanes by the Norman conquerors. The Bursteads, which included our area, became part of the 43 estates held in Essex by Odo, the Bishop of Bayeux. He was the half-brother of King William the Conqueror. Later, he fell into disgrace and his estates were then forfeited to the King. As a result, he was banished from England in 1088. His lands at Little Burstead were then given to William, Bishop of London. The Cistercian Monks of Stratford Langthorne Abbey, near Bow, were then given his lands at Great Burstead.

The county was subsequently split into Hundreds or sub-divisions of land. (The term hundreds had also been used by the Saxons.) In our area, we became part of the Hundred of Barstable. This term still exists today.

The Normans brought in the feudal system of government. This led to the manor and the church becoming the most important places in village life. Local government was administered from the manor, whilst the church was the spiritual centre. The parish church was at Great Burstead and was probably built by the monks at Stratford. It may well have been built on a previous church site, built during Saxon times.

Billericay was partly in the manor of Great Burstead and partly in either Cowbridge or Mountnessing. At this time houses were built using posts and wattle and daub. Larger cottages might also have had an upper storey. Roofs were thatched, with a rack underneath. This rack was used to store strings of onions, dried herbs and, possibly, a flitch of bacon. The floor would have been earthen and, if a fire was lighted, its' smoke would have had to find its' own way out of the premises. This was usually through a hole in the roof. Chimneys were usually only found in the manor houses or the larger farms, which tended to be owned by freemen. The use of wattle and daub tended to be used for several generations. Later on, timber began to be used.

The church at Great Burstead (Burstead Magna) remained the parish church of the area for several centuries.

Alan Taylor.  
Adapted from "Billericay Through the Ages" – W.G. Harper.

### **How steam transport began** – Some engineering history

#### RAIL AND ROAD TRANSPORTATION:

Our President Adrian Wright has enlightened us on the operation of the local railway systems, whilst Tony Beard has done the same for the development of road transportation at recent Billericay Archaeological and Historical Society meetings. Considering the interest shown in these topics of transportation I thought it would be interesting to review how the development of steam and mechanical power for vehicles all started. It all began when an engineer combined the properties of air pressure, in the form of steam and a vacuum to lift water from a mine.

#### MINING IN BRITAIN

Once metallurgy was introduced to Britain, by the Beaker people, the pre-Roman inhabitants of Britain had exposed, by mining, many useful minerals in rocks and ores that were available from the British countryside.

The Romans wanted to conquer Britain to get access to these many mineral ores of gold, silver, lead, copper and tin available in our mines. Over geological time, well some 1400 years, to continue extracting these ores, the mines had to be dug deeper into the earth. As the mines went deeper, they encountered the presence of the water table. This caused the deep mines to become flooded.

Until the 1700s, the horse was used when extra muscle power was needed to help with tasks needing more muscle power than a human could provide. But horses could not be used to continuously pump water out of the mines.

#### EARLY INVESTIGATION IN TO AIR PRESSURE AND THE VACUUM

Scientists had been interested in the properties of air pressure since the 1600s. Every day we are subjected to the force of air pressure, although we are not aware of it. Our musculature is designed to cope with this pressure of 14 pounds per square inch on our bodies. The forces available to engineers, from air pressure, and a vacuum was shown by the Magdeburg Experiment.

During the 1600s various experiments were carried out to determine the properties of air pressure and the vacuum. In 1640 the Italian, Evangelista Torricelli, investigated air pressure and did several experiments showing the effect of air pressure on a column of mercury, leading to the design of the barometer.

In 1654 a German scientist, Otto von Guericke was experimenting with air pressure and the ability to create a vacuum. He conducted the Magdeburg Experiment using two large copper hemispheres with mating rims. They were used to demonstrate the power of atmospheric pressure. When the rims were sealed with grease and the air was pumped out of the hemispheres, the sphere contained a vacuum. The two spheres were therefore held together



by only air pressure and could not be pulled apart by teams of horses. Thus, demonstrating the force of air pressure that was available to be applied by an engineer.

In 1679 the Frenchman Denis Papin investigating steam, designed a steam digester apparatus, that trapped steam to remove fat from bone.

Based on combining previous experimental investigations into steam pressure and the vacuum, Thomas Savery, a Devonshire military engineer, met the engineering-challenge of how to design a steam engine pump that would continuously remove water from a mine. The "Savery engine" was patented in 1698.

An engine is a machine that converts energy [in this case steam] into a mechanical force [in this case to lift water]. The Savery steam engine was the first machine capable of converting thermal energy into mechanical energy.

The Steam Engine principle is based on two major properties: First, the expansion of steam in an enclosed cylinder pushing a piston, connected to a crankshaft by a connecting rod. Accurate manufacture of the piston in the cylinder and a good seal are needed to make the piston move and therefore the engine function. Secondly, the sudden condensation of steam, which creates a vacuum in the cylinder making it easier for the steam to push the piston back along the cylinder to its starting point.

Savery's low-pressure steam-pump was the first commercially available steam-powered device used to remove water from deep mines. It is recorded as the "Savery engine".

The Savery steam pump engine was a revolutionary method of pumping water, which improved mine safety, drainage and made widespread public water supply practicable.

The limitation to the Savery pump was the limit to the height that low pressure-steam could raise water. To overcome this limitation, Thomas Newcomen in 1705 engineered an atmospheric-pressure steam-engine using a beam to increase the lifting capacity of the pump to remove water from the mine. The operating principle of this new apparatus was covered by the Savery patent.

Seventy-five years later, in 1780, after working for the manufacturer Boulton maintaining steam engines, James Watt made an improvement to the steam-engine's efficiency. He separated the condenser from the main unit. I do not understand why schools claim James Watt invented the steam engine! His static design of a steam engine was replaced within 20 years by a mobile steam engine.

Early steam-engines were static machines. As knowledge of metallurgy improved then higher-pressure-steam could be used in the engineering design of steam engines. Making use of this new knowledge of metallurgy, Richard Trevithick, a Cornishman, used a high-pressure steam engine to create a mobile steam-engine, capable of pulling loaded trucks out from a mine. The world's first locomotive-hauled railway journey took place on 21 February 1804, when Trevithick's unnamed steam-locomotive hauled a train along the tramway of the Penydarren Ironworks, in Merthyr Tydfil, Wales. A drawing of the Trevithick engine appears on a British two-pound coin minted in 2004.

Due to the various engineered designs of engines produced to feed the demand for railway-locomotives, a locomotive competition was held in 1829, called the Rainhill Trials. This contest was won by George Stephenson's Rocket. Its main efficiency feature was the use of multiple tubes, to distribute the heat, to boil the water that produced the steam driving pressure to the pistons, instead of one large boiler. This greatly increased the contact area



between the heat from the fire and the water boiled to create the steam pressure to drive the pistons forcing the wheels to turn. G. Stephenson is called the "Father of the Railways". His chosen rail gauge, sometimes called "Stephenson gauge", was the basis for the 4 feet 8+1/2 inches standard gauge used by most of the world's railways. Railways had a significant impact on the Industrial Revolution and enabled people and freight to be moved about the country. Other locomotive contenders were: Puffin Billy, Sans Pareil, Royal George, and Tom Thumb in USA.

Before trains became a popular means of travel, experts had stated humans would not be able to breathe if they travelled at speeds above 20 mph. That is, despite coach travel having been available for some time, being a common, if uncomfortable, means of transport.

The steady development of the engineering design of locomotives efficiency, better metallurgy and understanding of harnessing high-pressure steam-power enabled engineers to develop faster steam trains, for pulling passenger carriages continued. In 1938, the Chief Engineer Nigel Gresley, of LNER designed the 4-6-2 streamlined steam locomotive called Mallard which on 3rd July 1938 broke the world speed record for steam locomotives at 126 mph, which still stands today.

## ROAD TRANSPORT

Contemporarily to the development of the locomotive and the railway system, was the development of compact engines to power road vehicles. Initially, they were driven by steam, to be replaced by those driven by the four-stroke-piston internal-combustion engine. Early petrol engines were developed by Otto Benz and Daimler they patented one of the first successful high-speed internal-combustion engine in 1885. They also develop a carburettor that made it possible to use petrol as fuel to drive the engine. In 1897, Herr Diesel developed an engine using the heat of compression to ignite his diesel fuel, rather than a spark as used with the petrol internal-combustion engine, to power his alternative engineered option for the design of a motor car's engine. Large Diesel engines are used today to power modern passenger-liners and cargo ships.

As the demand for road vehicles increased Henry Ford in 1899 developed the manufacturing production line system of car manufacture for his Model T-Ford.

Of particular significance to Britain, in the engineering of motor vehicles' engine design was the precision engineered internal-combustion engines of Henry ROYCE of Rolls Royce cars, 1906. Using this engineering knowledge, Rolls Royce went on to design the more powerful V-12 piston-cam MERLIN engine for powering the aeroplanes of the Second World War, particularly Spitfire, Mosquito, Lancaster, and Halifax bombers. Some other engineered engines were also available for different aircraft designs.

The early aeroplanes were initially propeller driven by piston engines, by the end of the Second World War the turbojet engine was available, engineered by Frank Whittle, in about 1937. The jet-engine employed a fan to fire out a continuous jet of hot air to provide thrust for the plane. His jet-system was an alternative to the piston-system, which had existed for over 100 years. The turbojet was used to power the British first jet airliner the Comet. Subsequent aeronautical engineering development resulted in the supersonic Concorde. Which achievement is more impressive because it had to use the technology available before its launch in 1969. Microelectronics, in the vernacular "chips", was in its early days. The transistor was only developed in 1949 and the Integrated Circuit in the 1950s.

A further alternative source of motivating power, for cars, buses and trains is the electric motor, first engineered in Britain by Michael Faraday about 1831. A practical electric train was demonstrated by a Siemens locomotive in 1879 at the Berlin Trade Fair. The first electric tramway was opened in May 1881. Electric-road-vehicles are very much in vogue these days.

This article is an engineer's personal view of the development of transportation in Britain. Any comments or observations on the article would be welcomed.

David A. Bremner

### **F.Y.I.**

The Essex Record Office present regular talks on a variety of historical subjects. Advance booking is essential. Please visit [www.essexrecordoffice.co.uk/events](http://www.essexrecordoffice.co.uk/events) to book online. Otherwise, telephone 033301 32122

Future events include:

Tuesday 9<sup>th</sup> April      ***Out of Essex: The escapes and Adventures of Kitty Marshall and her friendship with Mrs Pankhurst***

Saturday 27<sup>th</sup> April      ***"Welcome to Essex": remembering the USAAF***

Tuesday 7<sup>th</sup> May      ***Beach Hut People***

Saturday 25<sup>th</sup> May      ***The Printed Maps of Essex 1576–1805***



Tuesday 4<sup>th</sup> June      ***"That Precious Legacy": Ralph Vaughan Williams and Essex Folksong***

Tuesday 2<sup>nd</sup> July      ***One Square Mile Project, St John's Green School, Colchester***

Tuesday 3<sup>rd</sup> Sept.      ***A View from the Castle: The Journals of E. J. Rudsdale 1920-1951***